

CHAMPION
CUTTING TOOL CORP

2019

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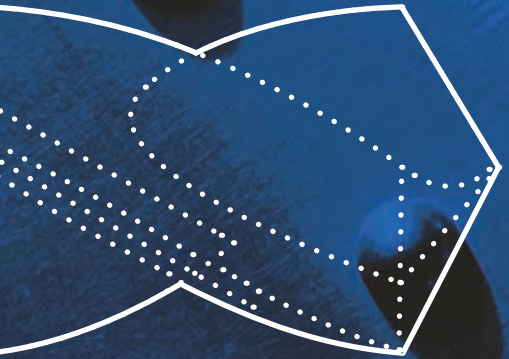
Innovative Cutting Tool Solutions





Innovative Cutting Tool Solutions

With over 100 years of market leading experience, Champion Cutting Tool Corp has been at the forefront of cutting tool knowledge and design. Innovative solutions provide tools that increase productivity and deliver exceptional results. Our flagship brands include Champion, Brute Platinum, ProLine and RotoBrute which are engineered to last longer, cut more holes and deliver better work-piece finish. We strive to offer the highest quality of customer care by providing personal technical support, product training, high order fill-rates and same-day shipping. Our distribution network serves cutting tool users in all 50 states in the U.S. Canada, Central and South America with a focus on manufacturing, steel fabrication, construction, and welding.



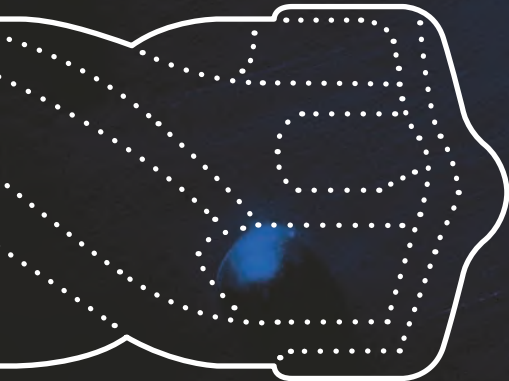
Champion cutting tools are as sophisticated as the machines that run them. Material selection, metallurgy and tool geometry are engineered to give you dependable performance and long life. Twist drills are manufactured to exacting standards that yield the lowest cost per hole; taps that provide you with close tolerance threads in high speed tapping heads; titanium nitride coated carbide burs for long life and smooth finish; reamers including bridge reamers, hand reamers, chucking reamers and chassis reamers for aligning and enlarging holes.



The Brute product range is heavy duty, cutting faster with increased durability. Brute Platinum drills, taps, reamers, countersinks and end mills are engineered for tough materials and environments. Champion's Brute drill was developed to outperform costly cobalt drills. The combination of quality raw materials, geometries and surface treatments provide consistent high quality for repeatable high performance.



RotoBrute is the quick and easy hole-making system for cutting large diameter holes in structural steel beams and plate. The RotoBrute drilling system features a complete line of magnetic drill presses and high-speed steel and carbide tipped annular cutters, engineered to drill large diameter holes in structural steel from 7/16" to 4" diameter.



Champion's ProLine includes over 500 sizes of hammer bits, masonry drills, diamond hole-cutters, core drills and steel chisels for the professional who needs to quickly penetrate a variety of materials including steel, concrete, wood and non-ferrous abrasive materials.

Your Productivity & Service Partner

CHAMPION
CUTTING TOOL CORP

INDUSTRY LEADER

Our broad range of industrial quality products deliver customer solutions in virtually every industry. An experienced management team with decades of industry expertise continues to execute the vision of the Company's founders.

DEDICATED CUSTOMER SERVICE

Our passionate team goes the extra mile to provide outstanding customer service. Knowledgeable cutting tool experts trained to answer product and application questions ensures our customers select the proper tool to meet their needs. Historical order fill-rates of 99% coupled with the same-day shipping results in a positive customer experience.

MERCHANDISING SOLUTIONS

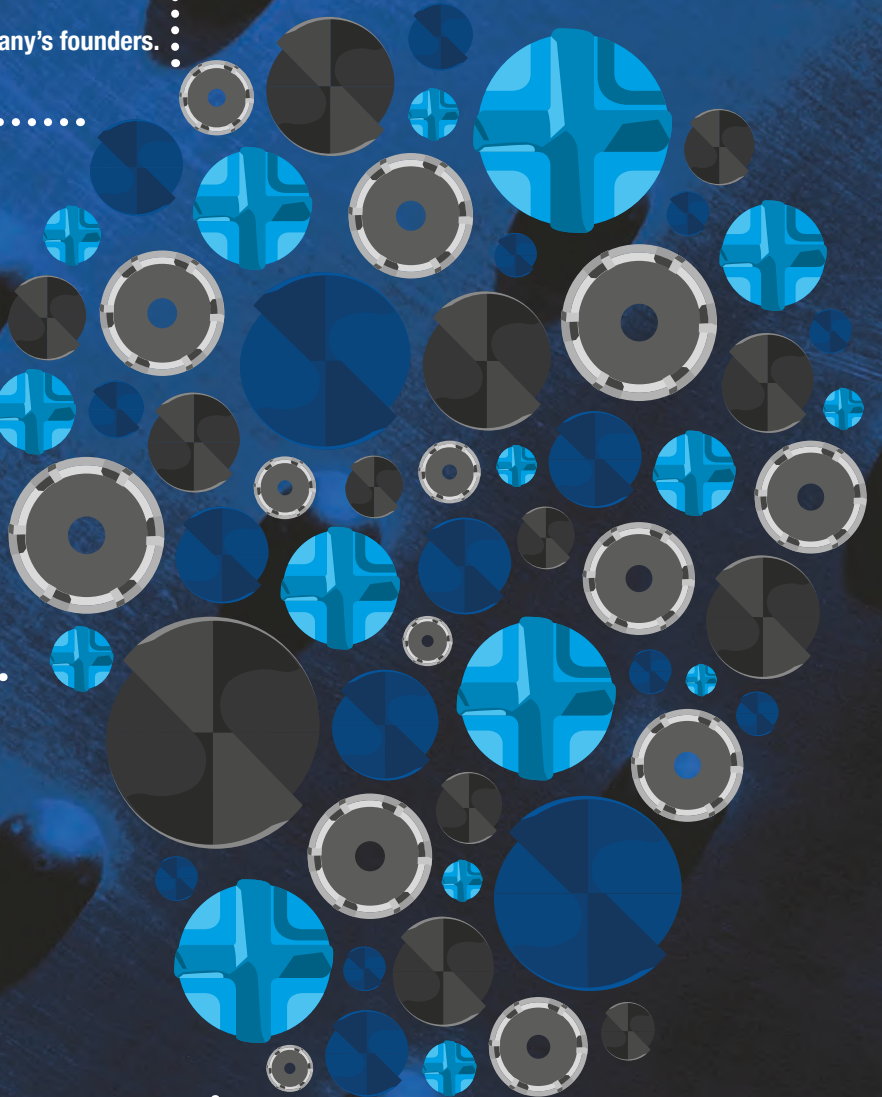
In-store merchandising solutions to ensure cutting tools are organized and attractive. Display modules and signage designed to enhance your showroom regardless of space limitations. Tap into our expertise and we will help mix and match the right cutting tool modules to cater to the professionals, industries, markets or trades you serve.

WEB TECHNICAL SUPPORT

Easy-to-find links to product information, technical documentation, instructional videos, product literature, comprehensive list of frequently asked questions and product documentation.

INNOVATION

Providing tools that increase productivity and deliver exceptional results is what drives our team. Consistent flow of innovative, cutting edge products helps Champion lead the way by saving our customers time and money.





DRILLS

Industrial quality consistently measuring up to the highest standards. Available in high-speed steel, cobalt and carbide suit the application needed. From #80 micro-drills which are the width of a hair to 3-1/2" taper shank drills – all are designed for generating the lowest cost per hole.



STEP DRILLS

Titanium nitride coated, hex shank, split point, two-flute step drills provide fast accurate drilling of multiple diameters with one cutting tool. Excellent in electrical, plumbing and professional trades.



REAMERS

Align, de-bur and enlarge holes with an extensive range of bridge reamers, car reamers, adjustable blade reamers and chucking reamers.



CARBIDE TIPPED HOLE CUTTERS

The best method for drilling holes in 1/8" sheet metal or steel plate up to 1" thick. CT3, CT5 and CT7 hole cutters give you quick, clean, bur-free holes in seconds.



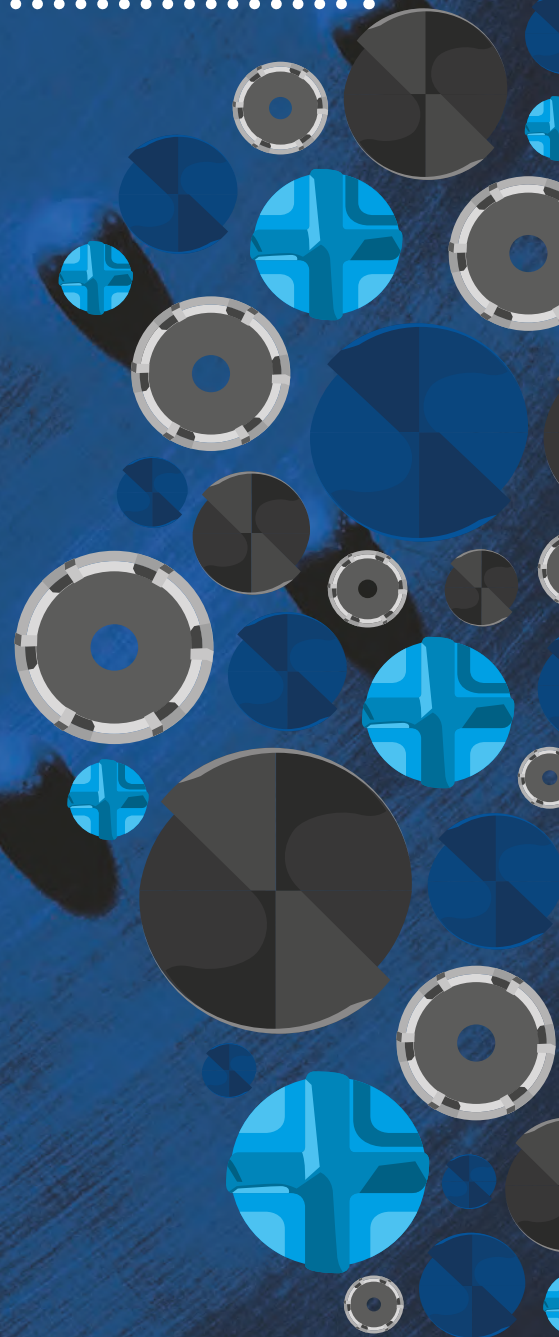
BURS

Industrial grade, carbide burs for industries from aerospace to automotive, transportation, defense, and welding industries. Over 250 sizes of double-cut, long, miniature burs, and bur kits.



COUNTERSINKS

Zero flute, single flute, and three flute countersinks for fixed and portable countersinking, chamfering and de-burring.



Product Overview

CHAMPION
CUTTING TOOL CORP

THREADING TOOLS

New XLT Tapper power tapping system for high production threading of holes. Perfect complement to our heavy duty XL22 taps.



END MILLS

Full range of end mills in HSS, cobalt, and solid carbide end mills for machining in Bridgeport-type or CNC milling machines.



MAGNETIC DRILL PRESSES

The RotoBrute system is the quickest method for drilling large diameter holes. New SB35 SmartBrute Automatic Magnetic Drill for consistent drilling and increased productivity on the job.



ANNULAR CUTTERS

RotoBrute carbide tipped and high-speed steel annular cutters are the choice of steel fabricators when drilling large diameter holes in steel in structural steel beams, plate, in the shop or in the field.



MASONRY DRILLS AND CHISELS

Over 500 sizes of hammer bits and steel chisels including SDS Plus, SDS-Max, spline, core, and PTC3 tile drills. New enhanced PTC3 works wet or dry when drilling the hardest of tiles.



SETS

Drill Sets, Tap & Die Sets, Bur Kits, Reamer Sets, S&D Sets – Champion offers an array of sets for the mechanical, electrical and professional trades.



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NEW

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Proline Masonry Drills and Hammer Chisels

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CHAMPION
BRUTE PLATINUM

Drill Sets



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CHAMPION

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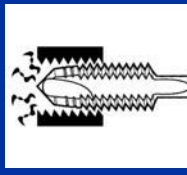


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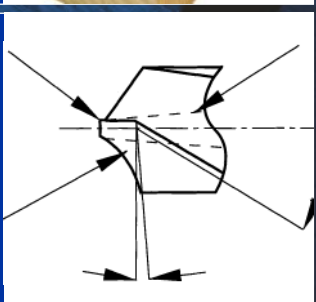


CHAMPION

**Technical
Usage Tips
Material Applications
Speeds, Feeds & Dimensions**



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Jobber Drills

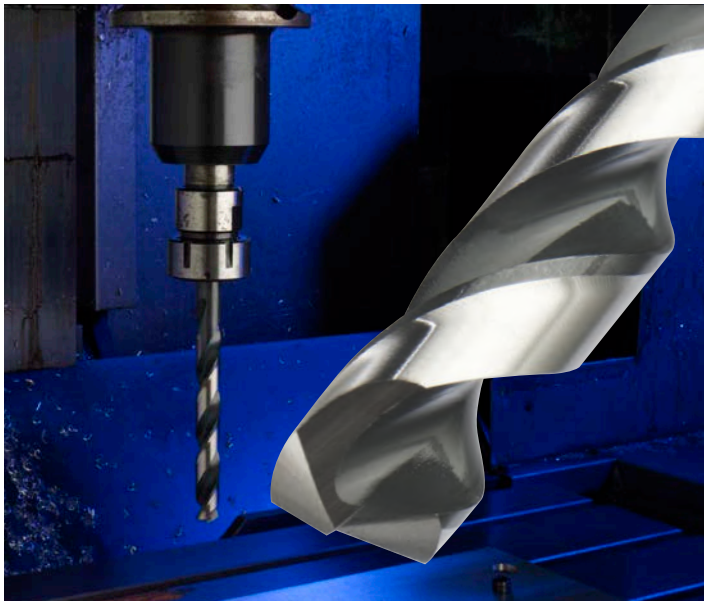
List No. XL5

Straight Shank / Heavy Duty / Black & Bright Finish / 135° Split Point / NOMO® Surface Treatment / HSS



Description: Unique web geometry, especially useful in portable drilling of stainless steel, titanium alloys, and other hard to drill materials.

Application: Steel erection, mining, heavy construction. Used in a wide range of manufacturing plants, vehicle, railway and dockyard maintenance.



Brute Platinum XL5 Heavy Duty Jobber Drills

Field tests have proven Brute Platinum XL5 drills penetrate faster than cobalt. Users state lower fatigue levels, since less force is required to drill. Less breakage is also reported due to its unique “toughness: hardness” ratio, enabling them to flex when cobalt drills chip or snap. Precision ground 135° split point eliminates the need for pilot hole drilling. Prevents “walking” and bites right into #300 and #400 series stainless steels.



Brute Platinum XL5 Jobber Drill Sets - see pages 134 & 135 for the full range

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL5-1/16** | .0625 | 7/8 | 1-7/8 |
| XL5-52 | .0635 | 7/8 | 1-7/8 |
| XL5-51 | .0670 | 1 | 2 |
| XL5-50 | .0700 | 1 | 2 |
| XL5-49 | .0730 | 1 | 2 |
| XL5-48 | .0760 | 1 | 2 |
| XL5-5/64** | .0781 | 1 | 2 |
| XL5-47 | .0785 | 1 | 2 |
| XL5-46 | .0810 | 1-1/8 | 2-1/8 |
| XL5-45 | .0820 | 1-1/8 | 2-1/8 |
| XL5-44 | .0860 | 1-1/8 | 2-1/8 |
| XL5-43 | .0890 | 1-1/4 | 2-1/4 |
| XL5-42 | .0935 | 1-1/4 | 2-1/4 |
| XL5-3/32** | .0938 | 1-1/4 | 2-1/4 |
| XL5-41 | .0960 | 1-3/8 | 2-3/8 |
| XL5-40 | .0980 | 1-3/8 | 2-3/8 |
| XL5-39 | .0995 | 1-3/8 | 2-3/8 |
| XL5-38 | .1015 | 1-7/16 | 2-1/2 |
| XL5-37 | .1040 | 1-7/16 | 2-1/2 |
| XL5-36† | .1065 | 1-7/16 | 2-1/2 |
| XL5-7/64** | .1094 | 1-1/2 | 2-5/8 |
| XL5-35 | .1100 | 1-1/2 | 2-5/8 |
| XL5-34 | .1110 | 1-1/2 | 2-5/8 |
| XL5-33 | .1130 | 1-1/2 | 2-5/8 |
| XL5-32 | .1160 | 1-5/8 | 2-3/4 |
| XL5-31 | .1200 | 1-5/8 | 2-3/4 |
| XL5-1/8** | .1250 | 1-5/8 | 2-3/4 |
| XL5-30 | .1285 | 1-5/8 | 2-3/4 |
| XL5-29† | .1360 | 1-3/4 | 2-7/8 |
| XL5-28 | .1405 | 1-3/4 | 2-7/8 |
| XL5-9/64** | .1406 | 1-3/4 | 2-7/8 |
| XL5-27 | .1440 | 1-7/8 | 3 |
| XL5-26 | .1470 | 1-7/8 | 3 |
| XL5-25† | .1495 | 1-7/8 | 3 |
| XL5-24 | .1520 | 2 | 3-1/8 |
| XL5-23 | .1540 | 2 | 3-1/8 |
| XL5-5/32** | .1562 | 2 | 3-1/8 |
| XL5-22 | .1570 | 2 | 3-1/8 |
| XL5-21† | .1590 | 2-1/8 | 3-1/4 |
| XL5-20 | .1610 | 2-1/8 | 3-1/4 |
| XL5-19 | .1660 | 2-1/8 | 3-1/4 |
| XL5-18 | .1695 | 2-1/8 | 3-1/4 |
| XL5-11/64* | .1719 | 2-1/8 | 3-1/4 |
| XL5-17 | .1730 | 2-3/16 | 3-3/8 |
| XL5-16† | .1770 | 2-3/16 | 3-3/8 |
| XL5-15 | .1800 | 2-3/16 | 3-3/8 |
| XL5-14 | .1820 | 2-3/16 | 3-3/8 |



List No. XL5 continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL5-13 | .1850 | 2-5/16 | 3-1/2 |
| XL5-3/16* | .1875 | 2-5/16 | 3-1/2 |
| XL5-12 | .1890 | 2-5/16 | 3-1/2 |
| XL5-11 | .1910 | 2-5/16 | 3-1/2 |
| XL5-10 | .1935 | 2-7/16 | 3-5/8 |
| XL5-9 | .1960 | 2-7/16 | 3-5/8 |
| XL5-8 | .1990 | 2-7/16 | 3-5/8 |
| XL5-7† | .2010 | 2-7/16 | 3-5/8 |
| XL5-13/64* | .2031 | 2-7/16 | 3-5/8 |
| XL5-6 | .2040 | 2-1/2 | 3-3/4 |
| XL5-5 | .2055 | 2-1/2 | 3-3/4 |
| XL5-4 | .2090 | 2-1/2 | 3-3/4 |
| XL5-3 | .2130 | 2-1/2 | 3-3/4 |
| XL5-7/32* | .2188 | 2-1/2 | 3-3/4 |
| XL5-2 | .2210 | 2-5/8 | 3-7/8 |
| XL5-1 | .2280 | 2-5/8 | 3-7/8 |
| XL5-A | .2340 | 2-5/8 | 3-7/8 |
| XL5-15/64* | .2344 | 2-5/8 | 3-7/8 |
| XL5-B | .2380 | 2-3/4 | 4 |
| XL5-C | .2420 | 2-3/4 | 4 |
| XL5-D | .2460 | 2-3/4 | 4 |
| XL5-1/4/E* | .2500 | 2-3/4 | 4 |
| XL5-F† | .2570 | 2-7/8 | 4-1/8 |
| XL5-G | .2610 | 2-7/8 | 4-1/8 |
| XL5-17/64* | .2656 | 2-7/8 | 4-1/8 |
| XL5-H | .2660 | 2-7/8 | 4-1/8 |
| XL5-I | .2720 | 2-7/8 | 4-1/8 |
| XL5-J | .2770 | 2-7/8 | 4-1/8 |
| XL5-K | .2810 | 2-15/16 | 4-1/4 |
| XL5-9/32* | .2812 | 2-15/16 | 4-1/4 |
| XL5-L | .2900 | 2-15/16 | 4-1/4 |
| XL5-M | .2950 | 3-1/16 | 4-3/8 |
| XL5-19/64* | .2969 | 3-1/16 | 4-3/8 |
| XL5-N | .3020 | 3-1/16 | 4-3/8 |
| XL5-5/16*† | .3125 | 3-3/16 | 4-1/2 |
| XL5-O | .3160 | 3-3/16 | 4-1/2 |
| XL5-P | .3230 | 3-5/16 | 4-5/8 |
| XL5-21/64* | .3281 | 3-5/16 | 4-5/8 |
| XL5-Q | .3320 | 3-7/16 | 4-3/4 |
| XL5-R | .3390 | 3-7/16 | 4-3/4 |
| XL5-11/32* | .3438 | 3-7/16 | 4-3/4 |
| XL5-S | .3480 | 3-1/2 | 4-7/8 |
| XL5-T | .3580 | 3-1/2 | 4-7/8 |
| XL5-23/64* | .3594 | 3-1/2 | 4-7/8 |
| XL5-U† | .3680 | 3-5/8 | 5 |
| XL5-3/8 | .3750 | 3-5/8 | 5 |
| XL5-V | .3220 | 3-5/8 | 5 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL5-W | .3860 | 3-3/4 | 5-1/8 |
| XL5-25/64* | .3906 | 3-3/4 | 5-1/8 |
| XL5-X | .3970 | 3-3/4 | 5-1/8 |
| XL5-Y | .4040 | 3-7/8 | 5-1/4 |
| XL5-13/32* | .4062 | 3-7/8 | 5-1/4 |
| XL5-Z | .4130 | 3-7/8 | 5-1/4 |
| XL5-27/64*† | .4219 | 3-15/16 | 5-3/8 |
| XL5-7/16* | .4375 | 4-1/16 | 5-1/2 |
| XL5-29/64* | .4531 | 4-3/16 | 5-5/8 |
| XL5-15/32* | .4688 | 4-5/16 | 5-3/4 |
| XL5-31/64* | .4844 | 4-3/8 | 5-7/8 |
| XL5-1/2* | .5000 | 4-1/2 | 6 |



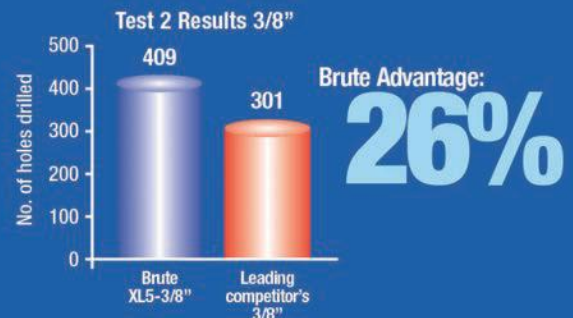
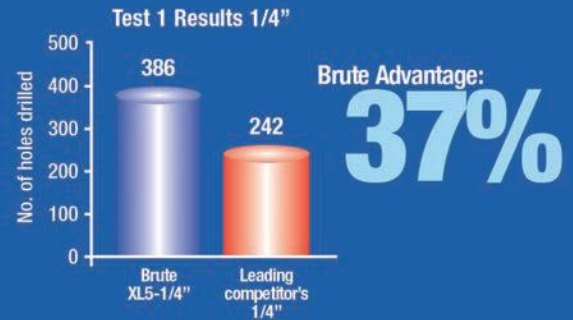
** Available in iPac twin pack
 * Available in iPac
 † Available in iPac combination drill and tap pack (308 Taps)

Brute Drill Performance Analysis

XL5 Jobber Drill

Test parameters

- Material Drilled: 4340 Alloy Steel, 1/2" thick (1/4" drills), 3/4" thick (3/8" drills)
- Machinery: Fixed CNC Drilling Machine, 458 rpm, 3.2 inches feed/minute



Observations: Competitor's drill walked on surface of material, while Brute drill bit right into steel.



BlackGold® Jobber Drills

List No. XGO

Straight Shank / Heavy Duty / Black & Gold Finish / 135° Split Point / HSS



Description: Outperform ordinary jobber drills by penetrating faster and lasting longer. The functional black and gold surface treatment holds lubricant for smoother drilling. XGO jobbers meet NAS 907B aircraft specifications and are also available with 3/8" shank (see XG38 series).



Application: Recommended for drilling high tensile alloy steels & stainless steels. Very popular in truck and trailer manufacturing.



See XGO drill sets on pages 134 & 135

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XGO-60*** | .0400 | 11/16 | 1-5/8 |
| XGO-59*** | .0410 | 11/16 | 1-5/8 |
| XGO-58*** | .0420 | 11/16 | 1-5/8 |
| XGO-57*** | .0430 | 3/4 | 1-3/4 |
| XGO-56*** | .0465 | 3/4 | 1-3/4 |
| XGO-55*** | .0520 | 7/8 | 1-7/8 |
| XGO-54*** | .0550 | 7/8 | 1-7/8 |
| XGO-53*** | .0595 | 7/8 | 1-7/8 |
| XGO-1/16** | .0625 | 7/8 | 1-7/8 |
| XGO-52 | .0635 | 7/8 | 1-7/8 |
| XGO-51 | .0670 | 1 | 2 |
| XGO-50 | .0700 | 1 | 2 |
| XGO-49 | .0730 | 1 | 2 |
| XGO-48 | .0760 | 1 | 2 |
| XGO-5/64** | .0781 | 1 | 2 |
| XGO-47 | .0785 | 1 | 2 |
| XGO-46 | .0810 | 1-1/8 | 2-1/8 |
| XGO-45 | .0820 | 1-1/8 | 2-1/8 |
| XGO-44 | .0860 | 1-1/8 | 2-1/8 |
| XGO-43 | .0890 | 1-1/4 | 2-1/4 |
| XGO-42 | .0935 | 1-1/4 | 2-1/4 |
| XGO-3/32** | .0938 | 1-1/4 | 2-1/4 |
| XGO-41 | .0960 | 1-3/8 | 2-3/8 |
| XGO-40 | .0980 | 1-3/8 | 2-3/8 |
| XGO-39 | .0995 | 1-3/8 | 2-3/8 |
| XGO-38 | .1015 | 1-7/16 | 2-1/2 |
| XGO-37 | .1040 | 1-7/16 | 2-1/2 |

*** No split point

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XGO-36† | .1065 | 1-7/16 | 2-1/2 |
| XGO-7/64** | .1094 | 1-1/2 | 2-5/8 |
| XGO-35 | .1100 | 1-1/2 | 2-5/8 |
| XGO-34 | .1110 | 1-1/2 | 2-5/8 |
| XGO-33 | .1130 | 1-1/2 | 2-5/8 |
| XGO-32 | .1160 | 1-5/8 | 2-3/4 |
| XGO-31 | .1200 | 1-5/8 | 2-3/4 |
| XGO-1/8** | .1250 | 1-5/8 | 2-3/4 |
| XGO-30 | .1285 | 1-5/8 | 2-3/4 |
| XGO-29† | .1360 | 1-3/4 | 2-7/8 |
| XGO-28 | .1405 | 1-3/4 | 2-7/8 |
| XGO-9/64** | .1406 | 1-3/4 | 2-7/8 |
| XGO-27 | .1440 | 1-7/8 | 3 |
| XGO-26 | .1470 | 1-7/8 | 3 |
| XGO-25† | .1495 | 1-7/8 | 3 |
| XGO-24 | .1520 | 2 | 3-1/8 |
| XGO-23 | .1540 | 2 | 3-1/8 |
| XGO-5/32** | .1562 | 2 | 3-1/8 |
| XGO-22 | .1570 | 2 | 3-1/8 |
| XGO-21† | .1590 | 2-1/8 | 3-1/4 |
| XGO-20 | .1610 | 2-1/8 | 3-1/4 |
| XGO-19 | .1660 | 2-1/8 | 3-1/4 |
| XGO-18 | .1695 | 2-1/8 | 3-1/4 |
| XGO-11/64* | .1719 | 2-1/8 | 3-1/4 |
| XGO-17 | .1730 | 2-3/16 | 3-3/8 |
| XGO-16† | .1770 | 2-3/16 | 3-3/8 |
| XGO-15 | .1800 | 2-3/16 | 3-3/8 |
| XGO-14 | .1820 | 2-3/16 | 3-3/8 |
| XGO-13 | .1850 | 2-5/16 | 3-1/2 |
| XGO-3/16* | .1875 | 2-5/16 | 3-1/2 |
| XGO-12 | .1890 | 2-5/16 | 3-1/2 |
| XGO-11 | .1910 | 2-5/16 | 3-1/2 |
| XGO-10 | .1935 | 2-7/16 | 3-5/8 |
| XGO-9 | .1960 | 2-7/16 | 3-5/8 |
| XGO-8 | .1990 | 2-7/16 | 3-5/8 |
| XGO-7† | .2010 | 2-7/16 | 3-5/8 |
| XGO-13/64* | .2031 | 2-7/16 | 3-5/8 |
| XGO-6 | .2040 | 2-1/2 | 2-3/4 |
| XGO-5 | .2055 | 2-1/2 | 2-3/4 |
| XGO-4 | .2090 | 2-1/2 | 2-3/4 |
| XGO-3 | .2130 | 2-1/2 | 2-3/4 |
| XGO-7/32* | .2188 | 2-1/2 | 2-3/4 |
| XGO-2 | .2210 | 2-5/8 | 3-7/8 |
| XGO-1 | .2280 | 2-5/8 | 3-7/8 |
| XGO-A | .2340 | 2-5/8 | 3-7/8 |
| XGO-15/64* | .2344 | 2-5/8 | 3-7/8 |
| XGO-B | .2380 | 2-3/4 | 4 |

** Available in iPac twin pack

* Available in iPac

† Available in iPac combination drill and tap pack (308 Taps)



CHAMPION

List No. XGO continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XGO-C | .2420 | 2-3/4 | 4 |
| XGO-D | .2460 | 2-3/4 | 4 |
| XGO-1/4/E* | .2500 | 2-3/4 | 4 |
| XGO-F | .2570 | 2-7/8 | 4-1/8 |
| XGO-G | .2610 | 2-7/8 | 4-1/8 |
| XGO-17/64* | .2656 | 2-7/8 | 4-1/8 |
| XGO-H | .2660 | 2-7/8 | 4-1/8 |
| XGO-I | .2720 | 2-7/8 | 4-1/8 |
| XGO-J | .2770 | 2-7/8 | 4-1/8 |
| XGO-K | .2810 | 2-15/16 | 4-1/4 |
| XGO-9/32* | .2812 | 2-15/16 | 4-1/4 |
| XGO-L | .2900 | 2-15/16 | 4-1/4 |
| XGO-M | .2950 | 3-1/16 | 4-3/8 |
| XGO-19/64* | .2969 | 3-1/16 | 4-3/8 |
| XGO-N | .3020 | 3-1/16 | 4-3/8 |
| XGO-5/16*† | .3125 | 3-3/16 | 4-1/2 |
| XGO-O | .3160 | 3-3/16 | 4-1/2 |
| XGO-P | .3230 | 3-5/15 | 4-5/8 |
| XGO-21/64* | .3281 | 3-5/16 | 4-5/8 |
| XGO-Q | .3320 | 3-7/16 | 4-3/4 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XGO-R | .3390 | 3-7/16 | 4-3/4 |
| XGO-11/32* | .3438 | 3-7/16 | 4-3/4 |
| XGO-S | .3480 | 3-1/2 | 4-7/8 |
| XGO-T | .3580 | 3-1/2 | 4-7/8 |
| XGO-23/64* | .3594 | 3-1/2 | 4-7/8 |
| XGO-U† | .3680 | 3-5/8 | 5 |
| XGO-3/8 | .3750 | 3-5/8 | 5 |
| XGO-V | .3770 | 3-5/8 | 5 |
| XGO-W | .3860 | 3-3/4 | 5-1/8 |
| XGO-25/64* | .3906 | 3-3/4 | 5-1/8 |
| XGO-X | .3970 | 3-3/4 | 5-1/8 |
| XGO-Y | .4040 | 3-7/8 | 5-1/4 |
| XGO-13/32* | .4062 | 3-7/8 | 5-1/4 |
| XGO-Z | .4130 | 3-7/8 | 5-1/4 |
| XGO-27/64*† | .4219 | 3-15/16 | 5-3/8 |
| XGO-7/16* | .4375 | 4-1/16 | 5-1/2 |
| XGO-29/64* | .4531 | 4-3/16 | 5-5/8 |
| XGO-15/32* | .4688 | 4-5/16 | 5-3/4 |
| XGO-31/64* | .4844 | 4-3/8 | 5-7/8 |
| XGO-1/2* | .5000 | 4-1/2 | 6 |

CHAMPION

Titanium Nitride Coated Jobber Drills

List No. 700T

Straight Shank / 135° Split Point* / HSS



Description: Titanium Nitride coating provides a surface hardness in excess of 80 Rockwell C scale, protecting the cutting edge from abrasion, and a protective shield against damaging heat generated at the cutting edge. The benefit is prolonged sharpness and durability of drill, allowing substantially higher speed and feed rates.

Application: Ideal for low to high carbon steels, alloyed steels, steel drop forgings, grey cast iron, titanium, stainless steel, nimonic alloys, manganese, spring steels and armor plate.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 700T-1/16 | .0625 | 7/8 | 1-7/8 |
| 700T-5/64 | .0781 | 1 | 2 |
| 700T-3/32 | .0938 | 1-1/4 | 2-1/4 |
| 700T-40 | .0980 | 1-3/8 | 2-3/8 |
| 700T-39 | .0995 | 1-3/8 | 2-3/8 |
| 700T-38 | .1015 | 1-7/16 | 2-1/2 |
| 700T-37 | .1040 | 1-7/16 | 2-1/2 |
| 700T-36 | .1065 | 1-7/16 | 2-1/2 |
| 700T-7/64 | .1094 | 1-1/2 | 2-5/8 |
| 700T-35 | .1100 | 1-1/2 | 2-5/8 |
| 700T-34 | .1110 | 1-1/2 | 2-5/8 |
| 700T-33 | .1130 | 1-1/2 | 2-5/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 700T-32 | .1160 | 1-5/8 | 2-3/4 |
| 700T-31 | .1200 | 1-5/8 | 2-3/4 |
| 700T-1/8 | .1250 | 1-5/8 | 2-3/4 |
| 700T-30 | .1285 | 1-5/8 | 2-3/4 |
| 700T-29 | .1360 | 1-3/4 | 2-7/8 |
| 700T-28 | .1405 | 1-3/4 | 2-7/8 |
| 700T-9/64 | .1406 | 1-3/4 | 2-7/8 |
| 700T-27 | .1440 | 1-7/8 | 3 |
| 700T-26 | .1470 | 1-7/8 | 3 |
| 700T-25 | .1495 | 1-7/8 | 3 |
| 700T-24 | .1520 | 2 | 3-1/8 |
| 700T-23 | .1540 | 2 | 3-1/8 |

Note: Wire gauge sizes 1 through 40 are all 118° point.



List No. 700T continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 700T-5/32 | .1562 | 2 | 3-1/8 |
| 700T-22 | .1570 | 2 | 3-1/8 |
| 700T-21 | .1590 | 2-1/8 | 3-1/4 |
| 700T-20 | .1610 | 2-1/8 | 3-1/4 |
| 700T-19 | .1660 | 2-1/8 | 3-1/4 |
| 700T-18 | .1695 | 2-1/8 | 3-1/4 |
| 700T-11/64 | .1719 | 2-1/8 | 3-1/4 |
| 700T-17 | .1730 | 2-3/16 | 3-3/8 |
| 700T-16 | .1770 | 2-3/16 | 3-3/8 |
| 700T-15 | .1800 | 2-3/16 | 3-3/8 |
| 700T-14 | .1820 | 2-3/16 | 3-3/8 |
| 700T-13 | .1850 | 2-5/16 | 3-1/2 |
| 700T-3/16 | .1875 | 2-5/16 | 3-1/2 |
| 700T-12 | .1890 | 2-5/16 | 3-1/2 |
| 700T-11 | .1910 | 2-5/16 | 3-1/2 |
| 700T-10 | .1935 | 2-7/16 | 3-5/8 |
| 700T-9 | .1960 | 2-7/16 | 3-5/8 |
| 700T-8 | .1990 | 2-7/16 | 3-5/8 |
| 700T-7 | .2010 | 2-7/16 | 3-5/8 |
| 700T-13/64 | .2031 | 2-7/16 | 3-5/8 |
| 700T-6 | .2040 | 2-1/2 | 3-3/4 |
| 700T-5 | .2055 | 2-1/2 | 3-3/4 |
| 700T-4 | .2090 | 2-1/2 | 3-3/4 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 700T-3 | .2130 | 2-1/2 | 3-3/4 |
| 700T-7/32 | .2188 | 2-1/2 | 3-3/4 |
| 700T-2 | .2210 | 2-5/8 | 3-7/8 |
| 700T-1 | .2280 | 2-5/8 | 3-7/8 |
| 700T-15/64 | .2344 | 2-5/8 | 3-7/8 |
| 700T-1/4 | .2500 | 2-3/4 | 4 |
| 700T-17/64 | .2656 | 2-7/8 | 4-1/8 |
| 700T-9/32 | .2812 | 2-15/16 | 4-1/4 |
| 700T-19/64 | .2969 | 3-1/16 | 4-3/8 |
| 700T-5/16 | .3125 | 3-3/16 | 4-1/2 |
| 700T-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 700T-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 700T-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 700T-3/8 | .3750 | 3-5/8 | 5 |
| 700T-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 700T-13/32 | .4062 | 3-7/8 | 5-1/4 |
| 700T-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 700T-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 700T-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 700T-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 700T-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 700T-1/2 | .5000 | 4-1/2 | 6 |

Note: Wire gauge sizes 1 through 40 are all 118° point.



Heavy Duty Jobber Drills

List No. 705SP

Type NAS907-B / Straight Shank /
135° Split Point / Steam Oxide Treated / HSS



Description: Heavy duty 135° split point for self centering and quick penetration. Heavy duty web geometry provides added rigidity.

Application: Recommended for drilling high tensile martensitic stainless steels, titanium alloys and hard steel. Very popular in truck and trailer manufacturing.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705SP-60 | .0400 | 11/16 | 1-5/8 |
| 705SP-59 | .0410 | 11/16 | 1-5/8 |
| 705SP-58 | .0420 | 11/16 | 1-5/8 |
| 705SP-57 | .0430 | 3/4 | 1-3/4 |
| 705SP-56 | .0465 | 3/4 | 1-3/4 |
| 705SP-3/64 | .0469 | 3/4 | 1-3/4 |
| 705SP-55 | .0520 | 7/8 | 1-7/8 |
| 705SP-54 | .0550 | 7/8 | 1-7/8 |
| 705SP-53 | .0595 | 7/8 | 1-7/8 |
| 705SP-1/16 | .0625 | 7/8 | 1-7/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705SP-52 | .0635 | 7/8 | 1-7/8 |
| 705SP-51 | .0670 | 1 | 2 |
| 705SP-50 | .0700 | 1 | 2 |
| 705SP-49 | .0730 | 1 | 2 |
| 705SP-48 | .0760 | 1 | 2 |
| 705SP-5/64 | .0781 | 1 | 2 |
| 705SP-47 | .0785 | 1 | 2 |
| 705SP-46 | .0810 | 1-1/8 | 2-1/8 |
| 705SP-45 | .0820 | 1-1/8 | 2-1/8 |
| 705SP-44 | .0860 | 1-1/8 | 2-1/8 |

Note: Wire gauge sizes 53 through 60 are not split point.



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705SP-43 | .0890 | 1-1/4 | 2-1/4 |
| 705SP-42 | .0935 | 1-1/4 | 2-1/4 |
| 705SP-3/32 | .0938 | 1-1/4 | 2-1/4 |
| 705SP-41 | .0960 | 1-3/8 | 2-3/8 |
| 705SP-40 | .0980 | 1-3/8 | 2-3/8 |
| 705SP-39 | .0995 | 1-3/8 | 2-3/8 |
| 705SP-38 | .1015 | 1-7/16 | 2-1/2 |
| 705SP-37 | .1040 | 1-7/16 | 2-1/2 |
| 705SP-36 | .1065 | 1-7/16 | 2-1/2 |
| 705SP-7/64 | .1094 | 1-1/2 | 2-5/8 |
| 705SP-35 | .1100 | 1-1/2 | 2-5/8 |
| 705SP-34 | .1110 | 1-1/2 | 2-5/8 |
| 705SP-33 | .1130 | 1-1/2 | 2-5/8 |
| 705SP-32 | .1160 | 1-5/8 | 2-3/4 |
| 705SP-31 | .1200 | 1-5/8 | 2-3/4 |
| 705SP-1/8 | .1250 | 1-5/8 | 2-3/4 |
| 705SP-30 | .1285 | 1-5/8 | 2-3/4 |
| 705SP-29 | .1360 | 1-3/4 | 2-7/8 |
| 705SP-28 | .1405 | 1-3/4 | 2-7/8 |
| 705SP-9/64 | .1406 | 1-3/4 | 2-7/8 |
| 705SP-27 | .1440 | 1-7/8 | 3 |
| 705SP-26 | .1470 | 1-7/8 | 3 |
| 705SP-25 | .1495 | 1-7/8 | 3 |
| 705SP-24 | .1520 | 2 | 3-1/8 |
| 705SP-23 | .1540 | 2 | 3-1/8 |
| 705SP-5/32 | .1562 | 2 | 3-1/8 |
| 705SP-22 | .1570 | 2 | 3-1/8 |
| 705SP-21 | .1590 | 2-1/8 | 3-1/4 |
| 705SP-20 | .1610 | 2-1/8 | 3-1/4 |
| 705SP-19 | .1660 | 2-1/8 | 3-1/4 |
| 705SP-18 | .1695 | 2-1/8 | 3-1/4 |
| 705SP-11/64 | .1719 | 2-1/8 | 3-1/4 |
| 705SP-17 | .1730 | 2-3/16 | 3-3/8 |
| 705SP-16 | .1770 | 2-3/16 | 3-3/8 |
| 705SP-15 | .1800 | 2-3/16 | 3-3/8 |
| 705SP-14 | .1820 | 2-3/16 | 3-3/8 |
| 705SP-13 | .1850 | 2-5/16 | 3-1/2 |
| 705SP-3/16 | .1875 | 2-5/16 | 3-1/2 |
| 705SP-12 | .1890 | 2-5/16 | 3-1/2 |
| 705SP-11 | .1910 | 2-5/16 | 3-1/2 |
| 705SP-10 | .1935 | 2-7/16 | 3-5/8 |
| 705SP-9 | .1960 | 2-7/16 | 3-5/8 |
| 705SP-8 | .1990 | 2-7/16 | 3-5/8 |
| 705SP-7 | .2010 | 2-7/16 | 3-5/8 |
| 705SP-13/64 | .2031 | 2-7/16 | 3-5/8 |
| 705SP-6 | .2040 | 2-1/2 | 3-3/4 |
| 705SP-5 | .2055 | 2-1/2 | 3-3/4 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705SP-4 | .2090 | 2-1/2 | 3-3/4 |
| 705SP-3 | .2130 | 2-1/2 | 3-3/4 |
| 705SP-7/32 | .2188 | 2-1/2 | 3-3/4 |
| 705SP-2 | .2210 | 2-5/8 | 3-7/8 |
| 705SP-1 | .2280 | 2-5/8 | 3-7/8 |
| 705SP-A | .2340 | 2-5/8 | 3-7/8 |
| 705SP-15/64 | .3244 | 2-5/8 | 3-7/8 |
| 705SP-B | .2380 | 2-3/4 | 4 |
| 705SP-C | .2420 | 2-3/4 | 4 |
| 705SP-D | .2460 | 2-3/4 | 4 |
| 705SP-1/4/E | .2500 | 2-3/4 | 4 |
| 705SP-F | .2570 | 2-7/8 | 4-1/8 |
| 705SP-G | .2610 | 2-7/8 | 4-1/8 |
| 705SP-17/64 | .2656 | 2-7/8 | 4-1/8 |
| 705SP-H | .2660 | 2-7/8 | 4-1/8 |
| 705SP-I | .2720 | 2-7/8 | 4-1/8 |
| 705SP-J | .2770 | 2-7/8 | 4-1/8 |
| 705SP-K | .2810 | 2-15/16 | 4-1/4 |
| 705SP-9/32 | .2812 | 2-15/16 | 4-1/4 |
| 705SP-L | .2900 | 2-15/16 | 4-1/4 |
| 705SP-M | .2950 | 3-1/16 | 4-3/8 |
| 705SP-19/64 | .2969 | 3-1/16 | 4-3/8 |
| 705SP-N | .3020 | 3-1/16 | 4-3/8 |
| 705SP-5/16 | .3125 | 3-3/16 | 4-1/2 |
| 705SP-O | .3160 | 3-3/16 | 4-1/2 |
| 705SP-P | .3230 | 3-5/16 | 4-5/8 |
| 705SP-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 705SP-Q | .3320 | 3-7/16 | 4-3/4 |
| 705SP-R | .3390 | 3-7/16 | 4-3/4 |
| 705SP-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 705SP-S | .3480 | 3-1/2 | 4-7/8 |
| 705SP-T | .3580 | 3-1/2 | 4-7/8 |
| 705SP-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 705SP-U | .3680 | 3-5/8 | 5 |
| 705SP-3/8 | .3750 | 3-5/8 | 5 |
| 705SP-V | .3770 | 3-5/8 | 5 |
| 705SP-W | .3860 | 3-3/4 | 5-1/8 |
| 705SP-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 705SP-X | .3970 | 3-3/4 | 5-1/8 |
| 705SP-Y | .4040 | 3-7/8 | 5-1/4 |
| 705SP-13/32 | .4062 | 3-7/8 | 5-1/4 |
| 705SP-Z | .4130 | 3-7/8 | 5-1/4 |
| 705SP-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 705SP-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 705SP-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 705SP-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 705SP-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 705SP-1/2 | .5000 | 4-1/2 | 6 |



General Purpose Jobber Drills

List No. 705 - Steam Oxide Treated

Straight Shank / 118° Point / HSS



List No. 405* - Bright Finish

Straight Shank / 118° Point / HSS



Description: Designed for general purpose drilling. Series 705 drills are surface treated with black oxide finish for abrasion resistance and improved coolant adherence.

Series 405 are often used in drilling non-ferrous materials such as aluminum, magnesium, brass and bronze.

Application: General purpose drill, used in all types of materials. Low carbon steels, alloyed steels, steel drop forgings and armor plate.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705-80 | .0135 | 1/8 | 3/4 |
| 705-79 | .0145 | 1/8 | 3/4 |
| 705-1/64 | .0156 | 3/16 | 3/4 |
| 705-78 | .0160 | 3/16 | 7/8 |
| 705-77 | .0180 | 3/16 | 7/8 |
| 705-76 | .0200 | 3/16 | 7/8 |
| 705-75 | .0210 | 1/4 | 1 |
| 705-74 | .0225 | 1/4 | 1 |
| 705-73 | .0240 | 5/16 | 1-1/8 |
| 705-72 | .0250 | 5/16 | 1-1/8 |
| 705-71 | .0260 | 3/8 | 1-1/4 |
| 705-70 | .0280 | 3/8 | 1-1/4 |
| 705-69 | .0292 | 1/2 | 1-3/8 |
| 705-68 | .0310 | 1/2 | 1-3/8 |
| 705-1/32 | .0312 | 1/2 | 1-3/8 |
| 705-67 | .0320 | 1/2 | 1-3/8 |
| 705-66 | .0330 | 1/2 | 1-3/8 |
| 705-65 | .0350 | 5/8 | 1-1/2 |
| 705-64 | .0360 | 5/8 | 1-1/2 |
| 705-63 | .0370 | 5/8 | 1-1/2 |
| 705-62 | .0380 | 5/8 | 1-1/2 |
| 705-61 | .0390 | 11/16 | 1-5/8 |
| 705-60 | .0400 | 11/16 | 1-5/8 |
| 705-59 | .0410 | 11/16 | 1-5/8 |
| 705-58 | .0420 | 11/16 | 1-5/8 |
| 705-57 | .0430 | 3/4 | 1-3/4 |
| 705-56 | .0465 | 3/4 | 1-3/4 |
| 705-3/64 | .0469 | 3/4 | 1-3/4 |
| 705-55 | .0520 | 7/8 | 1-7/8 |
| 705-54 | .0550 | 7/8 | 1-7/8 |
| 705-53 | .0595 | 7/8 | 1-7/8 |
| 705-1/16 | .0625 | 7/8 | 1-7/8 |
| 705-52 | .0635 | 7/8 | 1-7/8 |
| 705-51 | .0670 | 1 | 2 |
| 705-50 | .0700 | 1 | 2 |
| 705-49 | .0730 | 1 | 2 |
| 705-48 | .0760 | 1 | 2 |
| 705-5/64 | .0781 | 1 | 2 |
| 705-47 | .0785 | 1 | 2 |
| 705-46 | .0810 | 1-1/8 | 2-1/8 |
| 705-45 | .0820 | 1-1/8 | 2-1/2 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705-44 | .0860 | 1-1/8 | 2-1/8 |
| 705-43 | .0890 | 1-1/4 | 2-1/4 |
| 705-42 | .0935 | 1-1/4 | 2-1/4 |
| 705-3/32 | .0938 | 1-1/4 | 2-1/4 |
| 705-41 | .0960 | 1-3/8 | 2-3/8 |
| 705-40 | .0980 | 1-3/8 | 2-3/8 |
| 705-39 | .0995 | 1-3/8 | 2-3/8 |
| 705-38 | .1015 | 1-7/16 | 2-1/2 |
| 705-37 | .1040 | 1-7/16 | 2-1/2 |
| 705-36 | .1065 | 1-7/16 | 2-1/2 |
| 705-7/64 | .1094 | 1-1/2 | 2-5/8 |
| 705-35 | .1100 | 1-1/2 | 2-5/8 |
| 705-34 | .1110 | 1-1/2 | 2-5/8 |
| 705-33 | .1130 | 1-1/2 | 2-5/8 |
| 705-32 | .1160 | 1-5/8 | 2-3/4 |
| 705-31 | .1200 | 1-5/8 | 2-3/4 |
| 705-1/8 | .1250 | 1-5/8 | 2-3/4 |
| 705-30 | .1285 | 1-5/8 | 2-3/4 |
| 705-29 | .1360 | 1-3/4 | 2-7/8 |
| 705-28 | .1405 | 1-3/4 | 2-7/8 |
| 705-9/64 | .1406 | 1-3/5 | 3-7/8 |
| 705-27 | .1440 | 1-7/8 | 3 |
| 705-26 | .1470 | 1-7/8 | 3 |
| 705-25 | .1495 | 1-7/8 | 3 |
| 705-24 | .1520 | 2 | 3-1/8 |
| 705-23 | .1540 | 2 | 3-1/8 |
| 705-5/32 | .1562 | 2 | 3-1/8 |
| 705-22 | .1570 | 2 | 3-1/8 |
| 705-21 | .1590 | 2-1/8 | 3-1/4 |
| 705-20 | .1610 | 2-1/8 | 3-1/4 |
| 705-19 | .1660 | 2-1/8 | 3-1/4 |
| 705-18 | .1695 | 2-1/8 | 3-1/4 |
| 705-11/64 | .1719 | 2-1/8 | 3-1/4 |
| 705-17 | .1730 | 2-3/16 | 3-3/8 |
| 705-16 | .1770 | 2-3/16 | 3-3/8 |
| 705-15 | .1800 | 2-3/16 | 3-3/8 |
| 705-14 | .1820 | 2-3/16 | 3-3/8 |
| 705-13 | .1850 | 2-5/16 | 3-1/2 |
| 705-3/16 | .1875 | 2-5/16 | 3-1/2 |
| 705-12 | .1890 | 2-5/16 | 3-1/2 |
| 705-11 | .1910 | 2-5/16 | 3-1/2 |

*Please specify 405 (bright finish) when ordering

List No. 705 continued



List No. 405* continued

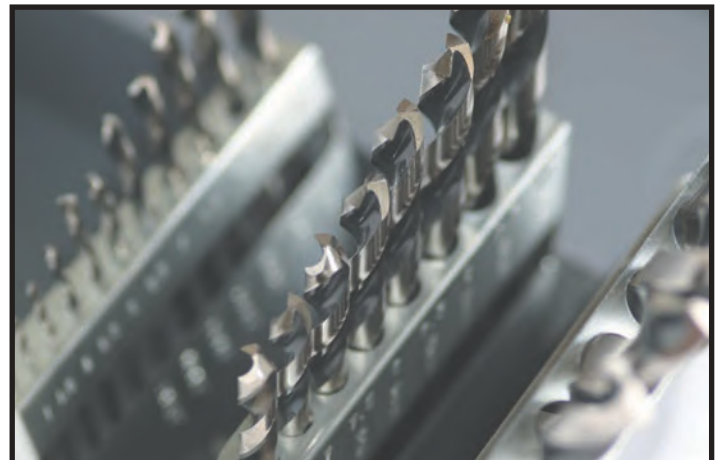


| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705-10 | .1935 | 2-7/16 | 3-5/8 |
| 705-9 | .1960 | 2-7/16 | 3-5/8 |
| 705-8 | .1990 | 2-7/16 | 3-5/8 |
| 705-7 | .2010 | 2-7/16 | 3-5/8 |
| 705-13/64 | .2031 | 2-7/16 | 3-5/8 |
| 705-6 | .2040 | 2-1/2 | 3-3/4 |
| 705-5 | .2055 | 2-1/2 | 3-3/4 |
| 705-4 | .2090 | 2-1/2 | 3-3/4 |
| 705-3 | .2130 | 2-1/2 | 3-3/4 |
| 705-7/32 | .2188 | 2-1/2 | 3-3/4 |
| 705-2 | .2210 | 2-5/8 | 3-7/8 |
| 705-1 | .2280 | 2-5/8 | 3-7/8 |
| 705-A | .2340 | 2-5/8 | 3-7/8 |
| 705-15/64 | .2344 | 2-5/8 | 3-7/8 |
| 705-B | .2380 | 2-3/4 | 4 |
| 705-C | .2420 | 2-3/4 | 4 |
| 705-D | .2460 | 2-3/4 | 4 |
| 705-1/4E | .2500 | 2-3/4 | 4 |
| 705-F | .2570 | 2-7/8 | 4-1/8 |
| 705-G | .2610 | 2-7/8 | 4-1/8 |
| 705-17/64 | .2656 | 2-7/8 | 4-1/8 |
| 705-H | .2660 | 2-7/8 | 4-1/8 |
| 705-I | .2720 | 2-7/8 | 4-1/8 |
| 705-J | .2770 | 2-7/8 | 4-1/8 |
| 705-K | .2810 | 2-15/16 | 4-1/4 |
| 705-9/32 | .2812 | 2-15/16 | 4-1/4 |
| 705-L | .2900 | 2-15/16 | 4-1/4 |
| 705-M | .2950 | 3-1/16 | 4-3/8 |
| 705-19/64 | .2696 | 3-1/16 | 4-3/8 |
| 705-N | .3020 | 3-1/16 | 4-3/8 |
| 705-15/16 | .3125 | 3-3/16 | 4-1/2 |
| 705-O | .3160 | 3-3/16 | 4-1/2 |
| 705-P | .3230 | 3-5/16 | 4-5/8 |
| 705-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 705-Q | .3320 | 3-7/16 | 4-3/4 |
| 705-R | .3390 | 3-7/16 | 4-3/4 |
| 705-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 705-S | .3480 | 3-1/2 | 4-7/8 |
| 705-T | .3580 | 3-1/2 | 4-7/8 |
| 705-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 705-U | .3680 | 3-5/8 | 5 |
| 705-3/8 | .3750 | 3-5/8 | 5 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705-V | .3770 | 3-5/8 | 5 |
| 705-W | .3860 | 3-3/4 | 5-1/8 |
| 705-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 705-X | .3970 | 3-3/4 | 5-1/8 |
| 705-Y | .4040 | 3-7/8 | 5-1/4 |
| 705-13/32 | .4062 | 3-7/8 | 5-1/4 |
| 705-Z | .4130 | 3-7/8 | 5-1/4 |
| 705-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 705-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 705-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 705-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 705-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 705-1/2 | .5000 | 4-1/2 | 6 |
| 705-33/64** | .5156 | 4-13/16 | 6-5/8 |
| 705-17/32** | .5312 | 4-13/16 | 6-5/8 |
| 705-35/64** | .5469 | 4-13/16 | 6-5/8 |
| 705-9/16** | .5625 | 4-13/16 | 6-5/8 |
| 705-37/64** | .5781 | 4-13/16 | 6-5/8 |
| 705-19/32** | .5938 | 5-3/16 | 7-1/8 |
| 705-39/64** | .6094 | 5-3/16 | 7-1/8 |
| 705-5/8** | .6250 | 5-3/16 | 7-1/8 |
| 705-41/64** | .6406 | 5-3/16 | 7-1/8 |
| 705-21/32** | .6562 | 5-3/16 | 7-1/8 |
| 705-43/64** | .6719 | 5-5/8 | 7-5/8 |
| 705-11/16** | .6875 | 5-5/8 | 7-5/8 |

**Will not fit 1/2" capacity chucks.

**Available in surface treated black finish only (#705).



*Please specify 405 (bright finish) when ordering



General Purpose Jobber Drills

List No. US5
 Straight Shank / 118° Point /
 Steam Oxide Treated / HSS

List No. USHD*
 135° Split Point

Description: Designed for general purpose drilling. Surface treated with black oxide for abrasion resistance and improved coolant adherence.



Application: Contractor series jobber drills are recommended for portable drilling of low to medium carbon steels, cast iron and wood.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US5-60 | .0400 | 11/16 | 1-5/8 |
| US5-59 | .0410 | 11/16 | 1-5/8 |
| US5-58 | .0420 | 11/16 | 1-5/8 |
| US5-57 | .0430 | 3/4 | 1-3/4 |
| US5-56 | .0465 | 3/4 | 1-3/4 |
| US5-55 | .0520 | 7/8 | 1-7/8 |
| US5-54 | .0550 | 7/8 | 1-7/8 |
| US5-53 | .0595 | 7/8 | 1-7/8 |
| US5-1/16 | .0625 | 7/8 | 1-7/8 |
| US5-52 | .0635 | 7/8 | 1-7/8 |
| US5-51 | .0670 | 1 | 2 |
| US5-50 | .0700 | 1 | 2 |
| US5-49 | .0730 | 1 | 2 |
| US5-48 | .0760 | 1 | 2 |
| US5-5/64 | .0781 | 1 | 2 |
| US5-47 | .0785 | 1 | 2 |
| US5-46 | .0810 | 1-1/8 | 2-1/8 |
| US5-45 | .0820 | 1-1/8 | 2-1/8 |
| US5-44 | .0860 | 1-1/8 | 2-1/8 |
| US5-43 | .0890 | 1-1/4 | 2-1/4 |
| US5-42 | .0935 | 1-1/4 | 2-1/4 |
| US5-3/32 | .0938 | 1-1/4 | 2-1/4 |
| US5-41 | .0960 | 1-3/8 | 2-3/8 |
| US5-40 | .0980 | 1-3/8 | 2-3/8 |
| US5-39 | .0995 | 1-3/8 | 2-3/8 |
| US5-38 | .1015 | 1-7/16 | 2-1/2 |
| US5-37 | .1040 | 1-7/16 | 2-1/2 |
| US5-36 | .1065 | 1-7/16 | 2-1/2 |
| US5-7/64 | .1094 | 1-1/2 | 2-5/8 |
| US5-35 | .1100 | 1-1/2 | 2-5/8 |
| US5-34 | .1110 | 1-1/2 | 2-5/8 |
| US5-33 | .1130 | 1-1/2 | 2-5/8 |
| US5-32 | .1160 | 1-5/8 | 2-3/4 |
| US5-31 | .1200 | 1-5/8 | 2-3/4 |
| US5-1/8 | .1250 | 1-5/8 | 2-3/4 |
| US5-30 | .1285 | 1-5/8 | 2-3/4 |
| US5-29 | .1360 | 1-3/4 | 2-7/8 |
| US5-28 | .1405 | 1-3/4 | 2-7/8 |
| US5-9/64 | .1406 | 1-3/4 | 2-7/8 |
| US5-27 | .1440 | 1-7/8 | 3 |
| US5-26 | .1470 | 1-7/8 | 3 |
| US5-25 | .1495 | 1-7/8 | 3 |
| US5-24 | .1520 | 2 | 3-1/8 |
| US5-23 | .1540 | 2 | 3-1/8 |
| US5-5/32 | .1562 | 2 | 3-1/8 |
| US5-22 | .1570 | 2 | 3-1/8 |
| US5-21 | .1590 | 2-1/8 | 3-1/4 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US5-20 | .1610 | 2-1/8 | 3-1/4 |
| US5-19 | .1660 | 2-1/8 | 3-1/4 |
| US5-18 | .1695 | 2-1/8 | 3-1/4 |
| US5-11/64 | .1719 | 2-1/8 | 3-1/4 |
| US5-17 | .1730 | 2-3/16 | 3-3/8 |
| US5-16 | .1770 | 2-3/16 | 3-3/8 |
| US5-15 | .1800 | 2-3/16 | 3-3/8 |
| US5-14 | .1820 | 2-3/16 | 3-3/8 |
| US5-13 | .1850 | 2-5/16 | 3-1/2 |
| US5-3/16 | .1875 | 2-5/16 | 3-1/2 |
| US5-12 | .1890 | 2-5/16 | 3-1/2 |
| US5-11 | .1910 | 2-5/16 | 3-1/2 |
| US5-10 | .1935 | 2-7/16 | 3-5/8 |
| US5-9 | .1960 | 2-7/16 | 3-5/8 |
| US5-8 | .1990 | 2-7/16 | 3-5/8 |
| US5-7 | .2010 | 2-7/16 | 3-5/8 |
| US5-13/64 | .2031 | 2-7/16 | 3-5/8 |
| US5-6 | .2040 | 2-1/2 | 3-3/4 |
| US5-5 | .2055 | 2-1/2 | 3-3/4 |
| US5-4 | .2090 | 2-1/2 | 3-3/4 |
| US5-3 | .2130 | 2-1/2 | 3-3/4 |
| US5-7/32 | .2188 | 2-1/2 | 3-3/4 |
| US5-2 | .2210 | 2-5/8 | 3-7/8 |
| US5-1 | .2280 | 2-5/8 | 3-7/8 |
| US5-A | .2340 | 2-5/8 | 3-7/8 |
| US5-15/64 | .2344 | 2-5/8 | 3-7/8 |
| US5-B | .2380 | 2-3/4 | 4 |
| US5-C | .2420 | 2-3/4 | 4 |
| US5-D | .2460 | 2-3/4 | 4 |
| US5-1/4E | .2500 | 2-3/4 | 4 |
| US5-F | .2570 | 2-7/8 | 4-1/8 |
| US5-G | .2610 | 2-7/8 | 4-1/8 |
| US5-17/64 | .2656 | 2-7/8 | 4-1/8 |
| US5-H | .2660 | 2-7/8 | 4-1/8 |
| US5-I | .2720 | 2-7/8 | 4-1/8 |
| US5-J | .2770 | 2-7/8 | 4-1/8 |
| US5-K | .2810 | 2-15/16 | 4-1/4 |
| US5-9/32 | .2812 | 2-15/16 | 4-1/4 |
| US5-L | .2900 | 2-15/16 | 4-1/4 |
| US5-M | .2950 | 3-1/16 | 4-3/8 |
| US5-19/64 | .2969 | 3-1/16 | 4-3/8 |
| US5-N | .3020 | 3-1/16 | 4-3/8 |
| US5-5/16 | .3125 | 3-3/16 | 4-1/2 |
| US5-O | .3160 | 3-3/16 | 4-1/2 |
| US5-P | .3230 | 3-5/16 | 4-5/8 |
| US5-21/64 | .3281 | 3-5/16 | 4-3/8 |
| US5-Q | .3320 | 3-7/16 | 4-3/4 |

*Please specify USHD when ordering split point drills

CHAMPION

List No. US5 / List No. USHD* continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US5-R | .3390 | 3-7/16 | 4-3/4 |
| US5-11/32 | .3438 | 3-7/16 | 3-3/4 |
| US5-S | .3480 | 3-1/2 | 4-7/8 |
| US5-T | .3580 | 3-1/2 | 4-7/8 |
| US5-23/64 | .3594 | 3-1/2 | 4-7/8 |
| US5-U | .3680 | 3-5/8 | 5 |
| US5-3/8 | .3750 | 3-5/8 | 5 |
| US5-V | .3770 | 3-5/8 | 5 |
| US5-W | .3860 | 3-3/4 | 5-1/8 |
| US5-25/64 | .3906 | 3-3/4 | 5-1/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US5-X | .3970 | 3-3/4 | 5-1/8 |
| US5-Y | .4040 | 3-7/8 | 5-1/4 |
| US5-13/32 | .4062 | 3-7/8 | 5-1/4 |
| US5-Z | .4130 | 3-7/8 | 5-1/4 |
| US5-27/64 | .4219 | 3-15/16 | 5-3/8 |
| US5-7/16 | .4375 | 4-1/16 | 5-1/2 |
| US5-29/64 | .4531 | 4-3/16 | 5-5/8 |
| US5-15/32 | .4688 | 4-5/16 | 5-3/4 |
| US5-31/64 | .4844 | 4-3/8 | 5-7/8 |
| US5-1/2 | .5000 | 4-1/2 | 6 |

*Please specify USHD when ordering split point drills

CHAMPION

Cobalt Jobber Drills

List No. 705C

Straight Shank / 135° Split Point / Type "J"
Gold Oxide Finish / M42 Cobalt HSS



Description: Heavy duty web construction. Manufactured from heat resistant premium cobalt high speed steel. Cobalt drills can maintain their cutting ability at high temperatures and are extremely resistant.

Application: High tensile materials such as high-strength alloy steels, stainless steel, titanium, manganese, steel, armor plate and inconel.



705C - Perfect for high tensile materials

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705C-80* | .0135 | 1/8 | 3/4 |
| 705C-79* | .0145 | 1/8 | 3/4 |
| 705C-1/64* | .0156 | 3/16 | 3/4 |
| 705C-78* | .0160 | 3/16 | 7/8 |
| 705C-77* | .0180 | 3/16 | 7/8 |
| 705C-76* | .0200 | 3/16 | 7/8 |
| 705C-75* | .0210 | 1/4 | 1 |
| 705C-74* | .0225 | 1/4 | 1 |
| 705C-73* | .0240 | 5/16 | 1-1/8 |
| 705C-72* | .0250 | 5/16 | 1-1/8 |
| 705C-71* | .0260 | 3/8 | 1-1/4 |
| 705C-70* | .0280 | 3/8 | 1-1/4 |
| 705C-69* | .0292 | 1/2 | 1-3/8 |
| 705C-68* | .0310 | 1/2 | 1-3/8 |
| 705C-1/32* | .0312 | 1/2 | 1-3/8 |
| 705C-67* | .0320 | 1/2 | 1-3/8 |
| 705C-66* | .0330 | 1/2 | 1-3/8 |
| 705C-65* | .0350 | 5/8 | 1-1/2 |
| 705C-64* | .0360 | 5/8 | 1-1/2 |
| 705C-63* | .0370 | 5/8 | 1-1/2 |
| 705C-62* | .0380 | 5/8 | 1-1/2 |

* Sizes 53-80 are not split point



List No. 705C continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705C-61* | .0390 | 11/16 | 1-5/8 |
| 705C-60* | .0400 | 11/16 | 1-5/8 |
| 705C-59* | .0410 | 11/16 | 1-5/8 |
| 705C-58* | .0420 | 11/16 | 1-5/8 |
| 705C-57* | .0430 | 3/4 | 1-3/4 |
| 705C-56* | .0465 | 3/4 | 1-3/4 |
| 705C-3/64* | .0469 | 3/4 | 1-3/4 |
| 705C-55* | .0520 | 7/8 | 1-7/8 |
| 705C-54* | .0550 | 7/8 | 1-7/8 |
| 705C-53* | .0595 | 7/8 | 1-7/8 |
| 705C-1/16 | .0625 | 7/8 | 1-7/8 |
| 705C-52 | .0635 | 7/8 | 1-7/8 |
| 705C-51 | .0670 | 1 | 2 |
| 705C-50 | .0700 | 1 | 2 |
| 705C-49 | .0730 | 1 | 2 |
| 705C-48 | .0760 | 1 | 2 |
| 705C-5/64 | .0781 | 1 | 2 |
| 705C-47 | .0785 | 1 | 2 |
| 705C-46 | .0810 | 1-1/8 | 2-1/8 |
| 705C-45 | .0820 | 1-1/8 | 2-1/8 |
| 705C-44 | .0860 | 1-1/8 | 2-1/8 |
| 705C-43 | .0890 | 1-1/4 | 2-1/4 |
| 705C-42 | .0935 | 1-1/4 | 2-1/4 |
| 705C-3/32 | .0938 | 1-1/4 | 2-1/4 |
| 705C-41 | .0960 | 1-3/8 | 2-3/8 |
| 705C-40 | .0980 | 1-3/8 | 2-3/8 |
| 705C-39 | .0995 | 1-3/8 | 2-3/8 |
| 705C-38 | .1015 | 1-7/16 | 2-1/2 |
| 705C-37 | .1040 | 1-7/16 | 2-1/2 |
| 705C-36 | .1065 | 1-7/16 | 2-1/2 |
| 705C-7/64 | .1094 | 1-1/2 | 2-5/8 |
| 705C-35 | .1100 | 1-1/2 | 2-5/8 |
| 705C-34 | .1110 | 1-1/2 | 2-5/8 |
| 705C-33 | .1130 | 1-1/2 | 2-5/8 |
| 705C-32 | .1160 | 1-5/8 | 2-3/4 |
| 705C-31 | .1200 | 1-5/8 | 2-3/4 |
| 705C-1/8 | .1250 | 1-5/8 | 2-3/4 |
| 705C-30 | .1285 | 1-5/8 | 2-3/4 |
| 705C-29 | .1360 | 1-3/4 | 2-7/8 |
| 705C-28 | .1405 | 1-3/4 | 2-7/8 |
| 705C-9/64 | .1406 | 1-3/4 | 2-7/8 |
| 705C-27 | .1440 | 1-7/8 | 3 |
| 705C-26 | .1470 | 1-7/8 | 3 |
| 705C-25 | .1495 | 1-7/8 | 3 |
| 705C-24 | .1520 | 2 | 3-1/8 |
| 705C-23 | .1540 | 2 | 3-1/8 |
| 705C-5/32 | .1562 | 2 | 3-1/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705C-22 | .1570 | 2 | 3-1/8 |
| 705C-21 | .1590 | 2-1/8 | 3-1/4 |
| 705C-20 | .1610 | 2-1/8 | 3-1/4 |
| 705C-19 | .1660 | 2-1/8 | 3-1/4 |
| 705C-18 | .1695 | 2-1/8 | 3-1/4 |
| 705C-11/64 | .1719 | 2-1/8 | 3-1/4 |
| 705C-17 | .1730 | 2-3/16 | 3-3/8 |
| 705C-16 | .1770 | 2-3/16 | 3-3/8 |
| 705C-15 | .1800 | 2-3/16 | 3-3/8 |
| 705C-14 | .1820 | 2-3/16 | 3-3/8 |
| 705C-13 | .1850 | 2-5/16 | 3-1/2 |
| 705C-3/16 | .1875 | 2-5/16 | 3-1/2 |
| 705C-12 | .1890 | 2-5/16 | 3-1/2 |
| 705C-11 | .1910 | 2-5/16 | 3-1/2 |
| 705C-10 | .1935 | 2-7/16 | 3-5/8 |
| 705C-9 | .1960 | 2-7/16 | 3-5/8 |
| 705C-8 | .1990 | 2-7/16 | 3-5/8 |
| 705C-7 | .2010 | 2-7/16 | 3-5/8 |
| 705C-13/64 | .2031 | 2-7/16 | 3-5/8 |
| 705C-6 | .2040 | 2-1/2 | 3-3/4 |
| 705C-5 | .2055 | 2-1/2 | 3-3/4 |
| 705C-4 | .2090 | 2-1/2 | 3-3/4 |
| 705C-3 | .2130 | 2-1/2 | 3-3/4 |
| 705C-7/32 | .2188 | 2-1/2 | 3-3/4 |
| 705C-2 | .2210 | 2-5/8 | 3-7/8 |
| 705C-1 | .2280 | 2-5/8 | 3-7/8 |
| 705C-A | .2340 | 2-5/8 | 3-7/8 |
| 705C-15/64 | .2344 | 2-5/8 | 3-7/8 |
| 705C-B | .2380 | 2-3/4 | 4 |
| 705C-C | .2420 | 2-3/4 | 4 |
| 705C-D | .2460 | 2-3/4 | 4 |
| 705C-1/4E | .2500 | 2-3/4 | 4 |
| 705C-F | .2570 | 2-7/8 | 4-1/8 |
| 705C-G | .2610 | 2-7/8 | 4-1/8 |
| 705C-17/64 | .2656 | 2-7/8 | 4-1/8 |
| 705C-H | .2660 | 2-7/8 | 4-1/8 |
| 705C-I | .2720 | 2-7/8 | 4-1/8 |
| 705C-J | .2770 | 2-7/8 | 4-1/8 |
| 705C-K | .2810 | 2-15/16 | 4-1/4 |
| 705C-9/32 | .2812 | 2-15/16 | 4-1/4 |
| 705C-L | .2900 | 2-15/16 | 4-1/4 |
| 705C-M | .2950 | 3-1/16 | 4-3/8 |
| 705C-19/64 | .2969 | 3-1/16 | 4-3/8 |
| 705C-N | .3020 | 3-1/16 | 4-3/8 |
| 705C-5/16 | .3125 | 3-3/16 | 4-1/2 |
| 705C-O | .3160 | 3-3/16 | 4-1/2 |
| 705C-P | .3230 | 3-5/16 | 4-5/8 |

* Sizes 53-80 are not split point



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705C-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 705C-Q | .3320 | 3-7/16 | 4-3/4 |
| 705C-R | .3390 | 3-7/16 | 4-3/4 |
| 705C-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 705C-S | .3480 | 3-1/2 | 4-7/8 |
| 705C-T | .3580 | 3-1/2 | 4-7/8 |
| 705C-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 705C-U | .3680 | 3-5/8 | 5 |
| 705C-3/8 | .3750 | 3-5/8 | 5 |
| 705C-V | .3770 | 3-5/8 | 5 |
| 705C-W | .3860 | 3-3/4 | 5-1/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705C-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 705C-X | .3970 | 3-3/4 | 5-1/8 |
| 705C-Y | .4040 | 3-7/8 | 5-1/4 |
| 705C-13/32 | .4602 | 3-7/8 | 5-1/4 |
| 705C-Z | .4130 | 3-7/8 | 5-1/4 |
| 705C-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 705C-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 705C-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 705C-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 705C-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 705C-1/2 | .5000 | 4-1/2 | 6 |



Metric Jobber Drills

List No. XL8

Heavy Duty / 135° Split Point / Black & Bright Finish / HSS / NOMO® Surface Treatment



Description: Self-centering 135° split point eliminates the need for center punching or pilot hole drilling. Unique NOMO® treatment maximizes the number of holes per drill.

Application: For high performance portable and fixed drilling. Engineered for use in metalworking industries including machinery repair, steel erection, mining, construction, railway repair, utilities and dockyard maintenance.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL8-1.0 | 0.0394 | 11/16 | 1-5/8 |
| XL8-1.25 | 0.0492 | 7/8 | 1-7/8 |
| XL8-1.45 | 0.0571 | 7/8 | 1-7/8 |
| XL8-1.5 | 0.0591 | 7/8 | 1-7/8 |
| XL8-1.6 | 0.0630 | 7/8 | 1-7/8 |
| XL8-1.75 | 0.0689 | 1 | 2 |
| XL8-2.0 | 0.0787 | 1 | 2 |
| XL8-2.05 | 0.0807 | 1-1/8 | 2-1/8 |
| XL8-2.3 | 0.0906 | 1-1/4 | 2-1/4 |
| XL8-2.5 | 0.0984 | 1-3/8 | 2-3/8 |
| XL8-2.9 | 0.1142 | 1-5/8 | 2-3/4 |
| XL8-3.0 | 0.1181 | 1-5/8 | 2-3/4 |
| XL8-3.3 | 0.0787 | 1 | 2 |
| XL8-3.5 | 0.1378 | 1-3/4 | 2-7/8 |
| XL8-3.6 | 0.1417 | 1-7/8 | 3 |
| XL8-3.7 | 0.1457 | 1-7/8 | 3 |
| XL8-4.0 | 0.1575 | 2-1/8 | 3-1/4 |
| XL8-4.2 | 0.1654 | 2-1/8 | 3-1/4 |
| XL8-4.5 | 0.1772 | 2-3/16 | 3-3/8 |
| XL8-5.0 | 0.1969 | 2-7/16 | 3-5/8 |
| XL8-5.5 | 0.2165 | 2-1/2 | 3-3/4 |
| XL8-6.0 | 0.2362 | 2-3/4 | 4 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL8-6.5 | 0.2559 | 2-7/8 | 4-1/8 |
| XL8-6.7 | 0.2638 | 2-7/8 | 4-1/8 |
| XL8-6.8 | 0.2677 | 2-7/8 | 4-1/8 |
| XL8-7.0 | 0.2756 | 2-7/8 | 4-1/8 |
| XL8-7.5 | 0.2953 | 3-1/16 | 4-3/8 |
| XL8-8.0 | 0.3150 | 3-3/16 | 4-1/2 |
| XL8-8.5 | 0.3346 | 3-7/16 | 4-3/4 |
| XL8-8.7 | 0.3524 | 3-7/16 | 4-3/4 |
| XL8-9.0 | 0.3543 | 3-1/2 | 4-7/8 |
| XL8-9.5 | 0.3740 | 3-5/8 | 5 |
| XL8-10.0 | 0.3937 | 3-3/4 | 5-1/8 |
| XL8-10.2 | 0.4016 | 3-3/4 | 5-1/8 |
| XL8-10.5 | 0.4134 | 3-7/8 | 5-1/4 |
| XL8-10.8 | 0.4252 | 4-1/16 | 5-1/2 |
| XL8-11.0 | 0.4331 | 4-1/16 | 5-1/2 |
| XL8-11.5 | 0.4528 | 4-3/16 | 5-5/8 |
| XL8-12.0 | 0.4724 | 4-3/8 | 5-7/8 |
| XL8-12.5 | 0.4921 | 4-1/2 | 6 |
| XL8-13.0 | 0.5118 | 4-1/2 | 6 |

Brute Platinum XL8 are available in cased sets. See page 135



Metric Jobber Drills

List No. 708

Straight Shank / 118° Point /
Steam Oxide Surface Treatment / HSS



Description: Designed for general purpose drilling. Surface treated with a black steam oxide finish for abrasion resistance and improved coolant adherence.

Application: For drilling portably and in fixed machinery. For drilling metric holes in machines commonly used in the printing, knitting, woodworking and metal working industries.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-.25 | .0098 | 5/64 | 3/4 |
| 708-.30 | .0118 | 3/32 | 3/4 |
| 708-.32 | .0126 | 3/32 | 3/4 |
| 708-.35 | .0138 | 1/8 | 3/4 |
| 708-.38 | .0150 | 3/16 | 3/4 |
| 708-.40 | .0157 | 3/16 | 3/4 |
| 708-.45 | .0177 | 3/16 | 7/8 |
| 708-.50 | .0197 | 3/16 | 7/8 |
| 708-.55 | .0217 | 1/4 | 1 |
| 708-.60 | .0236 | 5/16 | 1-1/8 |
| 708-.65 | .0256 | 3/8 | 1-1/4 |
| 708-.70 | .0276 | 3/8 | 1-1/4 |
| 708-.75 | .0295 | 1/2 | 1-3/8 |
| 708-.80 | .0315 | 1/2 | 1-3/8 |
| 708-.85 | .0335 | 5/8 | 1-1/2 |
| 708-.90 | .0354 | 5/8 | 1-1/2 |
| 708-.95 | .0374 | 5/8 | 1-1/2 |
| 708-1.00 | .0394 | 11/16 | 1-5/8 |
| 708-1.05 | .0413 | 11/16 | 1-5/8 |
| 708-1.10 | .0433 | 3/4 | 1-3/4 |
| 708-1.15 | .0453 | 3/4 | 1-3/4 |
| 708-1.20 | .0472 | 7/8 | 1-7/8 |
| 708-1.25 | .0492 | 7/8 | 1-7/8 |
| 708-1.30 | .0512 | 7/8 | 1-7/8 |
| 708-1.35 | .0531 | 7/8 | 1-7/8 |
| 708-1.40 | .0551 | 7/8 | 1-7/8 |
| 708-1.45 | .0571 | 7/8 | 1-7/8 |
| 708-1.50 | .0591 | 7/8 | 1-7/8 |
| 708-1.55 | .0610 | 7/8 | 1-7/8 |
| 708-1.60 | .0630 | 7/8 | 1-7/8 |
| 708-1.65 | .0650 | 1 | 2 |
| 708-1.70 | .0669 | 1 | 2 |
| 708-1.75 | .0689 | 1 | 2 |
| 708-1.80 | .0709 | 1 | 2 |
| 708-1.85 | .0782 | 1 | 2 |
| 708-1.90 | .0748 | 1 | 2 |
| 708-1.95 | .0768 | 1 | 2 |
| 708-2.00 | .0787 | 1 | 2 |
| 708-2.05 | .0807 | 1-1/8 | 2-1/8 |
| 708-2.10 | .0827 | 1-1/8 | 2-1/8 |
| 708-2.15 | .0846 | 1-1/8 | 2-1/8 |
| 708-2.20 | .0866 | 1-1/4 | 2-1/4 |
| 708-2.25 | .0886 | 1-1/4 | 2-1/4 |
| 708-2.30 | .0906 | 1-1/4 | 2-1/4 |
| 708-2.35 | .0925 | 1-1/4 | 2-1/4 |
| 708-2.40 | .0945 | 1-3/8 | 2-3/8 |
| 708-2.45 | .0965 | 1-3/8 | 2-3/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-2.50 | .0984 | 1-3/8 | 2-3/8 |
| 708-2.60 | .1024 | 1-7/16 | 2-1/2 |
| 708-2.70 | .1063 | 1-7/16 | 2-1/2 |
| 708-2.80 | .1102 | 1-1/2 | 2-5/8 |
| 708-2.90 | .1142 | 1-5/8 | 2-3/4 |
| 708-3.00 | .1181 | 1-5/8 | 2-3/4 |
| 708-3.10 | .1220 | 1-5/8 | 2-3/4 |
| 708-3.20 | .1260 | 1-5/8 | 2-3/4 |
| 708-3.30 | .1299 | 1-3/4 | 2-7/8 |
| 708-3.40 | .1339 | 1-3/4 | 2-7/8 |
| 708-3.50 | .1378 | 1-3/4 | 2-7/8 |
| 708-3.60 | .1417 | 1-7/8 | 3 |
| 708-3.70 | .1457 | 1-7/8 | 3 |
| 708-3.80 | .1496 | 1-7/8 | 3 |
| 708-3.90 | .1535 | 2 | 3-1/8 |
| 708-4.00 | .1575 | 2-1/8 | 3-1/4 |
| 708-4.10 | .1614 | 2-1/8 | 3-1/4 |
| 708-4.20 | .1654 | 2-1/8 | 3-1/4 |
| 708-4.30 | .1693 | 2-1/8 | 3-1/4 |
| 708-4.40 | .1732 | 2-3/16 | 3-3/8 |
| 708-4.50 | .1772 | 2-3/16 | 3-3/8 |
| 708-4.60 | .1811 | 2-3/16 | 3-3/8 |
| 708-4.70 | .1850 | 2-5/16 | 3-1/2 |
| 708-4.80 | .1890 | 2-5/16 | 3-1/2 |
| 708-4.90 | .1929 | 2-7/16 | 3-5/8 |
| 708-5.00 | .1969 | 2-7/16 | 3-5/8 |
| 708-5.10 | .2008 | 2-7/16 | 3-5/8 |
| 708-5.20 | .2047 | 2-1/2 | 3-3/4 |
| 708-5.30 | .2087 | 2-1/2 | 3-3/4 |
| 708-5.40 | .2126 | 2-1/2 | 3-3/4 |
| 708-5.50 | .2165 | 2-1/2 | 3-3/4 |
| 708-5.60 | .2205 | 2-5/8 | 3-7/8 |
| 708-5.70 | .2244 | 2-5/8 | 3-7/8 |
| 708-5.80 | .2283 | 2-5/8 | 3-7/8 |
| 708-5.90 | .2323 | 2-5/8 | 3-7/8 |
| 708-6.00 | .2362 | 2-3/4 | 4 |
| 708-6.10 | .2402 | 2-3/4 | 4 |
| 708-6.20 | .2441 | 2-3/4 | 4 |
| 708-6.30 | .2480 | 2-3/4 | 4 |
| 708-6.40 | .2520 | 2-7/8 | 4-1/8 |
| 708-6.50 | .2559 | 2-7/8 | 4-1/8 |
| 708-6.60 | .2598 | 2-7/8 | 4-1/8 |
| 708-6.70 | .2638 | 2-7/8 | 4-1/8 |
| 708-6.80 | .2677 | 2-7/8 | 4-1/8 |
| 708-6.90 | .2717 | 2-7/8 | 4-1/8 |
| 708-7.00 | .2756 | 2-7/8 | 4-1/8 |
| 708-7.10 | .2795 | 2-15/16 | 4-1/4 |

Note: Metric drills 13mm and larger will not fit into 1/2" drill chucks.



Metric Jobber Drills

List No. 708

Straight Shank / 118° Point /
Steam Oxide Surface Treatment / HSS



Description: Designed for general purpose drilling. Surface treated with a black steam oxide finish for abrasion resistance and improved coolant adherence.

Application: For drilling portably and in fixed machinery. For drilling metric holes in machines commonly used in the printing, knitting, woodworking and metal working industries.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-.25 | .0098 | 5/64 | 3/4 |
| 708-.30 | .0118 | 3/32 | 3/4 |
| 708-.32 | .0126 | 3/32 | 3/4 |
| 708-.35 | .0138 | 1/8 | 3/4 |
| 708-.40 | .0157 | 3/16 | 3/4 |
| 708-.45 | .0177 | 3/16 | 7/8 |
| 708-.50 | .0197 | 3/16 | 7/8 |
| 708-.55 | .0217 | 1/4 | 1 |
| 708-.60 | .0236 | 5/16 | 1-1/8 |
| 708-.65 | .0256 | 3/8 | 1-1/4 |
| 708-.70 | .0276 | 3/8 | 1-1/4 |
| 708-.75 | .0295 | 1/2 | 1-3/8 |
| 708-.80 | .0315 | 1/2 | 1-3/8 |
| 708-.85 | .0335 | 5/8 | 1-1/2 |
| 708-.90 | .0354 | 5/8 | 1-1/2 |
| 708-.95 | .0374 | 5/8 | 1-1/2 |
| 708-1.00 | .0394 | 11/16 | 1-5/8 |
| 708-1.05 | .0413 | 11/16 | 1-5/8 |
| 708-1.10 | .0433 | 3/4 | 1-3/4 |
| 708-1.15 | .0453 | 3/4 | 1-3/4 |
| 708-1.20 | .0472 | 7/8 | 1-7/8 |
| 708-1.25 | .0492 | 7/8 | 1-7/8 |
| 708-1.30 | .0512 | 7/8 | 1-7/8 |
| 708-1.35 | .0531 | 7/8 | 1-7/8 |
| 708-1.40 | .0551 | 7/8 | 1-7/8 |
| 708-1.45 | .0571 | 7/8 | 1-7/8 |
| 708-1.50 | .0591 | 7/8 | 1-7/8 |
| 708-1.55 | .0610 | 7/8 | 1-7/8 |
| 708-1.60 | .0630 | 7/8 | 1-7/8 |
| 708-1.65 | .0650 | 1 | 2 |
| 708-1.70 | .0669 | 1 | 2 |
| 708-1.75 | .0689 | 1 | 2 |
| 708-1.80 | .0709 | 1 | 2 |
| 708-1.85 | .0782 | 1 | 2 |
| 708-1.90 | .0748 | 1 | 2 |
| 708-1.95 | .0768 | 1 | 2 |
| 708-2.00 | .0787 | 1 | 2 |
| 708-2.05 | .0807 | 1-1/8 | 2-1/8 |
| 708-2.10 | .0827 | 1-1/8 | 2-1/8 |
| 708-2.15 | .0846 | 1-1/8 | 2-1/8 |
| 708-2.20 | .0866 | 1-1/4 | 2-1/4 |
| 708-2.25 | .0886 | 1-1/4 | 2-1/4 |
| 708-2.30 | .0906 | 1-1/4 | 2-1/4 |
| 708-2.35 | .0925 | 1-1/4 | 2-1/4 |
| 708-2.40 | .0945 | 1-3/8 | 2-3/8 |
| 708-2.45 | .0965 | 1-3/8 | 2-3/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-2.50 | .0984 | 1-3/8 | 2-3/8 |
| 708-2.60 | .1024 | 1-7/16 | 2-1/2 |
| 708-2.70 | .1063 | 1-7/16 | 2-1/2 |
| 708-2.80 | .1102 | 1-1/2 | 2-5/8 |
| 708-2.90 | .1142 | 1-5/8 | 2-3/4 |
| 708-3.00 | .1181 | 1-5/8 | 2-3/4 |
| 708-3.10 | .1220 | 1-5/8 | 2-3/4 |
| 708-3.20 | .1260 | 1-5/8 | 2-3/4 |
| 708-3.30 | .1299 | 1-3/4 | 2-7/8 |
| 708-3.40 | .1339 | 1-3/4 | 2-7/8 |
| 708-3.50 | .1378 | 1-3/4 | 2-7/8 |
| 708-3.60 | .1417 | 1-7/8 | 3 |
| 708-3.70 | .1457 | 1-7/8 | 3 |
| 708-3.80 | .1496 | 1-7/8 | 3 |
| 708-3.90 | .1535 | 2 | 3-1/8 |
| 708-4.00 | .1575 | 2-1/8 | 3-1/4 |
| 708-4.10 | .1614 | 2-1/8 | 3-1/4 |
| 708-4.20 | .1654 | 2-1/8 | 3-1/4 |
| 708-4.30 | .1693 | 2-1/8 | 3-1/4 |
| 708-4.40 | .1732 | 2-3/16 | 3-3/8 |
| 708-4.50 | .1772 | 2-3/16 | 3-3/8 |
| 708-4.60 | .1811 | 2-3/16 | 3-3/8 |
| 708-4.70 | .1850 | 2-5/16 | 3-1/2 |
| 708-4.80 | .1890 | 2-5/16 | 3-1/2 |
| 708-4.90 | .1929 | 2-7/16 | 3-5/8 |
| 708-5.00 | .1969 | 2-7/16 | 3-5/8 |
| 708-5.10 | .2008 | 2-7/16 | 3-5/8 |
| 708-5.20 | .2047 | 2-1/2 | 3-3/4 |
| 708-5.30 | .2087 | 2-1/2 | 3-3/4 |
| 708-5.40 | .2126 | 2-1/2 | 3-3/4 |
| 708-5.50 | .2165 | 2-1/2 | 3-3/4 |
| 708-5.60 | .2205 | 2-5/8 | 3-7/8 |
| 708-5.70 | .2244 | 2-5/8 | 3-7/8 |
| 708-5.80 | .2283 | 2-5/8 | 3-7/8 |
| 708-5.90 | .2323 | 2-5/8 | 3-7/8 |
| 708-6.00 | .2362 | 2-3/4 | 4 |
| 708-6.10 | .2402 | 2-3/4 | 4 |
| 708-6.20 | .2441 | 2-3/4 | 4 |
| 708-6.30 | .2480 | 2-3/4 | 4 |
| 708-6.40 | .2520 | 2-7/8 | 4-1/8 |
| 708-6.50 | .2559 | 2-7/8 | 4-1/8 |
| 708-6.60 | .2598 | 2-7/8 | 4-1/8 |
| 708-6.70 | .2638 | 2-7/8 | 4-1/8 |
| 708-6.80 | .2677 | 2-7/8 | 4-1/8 |
| 708-6.90 | .2717 | 2-7/8 | 4-1/8 |
| 708-7.00 | .2756 | 2-7/8 | 4-1/8 |
| 708-7.10 | .2795 | 2-15/16 | 4-1/4 |

Note: Metric drills 13mm and larger will not fit into 1/2" drill chucks.



List No. 708 continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-7.20 | .2835 | 2-15/16 | 4-1/4 |
| 708-7.30 | .2874 | 2-15/16 | 4-1/4 |
| 708-7.40 | .2913 | 3-1/16 | 4-3/8 |
| 708-7.50 | .2953 | 3-1/16 | 4-3/8 |
| 708-7.60 | .2992 | 3-1/16 | 4-3/8 |
| 708-7.70 | .3031 | 3-3/16 | 4-1/2 |
| 708-7.80 | .3071 | 3-3/16 | 4-1/2 |
| 708-7.90 | .3110 | 3-3/16 | 4-1/2 |
| 708-8.00 | .3150 | 3-3/16 | 4-1/2 |
| 708-8.10 | .3189 | 3-5/16 | 4-5/8 |
| 708-8.20 | .3228 | 3-5/16 | 4-5/8 |
| 708-8.30 | .3268 | 3-5/16 | 4-5/8 |
| 708-8.40 | .3307 | 3-7/16 | 4-3/4 |
| 708-8.50 | .3346 | 3-7/16 | 4-3/4 |
| 708-8.60 | .3386 | 3-7/16 | 4-3/4 |
| 708-8.70 | .3425 | 3-7/16 | 4-3/4 |
| 708-8.80 | .3465 | 3-1/2 | 4-7/8 |
| 708-8.90 | .3504 | 3-1/2 | 4-7/8 |
| 708-9.00 | .3543 | 3-1/2 | 4-7/8 |
| 708-9.10 | .3583 | 3-1/2 | 4-7/8 |
| 708-9.20 | .3622 | 3-5/8 | 5 |
| 708-9.30 | .3661 | 3-5/8 | 5 |
| 708-9.40 | .3701 | 3-5/8 | 5 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 708-9.50 | .3740 | 3-5/8 | 5 |
| 708-9.60 | .3780 | 3-3/4 | 5-1/8 |
| 708-9.70 | .3819 | 3-3/4 | 5-1/8 |
| 708-9.80 | .3858 | 3-3/4 | 5-1/8 |
| 708-9.90 | .3898 | 3-3/4 | 5-1/8 |
| 708-10.00 | .3937 | 3-3/4 | 5-1/8 |
| 708-10.20 | .4016 | 3-3/4 | 5-1/8 |
| 708-10.50 | .4134 | 3-7/8 | 5-1/4 |
| 708-10.80 | .4252 | 4-1/16 | 5-1/2 |
| 708-11.00 | .4331 | 4-1/16 | 5-1/2 |
| 708-11.20 | .4409 | 4-1/16 | 5-1/2 |
| 708-11.50 | .4528 | 4-3/16 | 5-5/8 |
| 708-11.80 | .4646 | 4-3/8 | 5-3/4 |
| 708-12.00 | .4724 | 4-3/8 | 5-7/8 |
| 708-12.20 | .4803 | 4-3/8 | 5-7/8 |
| 708-12.50 | .4921 | 4-1/2 | 6 |
| 708-12.80 | .5039 | 4-1/2 | 6 |
| 708-13.00* | .5118 | 4-1/2 | 6 |
| 708-14.00* | .5512 | 4-13/16 | 6-5/8 |
| 708-15.50* | .6102 | 5-3/16 | 7-1/8 |
| 708-16.50* | .6496 | 5-3/16 | 7-1/8 |
| 708-17.50* | .6890 | 5-5/8 | 7-5/8 |

Note: Metric drills larger than 13mm will not fit into 1/2" drill chucks.



BruteLube Cutting Fluid & Wax

List No. XLUB

Description: Multi-purpose cutting and tapping fluid specially formulated to extend tool life and reduce chip welding. Provides a precision finish with closer tolerances on finished work. Complies with OSHA regulations and contains no 1,1,1 Trichloroethane. Formulated to cling to tools for a continuous shield against friction and heat.

List No. XLUB-WAX

Description: Formulated to extend tool life, reduce chip welding and clings to the tool at any angle, including overhead operations. Continuous shield against friction and heat, reducing tool costs and work piece scrap. Provides a close tolerance precision finish. Effective on stainless steel, aluminum, and exotic alloys.

Improves cutting tool performance and tool life when drilling, reaming and threading. Apply directly to cutting tools and work piece surfaces.



| EDP No. | Description |
|---------------|-------------|
| XLUB4 | 4 oz. |
| XLUB16 | 16 oz. |
| XLUB128 | 1 gallon |
| XLUB-WAX-2 | 2 oz. |
| XLUB-WAX-16 | 16 oz. |
| XLUB-STICK-16 | 16 oz. |

See pages 155-156 for BruteLube Material Safety Data Sheets



Left Hand Jobber Drills



List No. XL5LH

Straight Shank / 135° Split Point / Heavy Duty
NOMO® Surface Treatment / HSS



Description: NOMO® treatment increases surface hardness. Penetrates faster than cobalt due to unique geometry and metallurgy. The precision 135° split point eliminates the need for pilot hole drilling, prevents “walking” and bites right into #300 and #400 series stainless steels.

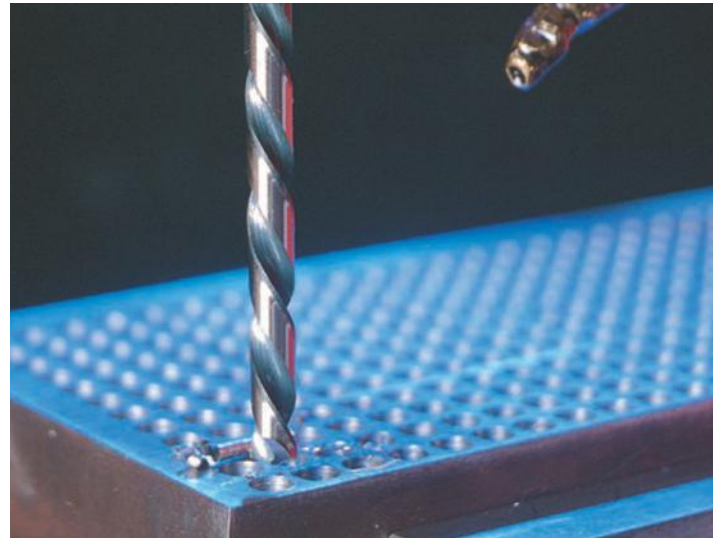
Application: Portable drilling of stainless steel, titanium alloys and other hard to drill materials.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL5LH-5/64 | .0781 | 1 | 2 |
| XL5LH-7/64 | .1094 | 1-1/2 | 2-5/8 |
| XL5LH-5/32 | .1562 | 2 | 3-1/8 |
| XL5LH-1/4 | .2500 | 2-3/4 | 4 |
| XL5LH-19/64 | .2969 | 3-1/16 | 4-3/8 |

Designed for use in left hand rotation multiple spindle, gear driven drilling heads, screw machine operations, lathes and any machinery with a left hand rotation.

Left hand drills are also commonly used for drilling out broken or frozen bolts.

All sizes available as part of an iPac screw extractor and left hand drill combination pack.



Left Hand Jobber Drills

List No. 705LH

Straight Shank / 118° Point / Bright Finish / HSS



Description: For use in left hand rotation multiple spindle, gear driven drilling heads, screw machine operations and lathes.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| 705LH-1/16 | .0625 | 7/8 | 1-7/8 | 705LH-19/64 | .2969 | 3-1/16 | 4-3/8 |
| 705LH-5/64 | .0781 | 1 | 2 | 705LH-5/16 | .3125 | 3-3/16 | 4-1/2 |
| 705LH-3/32 | .0938 | 1-1/4 | 2-1/4 | 705LH-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 705LH-7/64 | .1094 | 1-1/2 | 2-5/8 | 705LH-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 705LH-1/8 | .1250 | 1-5/8 | 2-3/4 | 705LH-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 705LH-9/64 | .1406 | 1-3/4 | 2-7/8 | 705LH-3/8 | .3750 | 3-5/8 | 5 |
| 705LH-5/32 | .1562 | 2 | 3-1/8 | 705LH-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 705LH-11/64 | .1719 | 2-1/8 | 3-1/4 | 705LH-13/32 | .4062 | 3-7/8 | 5-1/4 |
| 705LH-3/16 | .1875 | 2-5/16 | 3-1/2 | 705LH-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 705LH-13/64 | .2031 | 2-7/16 | 3-5/8 | 705LH-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 705LH-7/32 | .2188 | 2-1/2 | 3-3/4 | 705LH-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 705LH-15/64 | .2344 | 2-5/8 | 3-7/8 | 705LH-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 705LH-1/4 | .2500 | 2-3/4 | 4 | 705LH-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 705LH-17/64 | .2656 | 2-7/8 | 4-1/8 | 705LH-1/2 | .5000 | 4-1/2 | 6 |
| 705LH-9/32 | .2812 | 2-15/16 | 4-1/4 | | | | |



Mechanics Length Drills

List No. XL28

Self Centering 135° Split Point / Flatted Shanks
NOMO® Surface Treatment / HSS



Description: Strong, rigid overall length. Heavy duty 135° split point for self-centering and quick penetration. Heavy duty web geometry provides added rigidity. The three flatted shank design ensures positive grip in keyless drill chucks.



Application: Ideal for the aircraft industry. Used for the drilling of high tensile martensitic stainless steels, titanium alloys and hard steel.



XL28 reduced overall length for extra strength

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL28-1/16** | .0625 | 7/8 | 1-7/8 |
| XL28-5/64** | .0781 | 1 | 2 |
| XL28-3/32** | .0938 | 1-1/4 | 2-1/4 |
| XL28-7/64** | .1094 | 1-5/16 | 2-3/8 |
| XL28-1/8** | .1250 | 1-7/16 | 2-1/2 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL28-9/64** | .1406 | 1-9/16 | 2-5/8 |
| XL28-5/32** | .1562 | 1-11/16 | 2-3/4 |
| XL28-11/64* | .1719 | 1-13/16 | 2-7/8 |
| XL28-3/16* | .1875 | 1-7/8 | 3 |
| XL28-13/64* | .2031 | 1-15/16 | 3-1/8 |
| XL28-7/32* | .2188 | 2 | 3-1/4 |
| XL28-15/64* | .2344 | 2-1/16 | 3-3/8 |
| XL28-1/4* | .2500 | 2 | 3-1/2 |
| XL28-17/64* | .2656 | 2-1/8 | 3-5/8 |
| XL28-9/32* | .2812 | 2-1/4 | 3-3/4 |
| XL28-19/64* | .2969 | 2-3/8 | 3-7/8 |
| XL28-5/16* | .3125 | 2-1/2 | 4 |
| XL28-21/64* | .3281 | 2-9/16 | 4-1/16 |
| XL28-11/32* | .3438 | 2-5/8 | 4-1/8 |
| XL28-23/64* | .3594 | 2-11/16 | 4-3/16 |
| XL28-3/8* | .3750 | 2-11/16 | 4-1/4 |
| XL28-25/64* | .3906 | 2-3/4 | 4-5/16 |
| XL28-13/32* | .4062 | 2-13/16 | 4-3/8 |
| XL28-27/64* | .4219 | 2-7/8 | 4-7/16 |
| XL28-7/16* | .4375 | 2-15/16 | 4-1/2 |
| XL28-29/64* | .4531 | 3 | 4-5/8 |
| XL28-15/32* | .4688 | 3-1/8 | 4-3/4 |
| XL28-31/64* | .4844 | 3-1/4 | 4-7/8 |
| XL28-1/2* | .5000 | 3-3/8 | 5 |

Note: 3/16 - 1/2" have 3 flats; 3/8 - 1/2" have 3/8" shanks



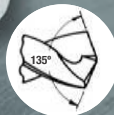
** Available in iPac twin pack
* Available in iPac



Mechanics Length Drills

List No. XM28

Self Centering 135° Split Point / 3-Flats Straight Shank /
NOMO® Surface Treatment



Description: Strong, rigid overall length. Heavy duty 135° split point for self centering and quick penetration. Heavy duty web geometry provides added rigidity.

Application: Ideal for the aircraft industry. Used for the drilling of high tensile martensitic stainless steels, titanium alloys and hard steel.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XM28-25/64 | .3906 | 2-3/4 | 4-5/16 |
| XM28-13/32 | .4062 | 2-13/16 | 4-3/8 |
| XM28-27/64 | .4219 | 2-7/8 | 4-7/16 |
| XM28-7/16 | .4375 | 2-15/16 | 4-1/2 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XM28-29/64 | .4531 | 3 | 4-5/8 |
| XM28-15/32 | .4688 | 3-1/8 | 4-3/4 |
| XM28-31/64 | .4844 | 3-1/4 | 4-7/8 |
| XM28-1/2 | .5000 | 3-3/8 | 5 |



3/8" Shank Drills

List No. XL38

Heavy Duty / Black & Bright Finish /
NOMO® Surface Treatment / 135° Split Point / HSS



Description: 135° self piloting split point to reduce drill "walking" when starting a hole, while the tapered web promotes faster penetration with less force. NOMO® treatment penetrates the surface of the drill, increasing hardness, durability and tool life.

Application: Steel erection, mining, heavy construction. Used in a wide range of manufacturing plants, vehicle, railway and dockyard maintenance. Drill stainless steel, titanium alloys and other hard to drill materials.



XL38-3/8 shank drill in action - tapered web for faster penetration

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL38-25/64 | .3906 | 3-3/4 | 5-1/8 |
| XL38-13/32 | .4062 | 3-7/8 | 5-1/4 |
| XL38-27/64 | .4219 | 3-15/16 | 5-3/8 |
| XL38-7/16 | .4375 | 4-1/16 | 5-1/2 |
| XL38-29/64 | .4531 | 4-3/16 | 5-5/8 |
| XL38-15/32 | .4688 | 4-5/16 | 5-3/4 |
| XL38-31/64 | .4844 | 4-3/8 | 5-7/8 |
| XL38-1/2 | .5000 | 4-1/2 | 6 |



Black Gold® 3/8" Shank Drills

List No. XG38

Heavy Duty / Black & Gold Surface Treatment /
135° Split Point / HSS



Description: Outperforms ordinary jobber drills by penetrating faster and lasting longer. Functional black and gold surface treatment holds lubricants for smoother drilling. Meets NAS 907B aircraft

Application: Ideal for 3/8" cordless drills.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XG38-25/64 | .3906 | 3-3/4 | 5-1/8 |
| XG38-13/32 | .4062 | 3-7/8 | 5-1/4 |
| XG38-27/64 | .4219 | 3-15/16 | 5-3/8 |
| XG38-7/16 | .4375 | 4-1/16 | 5-1/2 |
| XG38-29/64 | .4531 | 4-3/16 | 5-5/8 |
| XG38-15/32 | .4688 | 4-5/16 | 5-3/4 |
| XG38-31/64 | .4844 | 4-3/8 | 5-7/8 |
| XG38-1/2 | .5000 | 4-1/2 | 6 |

3/8" reduced shanks make these drills ideal for high performance cordless drilling where the chuck capacity is limited to 3/8".





3/8" Shank Jobber Drills

List No. 738

118° Point / Black Oxide Treated / HSS



Description: For general purpose drilling in a wide range of materials where chuck capacity is 3/8".

Application: Low carbon steels, steel drop forgings and grey cast iron.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| 738-25/64 | .3906 | 3-1/4 | 5-1/8 | 738-1/2 | .5000 | 4-1/2 | 6 |
| 738-13/32 | .4062 | 3-7/8 | 5-1/4 | 738-17/32 | .5312 | 4-13/16 | 6-5/8 |
| 738-27/64 | .4219 | 3-15/16 | 5-3/8 | 738-9/16 | .5625 | 4-13/16 | 6-5/8 |
| 738-7/16 | .4375 | 4-1/16 | 5-1/2 | 738-19/32 | .5938 | 5-3/16 | 7-1/8 |
| 738-29/64 | .4531 | 4-3/16 | 5-5/8 | 738-5/8 | .6250 | 5-3/16 | 7-1/8 |
| 738-15/32 | .4687 | 4-5/16 | 5-3/4 | 738-21/32 | .6562 | 5-3/16 | 7-1/8 |
| 738-31/64 | .4844 | 4-3/8 | 5-7/8 | 738-11/16 | .6875 | 5-5/8 | 7-5/8 |



1/4" Shank Drills

List No. CS14

118° Point / Intermediate Length / Black Oxide Treated / HSS



Description: Short rigid drill with 1/4" shank.

Application: Popular in the electrical trade. Ideal for sheet metal, mild steel, aluminum and wood.

1/4" reduced shanks are ideal for portable drilling of sheet metal and other thin materials where chuck capacity is limited.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| CS14-9/32 | .2812 | 1-5/8 | 4 |
| CS14-5/16 | .3125 | 2 | 4 |
| CS14-3/8 | .3750 | 2 | 4 |
| CS14-7/16 | .4375 | 2 | 4 |
| CS14-1/2 | .5000 | 2 | 4 |



Silver & Deming Drills

List No. XL12

1/2" Flatted Reduced Shanks / Heavy Duty /
118° Split Point / HSS

Description: Heavy duty split point for self centering and easy penetration. Suitable for portable drilling and drill presses where maximum chuck capacity is 1/2".

Application: Used extensively in maintenance departments, machine shops, body shops



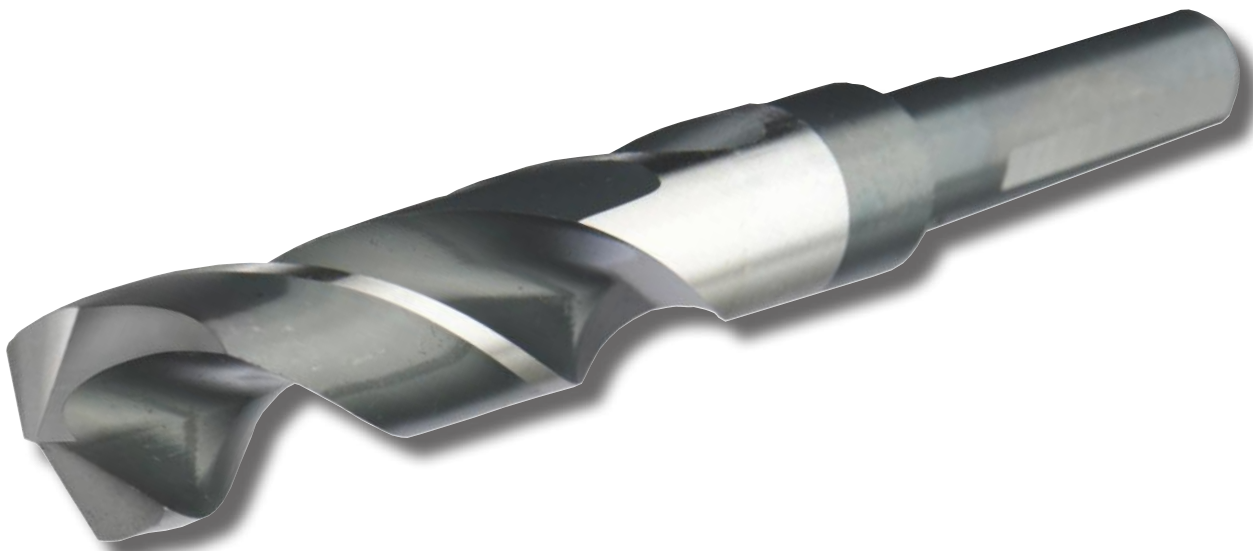
| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL12-33/64 | .5156 | 3-1/8 | 6 |
| XL12-17/32 | .5312 | 3-1/8 | 6 |
| XL12-35/64 | .5469 | 3-1/8 | 6 |
| XL12-9/16 | .5625 | 3-1/8 | 6 |
| XL12-37/64 | .5781 | 3-1/8 | 6 |
| XL12-19/32 | .5938 | 3-1/8 | 6 |
| XL12-39/64 | .6094 | 3-1/8 | 6 |
| XL12-5/8 | .6250 | 3-1/8 | 6 |
| XL12-41/64 | .6406 | 3-1/8 | 6 |
| XL12-21/32 | .6562 | 3-1/8 | 6 |
| XL12-43/64 | .6719 | 3-1/8 | 6 |
| XL12-11/16 | .6875 | 3-1/8 | 6 |
| XL12-45/64 | .7031 | 3-1/8 | 6 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XL12-23/32 | .7188 | 3-1/8 | 6 |
| XL12-47/64 | .7344 | 3-1/8 | 6 |
| XL12-3/4 | .7500 | 3-1/8 | 6 |
| XL12-49/64 | .7656 | 3-1/8 | 6 |
| XL12-25/32 | .7812 | 3-1/8 | 6 |
| XL12-51/64 | .7969 | 3-1/8 | 6 |
| XL12-13/16 | .8125 | 3-1/8 | 6 |
| XL12-53/64 | .8281 | 3-1/8 | 6 |
| XL12-27/32 | .8438 | 3-1/8 | 6 |
| XL12-55/64 | .8594 | 3-1/8 | 6 |
| XL12-7/8 | .8750 | 3-1/8 | 6 |
| XL12-57/64 | .8906 | 3-1/8 | 6 |
| XL12-29/32 | .9062 | 3-1/8 | 6 |
| XL12-59/64 | .9219 | 3-1/8 | 6 |
| XL12-15/16 | .9375 | 3-1/8 | 6 |
| XL12-61/64 | .9531 | 3-1/8 | 6 |
| XL12-31/32 | .9688 | 3-1/8 | 6 |
| XL12-63/64 | .9844 | 3-1/8 | 6 |
| XL12-1 | 1.0000 | 3-1/8 | 6 |
| XL12-1-1/16 | 1.0625 | 3-1/8 | 6 |
| XL12-1-1/8 | 1.1250 | 3-1/8 | 6 |
| XL12-1-3/16 | 1.1875 | 3-1/8 | 6 |
| XL12-1-1/4 | 1.2500 | 3-1/8 | 6 |
| XL12-1-5/16 | 1.3125 | 3-1/8 | 6 |
| XL12-1-3/8 | 1.3750 | 3-1/8 | 6 |
| XL12-1-1/2 | 1.5000 | 3-1/8 | 6 |



XL12-8P 8 piece set includes 9/16 through 1 X 16ths

Note: Silver & Deming drills should not be used to enlarge holes.





BlackGold® Silver & Deming Drills

List No. XG12

118° Split Point / 1/2" Shank / 3 Flatted Shanks



Description: Superior strength and durability. Black and gold surface treatment holds lubricant for smoother drilling.

Application: Low carbon steels, alloyed steels, steel drop forgings, grey cast iron, titanium, stainless steel, nimonic alloys, manganese, spring steels and armor plate.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XG12-33/64 | .5156 | 3-1/8 | 6 |
| XG12-17/32 | .5312 | 3-1/8 | 6 |
| XG12-35/64 | .5469 | 3-1/8 | 6 |
| XG12-9/16 | .5625 | 3-1/8 | 6 |
| XG12-37/64 | .5781 | 3-1/8 | 6 |
| XG12-19/32 | .5932 | 3-1/8 | 6 |
| XG12-39/64 | .6094 | 3-1/8 | 6 |
| XG12-5/8 | .6250 | 3-1/8 | 6 |
| XG12-41/64 | .6406 | 3-1/8 | 6 |
| XG12-21/32 | .6562 | 3-1/8 | 6 |
| XG12-43/64 | .6719 | 3-1/8 | 6 |
| XG12-11/16 | .6875 | 3-1/8 | 6 |
| XG12-45/64 | .7031 | 3-1/8 | 6 |
| XG12-23/32 | .7188 | 3-1/8 | 6 |
| XG12-47/64 | .7344 | 3-1/8 | 6 |
| XG12-3/4 | .7500 | 3-1/8 | 6 |
| XG12-49/64 | .7656 | 3-1/8 | 6 |
| XG12-25/32 | .7812 | 3-1/8 | 6 |
| XG12-51/64 | .7969 | 3-1/8 | 6 |
| XG12-13/16 | .8125 | 3-1/8 | 6 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| XG12-53/64 | .8281 | 3-1/8 | 6 |
| XG12-27/32 | .8438 | 3-1/8 | 6 |
| XG12-55/64 | .8594 | 3-1/8 | 6 |
| XG12-7/8 | .8750 | 3-1/8 | 6 |
| XG12-57/64 | .8906 | 3-1/8 | 6 |
| XG12-29/32 | .9062 | 3-1/8 | 6 |
| XG12-59/64 | .9219 | 3-1/8 | 6 |
| XG12-15/16 | .9375 | 3-1/8 | 6 |
| XG12-61/64 | .9531 | 3-1/8 | 6 |
| XG12-31/32 | .9688 | 3-1/8 | 6 |
| XG12-63/64 | .9844 | 3-1/8 | 6 |
| XG12-1 | 1.0000 | 3-1/8 | 6 |
| XG12-1-1/16 | 1.0625 | 3-1/8 | 6 |
| XG12-1-1/8 | 1.1250 | 3-1/8 | 6 |
| XG12-1-3/16 | 1.1875 | 3-1/8 | 6 |
| XG12-1-1/4 | 1.2500 | 3-1/8 | 6 |
| XG12-1-5/16 | 1.3125 | 3-1/8 | 6 |
| XG12-1-3/8 | 1.3750 | 3-1/8 | 6 |
| XG12-1-1/2 | 1.5000 | 3-1/8 | 6 |



Silver & Deming Drills

List No. 712

1/2" Shank / 118° Point / Black & Bright Finish / HSS



Description: Also known as prentice or blacksmith drills, these 1/2" shank drills have industrial quality metallurgy and geometry for portable and fixed spindle drilling. Popular in CNC applications.

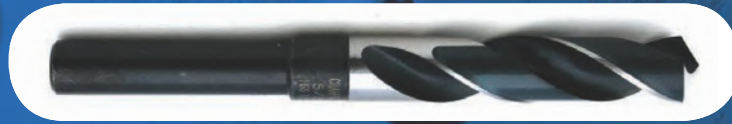
Application: Used in maintenance departments, machine shops, body shops and garages. Note: S&D drills should not be used to enlarge holes. See SA80 reamer listing.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712-33/64 | .5156 | 3-1/8 | 6 |
| 712-17/32 | .5312 | 3-1/8 | 6 |
| 712-35/64 | .5469 | 3-1/8 | 6 |
| 712-9/16 | .5625 | 3-1/8 | 6 |
| 712-37/64 | .5781 | 3-1/8 | 6 |
| 712-19/32 | .5938 | 3-1/8 | 6 |
| 712-39/64 | .6094 | 3-1/8 | 6 |
| 712-5/8 | .6250 | 3-1/8 | 6 |
| 712-41/64 | .6406 | 3-1/8 | 6 |
| 712-21/32 | .6562 | 3-1/8 | 6 |
| 712-43/64 | .6719 | 3-1/8 | 6 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712-11/16 | .6875 | 3-1/8 | 6 |
| 712-45/64 | .7031 | 3-1/8 | 6 |
| 712-23/32 | .7188 | 3-1/8 | 6 |
| 712-47/64 | .7344 | 3-1/8 | 6 |
| 712-3/4 | .7500 | 3-1/8 | 6 |
| 712-49/64 | .7656 | 3-1/8 | 6 |
| 712-25/32 | .7812 | 3-1/8 | 6 |
| 712-51/64 | .7969 | 3-1/8 | 6 |
| 712-13/16 | .8125 | 3-1/8 | 6 |
| 712-53/64 | .8281 | 3-1/8 | 6 |
| 712-27/32 | .8438 | 3-1/8 | 6 |



List No. 712 continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712-55/64 | .8594 | 3-1/8 | 6 |
| 712-7/8 | .8750 | 3-1/8 | 6 |
| 712-57/64 | .8906 | 3-1/8 | 6 |
| 712-29/32 | .9062 | 3-1/8 | 6 |
| 712-59/64 | .9219 | 3-1/8 | 6 |
| 712-15/16 | .9375 | 3-1/8 | 6 |
| 712-61/64 | .9531 | 3-1/8 | 6 |
| 712-31/32 | .9688 | 3-1/8 | 6 |
| 712-63/64 | .9844 | 3-1/8 | 6 |
| 712-1 | 1.0000 | 3-1/8 | 6 |
| 712-1-1/64 | 1.0156 | 3-1/8 | 6 |
| 712-1-1/32 | 1.0312 | 3-1/8 | 6 |
| 712-1-3/64 | 1.0469 | 3-1/8 | 6 |
| 712-1-1/16 | 1.0625 | 3-1/8 | 6 |
| 712-1-5/64 | 1.0781 | 3-1/8 | 6 |
| 712-1-3/32 | 1.0938 | 3-1/8 | 6 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712-1-7/64 | 1.1094 | 3-1/8 | 6 |
| 712-1-1/8 | 1.1250 | 3-1/8 | 6 |
| 712-1-9/64 | 1.1406 | 3-1/8 | 6 |
| 712-1-5/32 | 1.1562 | 3-1/8 | 6 |
| 712-1-11/64 | 1.1719 | 3-1/8 | 6 |
| 712-1-3/16 | 1.1875 | 3-1/8 | 6 |
| 712-1-13/64 | 1.2031 | 3-1/8 | 6 |
| 712-1-7/32 | 1.2188 | 3-1/8 | 6 |
| 712-1-15/64 | 1.2344 | 3-1/8 | 6 |
| 712-1-1/4 | 1.2500 | 3-1/8 | 6 |
| 712-1-9/32 | 1.2812 | 3-1/8 | 6 |
| 712-1-5/16 | 1.3125 | 3-1/8 | 6 |
| 712-1-3/8 | 1.3750 | 3-1/8 | 6 |
| 712-1-7/16 | 1.4375 | 3-1/8 | 6 |
| 712-1-1/2 | 1.5000 | 3-1/8 | 6 |



Cobalt Heavy Duty Silver & Deming Drills

List No. 712CO

1/2" Shank / Heavy Duty / 118° Split Point / Cobalt Steel / Gold Oxide Finish

Description: Premium grade cobalt steel provides high red hardness, for extreme resistance to heat and abrasion.

Application: Designed to drill stainless, titanium and other tough heat generating materials.



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712CO-17/32 | .5312 | 3-1/8 | 6 |
| 712CO-9/16 | .5626 | 3-1/8 | 6 |
| 712CO-19/32 | .5938 | 3-1/8 | 6 |
| 712CO-5/8 | .6250 | 3-1/8 | 6 |
| 712CO-21/32 | .6562 | 3-1/8 | 6 |
| 712CO-11/16 | .6875 | 3-1/8 | 6 |
| 712CO-23/32 | .7188 | 3-1/8 | 6 |
| 712CO-3/4 | .7500 | 3-1/8 | 6 |
| 712CO-25/32 | .7812 | 3-1/8 | 6 |
| 712CO-13/16 | .8125 | 3-1/8 | 6 |
| 712CO-27/32 | .8438 | 3-1/8 | 6 |
| 712CO-7/8 | .8750 | 3-1/8 | 6 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 712CO-29/32 | .9062 | 3-1/8 | 6 |
| 712CO-15/16 | .9375 | 3-1/8 | 6 |
| 712CO-31/32 | .9688 | 3-1/8 | 6 |
| 712CO-1 | 1.000 | 3-1/8 | 6 |
| 712CO-1-1/16 | 1.0625 | 3-1/8 | 6 |
| 712CO-1-1/8 | 1.1250 | 3-1/8 | 6 |
| 712CO-1-3/16 | 1.1875 | 3-1/8 | 6 |
| 712CO-1-1/4 | 1.2500 | 3-1/8 | 6 |
| 712CO-1-5/16 | 1.3125 | 3-1/8 | 6 |
| 712CO-1-3/8 | 1.3750 | 3-1/8 | 6 |
| 712CO-1-7/16 | 1.4375 | 3-1/8 | 6 |
| 712CO-1-1/2 | 1.5000 | 3-1/8 | 6 |

Note: "S&D" drills should not be used to enlarge holes. See SA80 reamer listing on page 54 for enlarging larger holes.



Silver & Deming Drills

List No. US12

1/2" Shank / 118° Point / Black Finish / HSS



Description: "S&D" drills expand the range of 1/2" portable drill chucks.

Application: Ideal for drilling in both low and medium tensile strength materials.

Note: "S&D" drills should not be used to enlarge holes. See SA80 reamer

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US12-33/64 | .5156 | 3-1/8 | 6 |
| US12-17/32 | .5312 | 3-1/8 | 6 |
| US12-35/64 | .5469 | 3-1/8 | 6 |
| US12-9/16 | .5625 | 3-1/8 | 6 |
| US12-37/64 | .5781 | 3-1/8 | 6 |
| US12-19/32 | .5938 | 3-1/8 | 6 |
| US12-39/64 | .6094 | 3-1/8 | 6 |
| US12-5/8 | .6250 | 3-1/8 | 6 |
| US12-41/64 | .6406 | 3-1/8 | 6 |
| US12-21/32 | .6562 | 3-1/8 | 6 |
| US12-43/64 | .6719 | 3-1/8 | 6 |
| US12-11/16 | .6875 | 3-1/8 | 6 |
| US12-45/64 | .7031 | 3-1/8 | 6 |
| US12-23/32 | .7188 | 3-1/8 | 6 |
| US12-47/64 | .7344 | 3-1/8 | 6 |
| US12-3/4 | .7500 | 3-1/8 | 6 |
| US12-49/64 | .7656 | 3-1/8 | 6 |
| US12-25/32 | .7812 | 3-1/8 | 6 |
| US12-51/64 | .7969 | 3-1/8 | 6 |
| US12-13/16 | .8125 | 3-1/8 | 6 |
| US12-53/64 | .8281 | 3-1/8 | 6 |

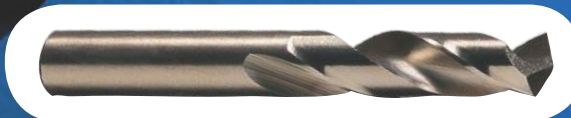
| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| US12-27/32 | .8438 | 3-1/8 | 6 |
| US12-55/64 | .8594 | 3-1/8 | 6 |
| US12-7/8 | .8750 | 3-1/8 | 6 |
| US12-57/64 | .8906 | 3-1/8 | 6 |
| US12-29/32 | .9062 | 3-1/8 | 6 |
| US12-59/64 | .9219 | 3-1/8 | 6 |
| US12-15/16 | .9375 | 3-1/8 | 6 |
| US12-61/64 | .9531 | 3-1/8 | 6 |
| US12-31/32 | .9688 | 3-1/8 | 6 |
| US12-63/64 | .9844 | 3-1/8 | 6 |
| US12-1 | 1.0000 | 3-1/8 | 6 |
| US12-1-1/16 | 1.0625 | 3-1/8 | 6 |
| US12-1-1/8 | 1.1250 | 3-1/8 | 6 |
| US12-1-3/16 | 1.1875 | 3-1/8 | 6 |
| US12-1-1/4 | 1.2500 | 3-1/8 | 6 |
| US12-1-5/16 | 1.3125 | 3-1/8 | 6 |
| US12-1-3/8 | 1.3750 | 3-1/8 | 6 |
| US12-1-1/2 | 1.5000 | 3-1/8 | 6 |



Cobalt Screw Machine Drills

List No. 1705C

Heavy Duty / 135° Split Point / Gold Oxide Fin-



Description: Heat-resistant premium cobalt high speed steel, often referred to as cobalt stub drills. For use in screw machine operations. The short flute and overall length increase their rigidity, resulting in better hole accuracy and extended tool life.

Application: High tensile materials like stainless steel, titanium, manganese steel, armor plate

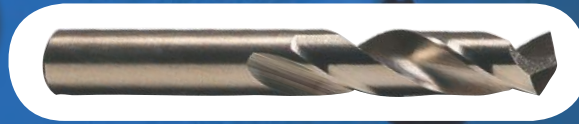
| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705C-60* | .0400 | 1/2 | 1-3/8 |
| 1705C-59* | .0410 | 1/2 | 1-3/8 |
| 1705C-58* | .0420 | 1/2 | 1-3/8 |
| 1705C-57* | .0430 | 1/2 | 1-3/8 |
| 1705C-56* | .0465 | 1/2 | 1-3/8 |
| 1705C-3/64* | .0469 | 1/2 | 1-3/8 |
| 1705C-55* | .0520 | 5/8 | 1-5/8 |
| 1705C-54* | .0550 | 5/8 | 1-5/8 |
| 1705C-53* | .0595 | 5/8 | 1-5/8 |
| 1705C-1/16 | .0625 | 5/8 | 1-5/8 |
| 1705C-52 | .0635 | 11/16 | 1-11/16 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705C-51 | .0670 | 11/16 | 1-11/16 |
| 1705C-50 | .0700 | 11/16 | 1-11/16 |
| 1705C-49 | .0730 | 11/16 | 1-11/16 |
| 1705C-48 | .0760 | 11/16 | 1-11/16 |
| 1705C-5/64 | .0781 | 11/16 | 1-11/16 |
| 1705C-47 | .0785 | 11/16 | 1-11/16 |
| 1705C-46 | .0810 | 3/4 | 1-3/4 |
| 1705C-45 | .0820 | 3/4 | 1-3/4 |
| 1705C-44 | .0860 | 3/4 | 1-3/4 |
| 1705C-43 | .0890 | 3/4 | 1-3/4 |
| 1705C-42 | .0935 | 3/4 | 1-3/4 |

* Sizes 53-60 are not split point



List No. 1705C continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705C-3/32 | .0938 | 3/4 | 1-3/4 |
| 1705C-41 | .0960 | 13/16 | 1-13/16 |
| 1705C-40 | .0980 | 13/16 | 1-13/16 |
| 1705C-39 | .0995 | 13/16 | 1-13/16 |
| 1705C-38 | .1015 | 13/16 | 1-13/16 |
| 1705C-37 | .1040 | 13/16 | 1-13/16 |
| 1705C-36 | .1065 | 13/16 | 1-13/16 |
| 1705C-7/64 | .1094 | 13/16 | 1-13/16 |
| 1705C-35 | .1100 | 7/8 | 1-7/8 |
| 1705C-34 | .1110 | 7/8 | 1-7/8 |
| 1705C-33 | .1130 | 7/8 | 1-7/8 |
| 1705C-32 | .1160 | 7/8 | 1-7/8 |
| 1705C-31 | .1200 | 7/8 | 1-7/8 |
| 1705C-1/8 | .1250 | 7/8 | 1-7/8 |
| 1705C-30 | .1285 | 15/16 | 1-15/16 |
| 1705C-29 | .1360 | 15/16 | 1-15/16 |
| 1705C-28 | .1405 | 15/16 | 1-15/16 |
| 1705C-9/64 | .1406 | 15/16 | 1-15/16 |
| 1705C-27 | .1440 | 1 | 2-1/16 |
| 1705C-26 | .1470 | 1 | 2-1/16 |
| 1705C-25 | .1495 | 1 | 2-1/16 |
| 1705C-24 | .1520 | 1 | 2-1/16 |
| 1705C-23 | .1540 | 1 | 2-1/16 |
| 1705C-5/32 | .1562 | 1 | 2-1/16 |
| 1705C-22 | .1570 | 1-1/16 | 2-1/8 |
| 1705C-21 | .1590 | 1-1/16 | 2-1/8 |
| 1705C-20 | .1610 | 1-1/16 | 2-1/8 |
| 1705C-19 | .1660 | 1-1/16 | 2-1/8 |
| 1705C-18 | .1695 | 1-1/16 | 2-1/8 |
| 1705C-11/64 | .1719 | 1-1/16 | 2-1/8 |
| 1705C-17 | .1730 | 1-1/8 | 2-3/16 |
| 1705C-16 | .1770 | 1-1/8 | 2-3/16 |
| 1705C-15 | .1800 | 1-1/8 | 2-3/16 |
| 1705C-14 | .1820 | 1-1/8 | 2-3/16 |
| 1705C-13 | .1650 | 1-1/8 | 2-3/16 |
| 1705C-3/16 | .1875 | 1-1/8 | 2-3/16 |
| 1705C-12 | .1890 | 1-3/16 | 2-1/4 |
| 1705C-11 | .1910 | 1-3/16 | 2-1/4 |
| 1705C-10 | .1935 | 1-3/16 | 2-1/4 |
| 1705C-9 | .1960 | 1-3/16 | 2-1/4 |
| 1705C-8 | .1990 | 1-3/16 | 2-1/4 |
| 1705C-7 | .2010 | 1-3/16 | 2-1/4 |
| 1705C-13/64 | .2031 | 1-3/16 | 2-1/4 |
| 1705C-6 | .2040 | 1-1/4 | 2-3/8 |
| 1705C-5 | .2055 | 1-1/4 | 2-3/8 |
| 1705C-4 | .2090 | 1-1/4 | 2-3/8 |
| 1705C-3 | .2130 | 1-1/4 | 2-3/8 |

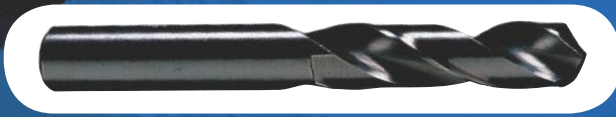
| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705C-7/32 | .2188 | 3-1/8 | 2-3/8 |
| 1705C-2 | .2210 | 1-5/16 | 2-7/16 |
| 1705C-1 | .2280 | 1-5/16 | 2-7/16 |
| 1705C-A | .2340 | 1-5/16 | 2-7/16 |
| 1705C-15/64 | .2344 | 1-5/16 | 2-7/16 |
| 1705C-B | .2380 | 1-3/8 | 2-1/2 |
| 1705C-C | .2420 | 1-3/8 | 2-1/2 |
| 1705C-D | .2460 | 1-3/8 | 1-1/2 |
| 1705C-1/4/E | .2500 | 1-7/16 | 2-5/8 |
| 1705C-F | .2570 | 1-7/16 | 2-5/8 |
| 1705C-G | .2610 | 1-7/16 | 2-5/8 |
| 1705C-17/64 | .2656 | 1-7/16 | 2-5/8 |
| 1705C-H | .2660 | 1-1/2 | 2-11/16 |
| 1705C-I | .2720 | 1-1/2 | 2-11/16 |
| 1705C-J | .2770 | 1-1/2 | 2-11/16 |
| 1705C-K | .2810 | 1-1/2 | 2-11/16 |
| 1705C-9/32 | .2812 | 1-1/2 | 2-11/16 |
| 1705C-L | .2900 | 1-9/16 | 2-3/4 |
| 1705C-M | .2950 | 1-9/16 | 2-3/4 |
| 1705C-19/64 | .2969 | 1-9/16 | 2-3/4 |
| 1705C-N | .3020 | 1-5/8 | 2-13/16 |
| 1705C-5/16 | .3125 | 1-5/8 | 2-13/16 |
| 1705C-O | .3160 | 1-11/16 | 2-15/16 |
| 1705C-P | .3230 | 1-11/16 | 2-15/16 |
| 1705C-21/64 | .3281 | 1-11/16 | 2-15/16 |
| 1705C-Q | .3320 | 1-11/16 | 3 |
| 1705C-R | .3390 | 1-11/16 | 3 |
| 1705C-11/32 | .3438 | 1-11/16 | 3 |
| 1705C-S | .3480 | 1-3/4 | 3-1/16 |
| 1705C-T | .3580 | 1-3/4 | 3-1/16 |
| 1705C-23/64 | .3594 | 1-3/4 | 3-1/16 |
| 1705C-U | .3680 | 1-13/16 | 3-1/8 |
| 1705C-3/8 | .3750 | 1-13/16 | 3-1/8 |
| 1705C-V | .3770 | 1-7/8 | 3-1/4 |
| 1705C-W | .3860 | 1-7/8 | 3-1/4 |
| 1705C-25/64 | .3906 | 1-7/8 | 3-1/4 |
| 1705C-X | .3970 | 1-15/16 | 3-5/16 |
| 1705C-Y | .4040 | 1-15/16 | 3-5/16 |
| 1705C-13/32 | .4062 | 1-15/16 | 3-5/16 |
| 1705C-Z | .4130 | 2 | 3-3/8 |
| 1705C-27/64 | .4219 | 2 | 3-3/8 |
| 1705C-7/16 | .4375 | 2-1/16 | 3-7/16 |
| 1705C-29/64 | .4531 | 2-1/8 | 3-9/16 |
| 1705C-15/32 | .4688 | 2-1/8 | 3-5/8 |
| 1705C-31/64 | .4844 | 2-3/16 | 3-11/16 |
| 1705C-1/2 | .5000 | 2-1/4 | 3-3/4 |



Screw Machine Drills

List No. 1705

NAS 907-C / Heavy Duty / 135° Split Point/



Description: Referred to as “stub drills”. The short flute and overall length increase their rigidity, resulting in better hole accuracy and ex-

Application: Recommended for the drilling of sheet metal, stainless steel,

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705-60* | .0400 | 1/2 | 1-3/8 |
| 1705-59* | .0410 | 1/2 | 1-3/8 |
| 1705-58* | .0420 | 1/2 | 1-3/8 |
| 1705-57* | .0430 | 1/2 | 1-3/8 |
| 1705-56* | .0465 | 1/2 | 1-3/8 |
| 1705-3/64* | .0469 | 1/2 | 1-3/8 |
| 1705-55* | .0520 | 5/8 | 1-5/8 |
| 1705-54* | .0550 | 5/8 | 1-5/8 |
| 1705-53* | .0595 | 5/8 | 1-5/8 |
| 1705-1/16 | .0625 | 5/8 | 1-5/8 |
| 1705-52 | .0635 | 11/16 | 1-11/16 |
| 1705-51 | .0670 | 11/16 | 1-11/16 |
| 1705-50 | .0700 | 11/16 | 1-11/16 |
| 1705-49 | .0730 | 11/16 | 1-11/16 |
| 1705-48 | .0760 | 11/16 | 1-11/16 |
| 1705-5/64 | .0781 | 11/16 | 1-11/16 |
| 1705-47 | .0785 | 11/16 | 1-11/16 |
| 1705-46 | .0810 | 3/4 | 1-3/4 |
| 1705-45 | .0820 | 3/4 | 1-3/4 |
| 1705-44 | .0860 | 3/4 | 1-3/4 |
| 1705-43 | .0890 | 3/4 | 1-3/4 |
| 1705-42 | .0935 | 3/4 | 1-3/4 |
| 1705-3/32 | .0938 | 3/4 | 1-3/4 |
| 1705-41 | .0960 | 13/16 | 1-13/16 |
| 1705-40 | .0980 | 13/16 | 1-13/16 |
| 1705-39 | .0995 | 13/16 | 1-13/16 |
| 1705-38 | .1015 | 13/16 | 1-13/16 |
| 1705-37 | .1040 | 13/16 | 1-13/16 |
| 1705-36 | .1065 | 13/16 | 1-13/16 |
| 1705-7/64 | .1094 | 13/16 | 1-13/16 |
| 1705-35 | .1100 | 7/8 | 1-7/8 |
| 1705-34 | .1110 | 7/8 | 1-7/8 |
| 1705-33 | .1130 | 7/8 | 1-7/8 |
| 1705-32 | .1160 | 7/8 | 1-7/8 |
| 1705-31 | .1200 | 7/8 | 1-7/8 |
| 1705-1/8 | .1250 | 7/8 | 1-7/8 |
| 1705-30 | .1285 | 15/16 | 1-15/16 |
| 1705-29 | .1360 | 15/16 | 1-15/16 |
| 1705-28 | .1405 | 15/16 | 1-15/16 |
| 1705-9/64 | .1406 | 15/16 | 1-15/16 |
| 1705-27 | .1440 | 1 | 2-1/16 |
| 1705-26 | .1470 | 1 | 2-1/16 |
| 1705-25 | .1495 | 1 | 2-1/16 |
| 1705-24 | .1520 | 1 | 2-1/16 |
| 1705-23 | .1540 | 1 | 2-1/16 |
| 1705-5/32 | .1562 | 1 | 2-1/16 |
| 1705-22 | .1570 | 1-1/16 | 2-1/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705-21 | .1590 | 1-1/16 | 2-1/8 |
| 1705-20 | .1610 | 1-1/16 | 2-1/8 |
| 1705-19 | .1660 | 1-1/16 | 2-1/8 |
| 1705-18 | .1695 | 1-1/16 | 2-1/8 |
| 1705-11/64 | .1719 | 1-1/16 | 2-1/8 |
| 1705-17 | .1730 | 1-1/8 | 2-3/16 |
| 1705-16 | .1770 | 1-1/8 | 2-3/16 |
| 1705-15 | .1800 | 1-1/8 | 2-3/16 |
| 1705-14 | .1820 | 1-1/8 | 2-3/16 |
| 1705-13 | .1850 | 1-1/8 | 2-3/16 |
| 1705-3/16 | .1875 | 1-1/8 | 2-3/16 |
| 1705-12 | .1890 | 1-3/16 | 2-1/4 |
| 1705-11 | .1910 | 1-3/16 | 2-1/4 |
| 1705-10 | .1935 | 1-3/16 | 2-1/4 |
| 1705-9 | .1960 | 1-3/16 | 2-1/4 |
| 1705-8 | .1990 | 1-3/16 | 2-1/4 |
| 1705-7 | .2010 | 1-3/16 | 2-1/4 |
| 1705-13/64 | .2031 | 1-3/16 | 2-1/4 |
| 1705-6 | .2040 | 1-1/4 | 2-3/8 |
| 1705-5 | .2055 | 1-1/4 | 2-3/8 |
| 1705-4 | .2090 | 1-1/4 | 2-3/8 |
| 1705-3 | .2130 | 1-1/4 | 2-3/8 |
| 1705-7/32 | .2188 | 1-1/4 | 2-3/8 |
| 1705-2 | .2210 | 1-5/16 | 2-7/16 |
| 1705-1 | .2280 | 1-5/16 | 2-7/16 |
| 1705-A | .2340 | 1-5/16 | 2-7/16 |
| 1705-15/64 | .2344 | 1-5/16 | 2-7/16 |
| 1705-B | .2380 | 1-3/8 | 2-1/2 |
| 1705-C | .2420 | 1-3/8 | 2-1/2 |
| 1705-D | .2460 | 1-3/8 | 2-1/2 |
| 1705-1/4/E | .2500 | 1-7/16 | 2-1/2 |
| 1705-F | .2570 | 1-7/16 | 2-5/8 |
| 1705-G | .2610 | 1-7/16 | 2-5/8 |
| 1705-17/64 | .2656 | 1-7/16 | 2-5/8 |
| 1705-H | .2660 | 1-1/2 | 2-11/16 |
| 1705-I | .2720 | 1-1/2 | 2-11/16 |
| 1705-J | .2770 | 1-1/2 | 2-11/16 |
| 1705-K | .2810 | 1-1/2 | 2-11/16 |
| 1705-9/32 | .2812 | 1-1/2 | 2-11/16 |
| 1705-L | .2900 | 1-9/16 | 2-3/4 |
| 1705-M | .2950 | 1-9/16 | 2-3/4 |
| 1705-19/64 | .2969 | 1-9/16 | 2-3/4 |
| 1705-N | .3020 | 1-5/8 | 2-13/16 |
| 1705-5/16 | .3125 | 1-5/8 | 2-13/16 |
| 1705-O | .3160 | 1-11/16 | 2-15/16 |
| 1705-P | .3230 | 1-11/16 | 2-15/16 |
| 1705-21/64 | .3281 | 1-11/16 | 2-15/16 |

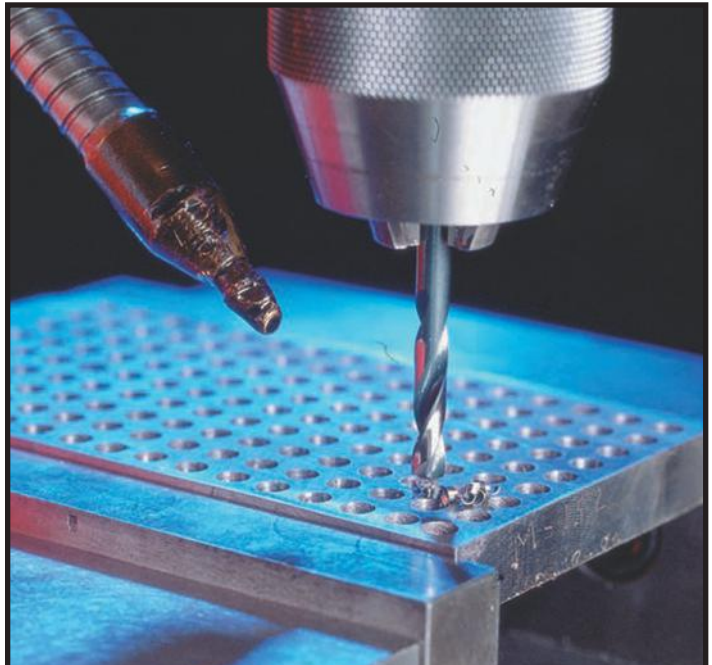
* Sizes 53-60 are not split point



List No. 1705 continued



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 1705-Q | .3320 | 1-11/16 | 3 |
| 1705-R | .3390 | 1-11/16 | 3 |
| 1705-11/32 | .3438 | 1-11/16 | 3 |
| 1705-S | .3480 | 1-3/4 | 3-1/16 |
| 1705-T | .3580 | 1-3/4 | 3-1/16 |
| 1705-23/64 | .3594 | 1-3/4 | 3-1/16 |
| 1705-U | .3680 | 1-13/16 | 3-1/8 |
| 1705-3/8 | .3750 | 1-13/16 | 3-1/8 |
| 1705-V | .3770 | 1-7/8 | 3-1/4 |
| 1705-W | .3860 | 1-7/8 | 3-1/4 |
| 1705-25/64 | .3906 | 1-7/8 | 3-1/4 |
| 1705-X | .3970 | 1-15/16 | 3-5/16 |
| 1705-Y | .4040 | 1-15/16 | 3-5/16 |
| 1705-13/32 | .4062 | 1-15/16 | 3-5/16 |
| 1705-Z | .4130 | 2 | 3-3/8 |
| 1705-27/64 | .4219 | 2 | 3-3/8 |
| 1705-7/16 | .4375 | 2-1/16 | 3-7/16 |
| 1705-29/64 | .4531 | 2-1/8 | 3-9/16 |
| 1705-15/32 | .4688 | 2-1/8 | 3-5/8 |
| 1705-31/64 | .4844 | 2-3/16 | 3-11/16 |
| 1705-1/2 | .5000 | 2-1/4 | 3-3/4 |



1705 Screw Machine Drills in Action



BruteLube Cutting Fluid & Wax

List No. XLUB

Description: Multi-purpose cutting and tapping fluid specially formulated to extend tool life and reduce chip welding. Provides a precision finish with closer tolerances on finished work. Complies with OSHA regulations and

List No. XLUB-WAX

Description: Formulated to extend tool life, reduce chip welding and clings to the tool at any angle, including overhead operations. Continuous shield against friction and heat, reducing tool costs and work piece scrap. Provides a close tolerance precision finish. Effective on stainless steel, aluminum, and exotic alloys.



| EDP No. | Description |
|---------------|-------------|
| XLUB4 | 4 oz. |
| XLUB16 | 16 oz. |
| XLUB128 | 1 gallon |
| XLUB-WAX-2 | 2 oz. |
| XLUB-WAX-16 | 16 oz. |
| XLUB-STICK-16 | 16 oz. |

See pages 155-156 for BruteLube Material Safety Data

CHAMPION

Taper Shank Drills

List No. 702

118° Point / Standard Shank / Surface Treated / HSS

Description: For drilling a wide variety of materials where the driving machinery has a taper shank socket and/or arbor.

Application: Low to medium carbon steels, alloyed steels, steel drop forgings and grey cast iron



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | Shank No. |
|-------------------|--------------------|--------------|----------------|-----------|
| 702-13/64 | .2031 | 2-3/4 | 6 | 1 |
| 702-7/32 | .2188 | 2-3/4 | 6 | 1 |
| 702-15/64 | .2344 | 2-7/8 | 6-1/8 | 1 |
| 702-1/4 | .2500 | 2-7/8 | 6-1/8 | 1 |
| 702-17/64 | .2656 | 3 | 6-1/4 | 1 |
| 702-9/32 | .2812 | 3 | 6-1/4 | 1 |
| 702-5/16 | .3125 | 3-1/8 | 6-3/8 | 1 |
| 702-21/64 | .3281 | 3-1/4 | 6-1/2 | 1 |
| 702-11/32 | .3438 | 3-1/4 | 6-1/2 | 1 |
| 702-23/64 | .3594 | 3-1/2 | 6-3/4 | 1 |
| 702-3/8 | .3750 | 3-1/2 | 6-3/4 | 1 |
| 702-25/64 | .3906 | 3-5/8 | 7 | 1 |
| 702-13/32 | .4062 | 3-5/8 | 7 | 1 |
| 702-27/64 | .4219 | 3-7/8 | 7-1/4 | 1 |
| 702-7/16 | .4375 | 3-7/8 | 7-1/4 | 1 |
| 702-29/64 | .4531 | 4-1/8 | 7-1/2 | 1 |
| 702-15/32 | .4688 | 4-1/8 | 7-1/2 | 1 |
| 702-31/64 | .4844 | 4-3/8 | 8-1/4 | 2 |
| 702-1/2 | .5000 | 4-3/8 | 8-1/4 | 2 |
| 702-33/64 | .5156 | 4-5/8 | 8-1/2 | 2 |
| 702-17/32 | .5312 | 4-5/8 | 8-1/2 | 2 |
| 702-35/64 | .5469 | 4-7/8 | 8-3/4 | 2 |
| 702-9/16 | .5625 | 4-7/8 | 8-3/4 | 2 |
| 702-37/64 | .5781 | 4-7/8 | 8-3/4 | 2 |
| 702-19/32 | .5938 | 4-7/8 | 8-3/4 | 2 |
| 702-39/64 | .6094 | 4-7/8 | 8-3/4 | 2 |
| 702-5/8 | .6250 | 4-7/8 | 8-3/4 | 2 |
| 702-41/64 | .6406 | 5-1/8 | 9 | 2 |
| 702-21/32 | .6562 | 5-1/8 | 9 | 2 |
| 702-43/64 | .6719 | 5-3/8 | 9-1/4 | 2 |
| 702-11/16 | .6875 | 5-3/8 | 9-1/4 | 2 |
| 702-45/64 | .7031 | 5-5/8 | 9-1/2 | 2 |
| 702-23/32 | .7188 | 5-5/8 | 9-1/2 | 2 |
| 702-47/64 | .7344 | 5-7/8 | 9-3/4 | 2 |
| 702-3/4 | .7500 | 5-7/8 | 9-3/4 | 2 |
| 702-49/64 | .7656 | 6 | 9-7/8 | 2 |
| 702-25/32 | .7812 | 6 | 9-7/8 | 2 |
| 702-51/64 | .7969 | 6-1/8 | 10-3/4 | 3 |
| 702-13/16 | .8125 | 6-1/8 | 10-3/4 | 3 |
| 702-53/64 | .8281 | 6-1/8 | 10-3/4 | 3 |
| 702-27/32 | .8438 | 6-1/8 | 10-3/4 | 3 |
| 702-55/64 | .8594 | 6-1/8 | 10-3/4 | 3 |
| 702-7/8 | .8750 | 6-1/8 | 10-3/4 | 3 |
| 702-57/64 | .8906 | 6-1/8 | 10-3/4 | 3 |
| 702-29/32 | .9062 | 6-1/8 | 10-3/4 | 3 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | Shank No. |
|-------------------|--------------------|--------------|----------------|-----------|
| 702-59/64 | .9219 | 6-1/8 | 10-3/4 | 3 |
| 702-15/16 | .9375 | 6-1/8 | 10-3/4 | 3 |
| 702-61/64 | .9531 | 6-3/8 | 11 | 3 |
| 702-31/32 | .9688 | 6-3/8 | 11 | 3 |
| 702-63/64 | .9844 | 6-3/8 | 11 | 3 |
| 702-1 | 1.0000 | 6-3/8 | 11 | 3 |
| 702-1-1/64 | 1.0156 | 6-1/2 | 11-1/8 | 3 |
| 702-1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 3 |
| 702-1-3/64 | 1.0469 | 6-5/8 | 11-1/4 | 3 |
| 702-1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 3 |
| 702-1-5/64 | 1.0781 | 6-7/8 | 12-1/2 | 4 |
| 702-1-3/32 | 1.0938 | 6-7/8 | 12-1/2 | 4 |
| 702-1-7/64 | 1.1094 | 7-1/8 | 12-3/4 | 4 |
| 702-1-1/8 | 1.1250 | 7-1/8 | 12-3/4 | 4 |
| 702-1-9/64 | 1.1406 | 7-1/4 | 12-7/8 | 4 |
| 702-1-5/32 | 1.1562 | 7-1/4 | 12-7/8 | 4 |
| 702-1-11/64 | 1.1719 | 7-3/8 | 12 | 4 |
| 702-1-3/16 | 1.1875 | 7-3/8 | 12 | 4 |
| 702-1-13/64 | 1.2031 | 7-1/2 | 13-1/8 | 4 |
| 702-1-7/32 | 1.2188 | 7-1/2 | 13-1/8 | 4 |
| 702-1-15/64 | 1.2344 | 7-7/8 | 13-1/2 | 4 |
| 702-1-1/4 | 1.2500 | 7-7/8 | 13-1/2 | 4 |
| 702-1-17/64 | 1.2656 | 8-1/2 | 14-1/8 | 4 |
| 702-1-9/32 | 1.2812 | 8-1/2 | 14-1/8 | 4 |
| 702-1-19/64 | 1.2969 | 8-5/8 | 14-1/4 | 4 |
| 702-1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 4 |
| 702-1-21/64 | 1.3281 | 8-3/4 | 14-3/8 | 4 |
| 702-1-11/32 | 1.4348 | 8-3/4 | 14-3/8 | 4 |
| 702-1-23/64 | 1.3594 | 8-7/8 | 14-1/2 | 4 |
| 702-1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 4 |
| 702-1-25/64 | 1.3906 | 9 | 14-5/8 | 4 |
| 702-1-13/32 | 1.4062 | 9 | 14-5/8 | 4 |
| 702-1-27/64 | 1.4219 | 9-1/8 | 14-3/4 | 4 |
| 702-1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 4 |
| 702-1-29/64 | 1.4531 | 9-1/4 | 14-7/8 | 4 |
| 702-1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 4 |
| 702-1-31/64 | 1.4844 | 9-3/8 | 15 | 4 |
| 702-1-1/2 | 1.5000 | 9-3/8 | 15 | 4 |
| 702-1-17/32 | 1.5312 | 9-3/8 | 16-3/8 | 5 |
| 702-1-9/16 | 1.5625 | 9-5/8 | 16-5/8 | 5 |
| 702-1-19/32 | 1.5938 | 9-7/8 | 16-7/8 | 5 |
| 702-1-5/8 | 1.6250 | 10 | 17 | 5 |
| 702-1-21/32 | 1.6562 | 10-1/8 | 17-1/8 | 5 |
| 702-1-11/16 | 1.6875 | 10-1/8 | 17-1/8 | 5 |



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | Shank No. |
|-------------------|--------------------|--------------|----------------|-----------|
| 702-1-23/32 | 1.7188 | 10-1/8 | 17-1/8 | 5 |
| 702-1-3/4 | 1.7500 | 10-1/8 | 17-1/8 | 5 |
| 702-1-25/32 | 1.7812 | 10-1/8 | 17-1/8 | 5 |
| 702-1-13/16 | 1.8125 | 10-1/8 | 17-1/8 | 5 |
| 702-1-27/32 | 1.8438 | 10-1/8 | 17-1/8 | 5 |
| 702-1-7/8 | 1.8750 | 10-3/8 | 17-3/8 | 5 |
| 702-1-29/32 | 1.9062 | 10-3/8 | 17-3/8 | 5 |
| 702-1-15/16 | 1.9375 | 10-3/8 | 17-3/8 | 5 |
| 702-1-31/32 | 2.0000 | 10-3/8 | 17-3/8 | 5 |
| 702-2 | 2.0312 | 10-3/8 | 17-3/8 | 5 |
| 702-2-1/32 | 2.0625 | 10-1/4 | 17-3/8 | 5 |
| 702-2-1/16 | 2.0938 | 10-1/4 | 17-3/8 | 5 |
| 702-2-3/32 | 2.1250 | 10-1/4 | 17-3/8 | 5 |
| 702-2-1/8 | 2.1562 | 10-1/4 | 17-3/8 | 5 |
| 702-2-5/32 | 2.1875 | 10-1/4 | 17-3/8 | 5 |
| 702-2-3/16 | 2.1875 | 10-1/4 | 17-3/8 | 5 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | Shank No. |
|-------------------|--------------------|--------------|----------------|-----------|
| 702-2-7/32 | 2.2188 | 10-1/8 | 17-3/8 | 5 |
| 702-2-1/4 | 2.2500 | 10-1/8 | 17-3/8 | 5 |
| 702-2-5/16 | 2.3125 | 10-1/8 | 17-3/8 | 5 |
| 702-2-3/8 | 2.3750 | 10-1/8 | 17-3/8 | 5 |
| 702-2-7/16 | 2.4375 | 11-1/4 | 18-3/4 | 5 |
| 702-2-1/2 | 2.5000 | 11-1/4 | 18-3/4 | 5 |
| 702-2-9/16 | 2.5625 | 11-7/8 | 19-1/2 | 5 |
| 702-2-5/8 | 2.6250 | 11-7/8 | 19-1/3 | 5 |
| 702-2-11/16 | 2.6875 | 11-7/8 | 20-3/8 | 5 |
| 702-2-3/4 | 2.7500 | 12-3/4 | 20-3/8 | 5 |
| 702-2-13/16 | 2.8125 | 13-3/8 | 21-1/8 | 5 |
| 702-2-7/8 | 2.8750 | 13-3/8 | 21-1/8 | 5 |
| 702-2-15/16 | 2.9375 | 14 | 21-3/4 | 5 |
| 702-2-3 | 3.0000 | 14 | 21-3/4 | 5 |
| 702-3-1/8 | 3.1250 | 14-5/8 | 24-1/2 | 6 |
| 702-3-1/4 | 3.2500 | 15-1/2 | 25-1/2 | 6 |



Precision Manufactured Taper Shank Drills



Taper Shank Reducing Sleeves

List No. S1



Description: Steel sleeves are used to adapt taper shank tools where the drill shank is smaller than the machine

Application: Used with Taper Shank Drills #702.

| EDP No. | Description | EDP No. | Description |
|---------|------------------|---------|------------------|
| S1-1/2 | #1 Hole/#2 Shank | S1-2/5 | #2 Hole/#5 Shank |
| S1-1/3 | #1 Hole/#3 Shank | S1-3/4 | #3 Hole/#4 Shank |
| S1-1/4 | #1 Hole/#4 Shank | S1-3/5 | #3 Hole/#5 Shank |
| S1-1/5 | #1 Hole/#5 Shank | S1-4/5 | #4 Hole/#5 Shank |
| S1-2/3 | #2 Hole/#3 Shank | S1-4/6 | #4 Hole/#6 Shank |
| S1-2/4 | #2 Hole/#4 Shank | S1-5/6 | #5 Hole/#6 Shank |



Taper Shank Extension Sockets

List No. S2



Description: Used to adapt taper shank tools where the drill shank is larger than the machine spindle hole. They can be used to extend the length of

Application: Used with Taper Shank Drills #702.

| EDP No. | Description | EDP No. | Description |
|---------|------------------|---------|------------------|
| S2-1/2 | #1 Hole/#2 Shank | S2-3/4 | #3 Hole/#4 Shank |
| S2-1/3 | #1 Hole/#3 Shank | S2-3/5 | #3 Hole/#5 Shank |
| S2-1/4 | #1 Hole/#4 Shank | S2-4/3 | #4 Hole/#3 Shank |
| S2-1/5 | #1 Hole/#5 Shank | S2-4/4 | #4 Hole/#4 Shank |
| S2-2/2 | #2 Hole/#2 Shank | S2-4/5 | #4 Hole/#5 Shank |
| S2-2/3 | #2 Hole/#3 Shank | S2-4/6 | #4 Hole/#6 Shank |
| S2-2/4 | #2 Hole/#4 Shank | S2-5/3 | #5 Hole/#3 Shank |
| S2-2/5 | #2 Hole/#5 Shank | S2-5/4 | #5 Hole/#4 Shank |
| S2-3/2 | #3 Hole/#2 Shank | S2-5/5 | #5 Hole/#5 Shank |
| S2-3/3 | #3 Hole/#3 Shank | S2-5/6 | #5 Hole/#6 Shank |



Drill Drift Keys

List No. D1

Multiple Use Ejection Keys



Description: Used to eject taper shank drills & sockets / sleeves from machine spindles.

Application: Used with Taper Shank Drills #702

| EDP No. | Length Inches | Fits Sockets and Sleeves |
|-------------|---------------|--------------------------|
| D1-1015 | 5 | No. 1 |
| D1-2026 | 6 | No. 2 |
| D1-3037 | 7 | No. 3 |
| D1-4068-1/2 | 8-1/2 | No. 4,5,6 |

Twisted or broken



Morse taper shanks are defined as self driving, that is they are designed and made to drive off the taper — not the tang.

The tang is for ejection purposes only. Tang failures are due to a bad fit between the shank and the socket — thus taking the drive off the taper and putting it on the tang.



Taper Length Drills

List No. 704

118° Point / Straight Shank / HSS / Black Oxide



Description: Taper length drills have approximately the same overall flute lengths as taper shank drills and are longer than Champion 705 drills. Their shanks are of the same nominal diameter as the drill.

Application: Frequently used in lathes and screw machines. For low carbon steels, alloyed steels, steel drop forgings and grey cast iron

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 704-3/64 | .0469 | 1-1/8 | 2-1/4 |
| 704-1/16 | .0625 | 1-3/4 | 3 |
| 704-5/64 | .0781 | 2 | 3-3/4 |
| 704-3/32 | .0937 | 2-1/4 | 4-1/4 |
| 704-7/64 | .1094 | 2-1/2 | 4-5/8 |
| 704-1/8 | .1250 | 2-3/4 | 5-1/8 |
| 704-9/64 | .1406 | 3 | 5-3/8 |
| 704-5/32 | .1562 | 3 | 5-3/8 |
| 704-11/64 | .1719 | 3-3/8 | 5-3/4 |
| 704-3/16 | .1875 | 3-3/8 | 5-3/4 |
| 704-13/64 | .2031 | 3-5/8 | 6 |
| 704-7/32 | .2187 | 3-5/8 | 6 |
| 704-15/64 | .2344 | 3-3/4 | 6-1/8 |
| 704-1/4 | .2500 | 3-3/4 | 6-1/8 |
| 704-17/64 | .2656 | 3-7/8 | 6-1/4 |
| 704-9/32 | .2812 | 3-7/8 | 6-1/4 |
| 704-19/64 | .2969 | 4 | 6-3/8 |
| 704-5/16 | .3125 | 4 | 6-3/8 |
| 704-21/64 | .3281 | 4-1/8 | 6-1/2 |
| 704-11/32 | .3438 | 4-1/8 | 6-1/2 |
| 704-23/64 | .3594 | 4-1/4 | 6-3/4 |
| 704-3/8 | .3750 | 4-1/4 | 6-3/4 |
| 704-25/64 | .3906 | 4-3/8 | 7 |
| 704-13/32 | .4062 | 4-3/8 | 7 |
| 704-27/64 | .4219 | 4-5/8 | 7-1/4 |
| 704-7/16 | .4375 | 4-5/8 | 7-1/4 |
| 704-29/64 | .4531 | 4-3/4 | 7-1/2 |
| 704-15/32 | .4687 | 4-3/4 | 7-1/2 |
| 704-31/64 | .4844 | 4-3/4 | 7-3/4 |
| 704-1/2 | .5000 | 4-3/4 | 7-3/4 |
| 704-33/64 | .5156 | 4-3/4 | 8 |
| 704-17/32 | .5312 | 4-3/4 | 8 |
| 704-35/64 | .5469 | 4-7/8 | 8-1/4 |
| 704-9/16 | .5625 | 4-7/8 | 8-1/4 |
| 704-37/64 | .5781 | 4-7/8 | 8-3/4 |
| 704-19/32 | .5938 | 4-7/8 | 8-3/4 |
| 704-39/64 | .6094 | 4-7/8 | 8-3/4 |
| 704-5/8 | .6250 | 4-7/8 | 8-3/4 |
| 704-41/64 | .6406 | 5-1/8 | 9 |
| 704-21/32 | .6562 | 5-1/8 | 9 |
| 704-43/64 | .6719 | 5-3/8 | 9-1/4 |
| 704-11/16 | .6875 | 5-3/8 | 9-1/4 |
| 704-45/64 | .7031 | 5-5/8 | 9-1/2 |
| 704-23/32 | .7188 | 5-5/8 | 9-1/2 |
| 704-47/64 | .7344 | 5-7/8 | 9-3/4 |
| 704-3/4 | .7500 | 5-7/8 | 9-3/4 |
| 704-49/64 | .7656 | 6 | 9-7/8 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 704-25/32 | .7812 | 6 | 9-7/8 |
| 704-51/64 | .7969 | 6-1/8 | 10 |
| 704-13/16 | .8125 | 6-1/8 | 10 |
| 704-53/64 | .8281 | 6-1/8 | 10 |
| 704-27/32 | .8438 | 6-1/8 | 10 |
| 704-55/64 | .8594 | 6-1/8 | 10 |
| 704-7/8 | .8750 | 6-1/8 | 10 |
| 704-57/64 | .8906 | 6-1/8 | 10 |
| 704-29/32 | .9062 | 6-1/8 | 10 |
| 704-59/64 | .9219 | 6-1/8 | 10-3/4 |
| 704-15/16 | .9375 | 6-1/8 | 10-3/4 |
| 704-61/64 | .9531 | 6-3/8 | 11 |
| 704-31/32 | .9688 | 6-3/8 | 11 |
| 704-63/64 | .9844 | 6-3/8 | 11 |
| 704-1 | 1.0000 | 6-3/8 | 11 |
| 704-1-1/64 | 1.0156 | 6-1/2 | 11-1/8 |
| 704-1-1/32 | 1.0312 | 6-1/2 | 11-1/8 |
| 704-1-3/64 | 1.0469 | 6-5/8 | 11-1/4 |
| 704-1-1/16 | 1.0625 | 6-5/8 | 11-1/4 |
| 704-1-5/64 | 1.0781 | 6-7/8 | 11-1/2 |
| 704-1-3/32 | 1.0938 | 6-7/8 | 11-1/2 |
| 704-1-7/64 | 1.1094 | 7-1/8 | 11-3/4 |
| 704-1-1/8 | 1.1250 | 7-1/8 | 11-3/4 |
| 704-1-9/64 | 1.1406 | 7-1/4 | 11-7/8 |
| 704-1-5/32 | 1.1562 | 7-1/4 | 11-7/8 |
| 704-1-11/64 | 1.1719 | 7-3/8 | 12 |
| 704-1-3/16 | 1.1875 | 7-3/8 | 12 |
| 704-1-13/64 | 1.2031 | 7-1/2 | 12-1/8 |
| 704-1-7/32 | 1.2188 | 7-1/2 | 12-1/8 |
| 704-1-15/64 | 1.2344 | 7-7/8 | 12-1/2 |
| 704-1-1/4 | 1.2500 | 7-7/8 | 12-1/2 |
| 704-1-9/32 | 1.2812 | 8-1/2 | 14-1/8 |
| 704-1-5/16 | 1.3125 | 8-5/8 | 14-1/4 |
| 704-1-11/32 | 1.3438 | 8-3/4 | 14-3/8 |
| 704-1-3/8 | 1.3750 | 8-7/8 | 14-1/2 |
| 704-1-13/32 | 1.4062 | 9 | 14-5/8 |
| 704-1-7/16 | 1.4375 | 9-1/8 | 14-3/4 |
| 704-1-15/32 | 1.5625 | 9-1/4 | 14-7/8 |
| 704-1-1/2 | 1.5000 | 9-3/8 | 15 |
| 704-1-9/16 | 1.5625 | 9-5/8 | 15-1/4 |
| 704-1-5/8 | 1.6250 | 9-7/8 | 15-5/8 |
| 704-1-3/4 | 1.7500 | 10-1/2 | 16-1/4 |



Screw Extractors

List No. X1
Left Hand / Spiral Flute



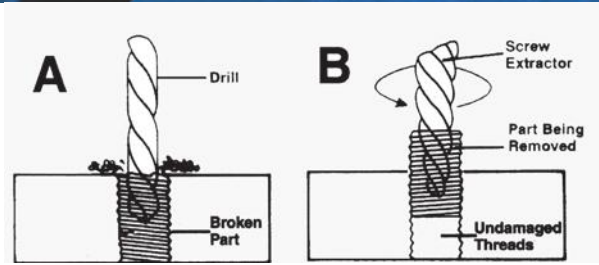
List No. X2
Straight Flute Extractors



Description: For the removal of broken screws, studs, bolts or pipe fittings. The left hand rotation of the tapered flutes forces out almost any right hand threaded part. Penetrating oil can be helpful in removing rusty or corroded parts.

Sizes X1 thru X5 are available in an ipac combination pack with the relevant left hand XL5 drill bit.

X2 extractors are used by first hammering them into the broken bolt.



To remove a broken screw:
Drill a hole in the broken screw with the recommended diameter drill (fig. A).
Insert the proper screw extractor into the hole and start a counterclockwise (left-hand) rotation (fig. B).

Please specify X2 to order Straight Flute Screw Extractors

| EDP No./ Diameter | Diameter Small End | Diameter Large End | Overall Length | For Bolt Sizes | For Pipe Sizes | Drill Size |
|-------------------|--------------------|--------------------|----------------|----------------|----------------|------------|
| X1-1*/ X2-1 | .054 | 5/32 | 2 | 3/16 to 1/4 | — | 5/64 |
| X1-2*/ X2-2 | .80 | 3/16 | 2-3/8 | 1/4 to 5/16 | — | 7/64 |
| X1-3*/ X2-3 | 1/8 | 1/4 | 2-11/16 | 5/16 to 7/16 | — | 5/32 |
| X1-4*/ X2-4 | 3/16 | 21/64 | 2-7/8 | 7/16 to 9/16 | — | 1/4 |
| X1-5*/ X2-5 | 1/4 | 7/16 | 3-3/8 | 9/16 to 3/4 | 1/8, 1/4 | 19/64 |
| X1-6 / X2-6 | 3/8 | 19/32 | 3-3/4 | 3/4 to 1-3/8 | 3/8 | 13/32 |
| X1-7 / X2-7 | 1/2 | 3/4 | 4-1/8 | 1 to 1-3/8 | 1/2 | 17/32 |
| X1-8 | 3/4 | 1 | 4-3/8 | 1-3/8 to 1-3/4 | 3/4 | 13/16 |
| X1-9 | 1 | 1-9/32 | 4-5/8 | 1-3/4 to 2-1/8 | 1 | 1-1/16 |
| X1-10 | 1-1/4 | 1-9/16 | 5 | 2-1/8 to 2-1/2 | 1-1/4 | 1-5/16 |
| X1-11 | 1-1/2 | 1-7/8 | 5-5/8 | 2-1/2 to 3 | 1-1/2 | 1-9/16 |
| X1-12 | 1-7/8 | 2-15/16 | 6-1/4 | 3 to 3-1/2 | 2 | 1-15/16 |

*** Combination X1/XL5LH ipac available

Combination Drill & Screw Extractors Sets



| EDP No./ Diameter | Includes |
|-------------------|---|
| X1-XL5LH | XL5LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and Screw Extractors #1-5 |
| X1-705LH | 705LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and Screw Extractors #1-5 |

Screw Extractor Sets



| EDP No./ Diameter | Includes |
|-------------------|--------------------------------|
| X1-1-5 | Screw Extractors #1-5 |
| X1-1-6 | Screw Extractors #1-6 |
| X2-1-5 | Straight Flute Extractors #1-5 |
| X2-1-6 | Straight Flute Extractors #1-6 |



18" Longboy Drills

List No. 1800

118° Point / 13" Flute Length / Bright Finish / Straight Shank / HSS



Description: Designed for general purpose drilling in a wide range of materials in deep hole applications where a maximum 13" flute length is required.

Drills 17/32" and larger will not fit into 1/2" chucks.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|---------------|--------------------|--------------|----------------|
| 1800-3/16 | .1875 | 13 | 18 | 1800-23/32 | .7188 | 13 | 18 |
| 1800-7/32 | .2188 | 13 | 18 | 1800-47/64 | .7344 | 13 | 18 |
| 1800-1/4 | .2500 | 13 | 18 | 1800-3/4 | .7500 | 13 | 18 |
| 1800-9/32 | .2812 | 13 | 18 | 1800-49/64 | .7656 | 13 | 18 |
| 1800-5/16 | .3125 | 13 | 18 | 1800-25/32 | .7812 | 13 | 18 |
| 1800-11/32 | .3438 | 13 | 18 | 1800-51/64 | .7969 | 13 | 18 |
| 1800-3/8 | .3750 | 13 | 18 | 1800-13/16 | .8125 | 13 | 18 |
| 1800-13/32 | .4062 | 13 | 18 | 1800-53/64 | .8281 | 13 | 18 |
| 1800-7/16 | .4375 | 13 | 18 | 1800-27/32 | .8438 | 13 | 18 |
| 1800-15/32 | .4688 | 13 | 18 | 1800-55/64 | .8594 | 13 | 18 |
| 1800-1/2 | .5000 | 13 | 18 | 1800-7/8 | .8750 | 13 | 18 |
| 1800-17/32 | .5312 | 13 | 18 | 1800-57/64 | .8906 | 13 | 18 |
| 1800-9/16 | .5625 | 13 | 18 | 1800-29/32 | .9062 | 13 | 18 |
| 1800-5/8 | .6250 | 13 | 18 | 1800-59/64 | .9219 | 13 | 18 |
| 1800-41/64 | .6406 | 13 | 18 | 1800-15/16 | .9375 | 13 | 18 |
| 1800-21/32 | .6562 | 13 | 18 | 1800-61/64 | .9531 | 13 | 18 |
| 1800-43/64 | .6719 | 13 | 18 | 1800-31/32 | .9688 | 13 | 18 |
| 1800-11/16 | .6875 | 13 | 18 | 1800-63/64 | .9844 | 13 | 18 |
| 1800-45/64 | .7031 | 13 | 18 | 1800-1 | 1.0000 | 13 | 18 |



1/2" Shank Longboy Drills

List No. 1212

118° Point / Bright Finish / HSS



Description: 1/2" reduced shank for use where chuck capacity is limited to 1/2".

Application: Low carbon steels, alloyed steels, steel drop forgings, grey cast iron, wood.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 1212-17/32 | .5312 | 9 | 12 |
| 1212-9/16 | .5625 | 9 | 12 |
| 1212-5/8 | .6250 | 9 | 12 |
| 1212-3/4 | .7500 | 9 | 12 |
| 1212-7/8 | .8750 | 9 | 12 |
| 1212-1 | 1.0000 | 9 | 12 |



Flute milling of large diameter twist drills

CHAMPION

12" Longboy Drills

List No. 1200

118° Point / 9" Flute Length / Bright Finish / Straight Shank / HSS



Description: Designed for general purpose drilling in a wide range of materials in deep hole applications where a maximum 9" flute length is required. Drills 17/32" and larger will not fit into 1/2" chucks.

Application: Low carbon steels, alloyed steels, steel drop forgings, grey cast iron, wood.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 1200-1/8 | .1250 | 9 | 12 |
| 1200-9/64 | .1406 | 9 | 12 |
| 1200-5/32 | .1562 | 9 | 12 |
| 1200-11/64 | .1719 | 9 | 12 |
| 1200-3/16 | .1875 | 9 | 12 |
| 1200-13/64 | .2031 | 9 | 12 |
| 1200-7/32 | .2187 | 9 | 12 |
| 1200-15/64 | .2344 | 9 | 12 |
| 1200-1/4 | .2500 | 9 | 12 |
| 1200-17/64 | .2656 | 9 | 12 |
| 1200-9/32 | .2812 | 9 | 12 |
| 1200-19/64 | .2969 | 9 | 12 |
| 1200-5/16 | .3125 | 9 | 12 |
| 1200-21/64 | .3281 | 9 | 12 |
| 1200-11/32 | .3437 | 9 | 12 |

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 1200-23/64 | .3594 | 9 | 12 |
| 1200-3/8 | .3750 | 9 | 12 |
| 1200-25/64 | .3906 | 9 | 12 |
| 1200-13/32 | .4062 | 9 | 12 |
| 1200-27/64 | .4219 | 9 | 12 |
| 1200-7/16 | .4375 | 9 | 12 |
| 1200-29/64 | .4531 | 9 | 12 |
| 1200-15/32 | .4687 | 9 | 12 |
| 1200-31/64 | .4844 | 9 | 12 |
| 1200-1/2 | .5000 | 9 | 12 |
| 1200-17/32 | .5312 | 9 | 12 |
| 1200-9/16 | .5625 | 9 | 12 |
| 1200-5/8 | .6250 | 9 | 12 |
| 1200-3/4 | .7500 | 9 | 12 |

CHAMPION

12" Aircraft Extension Drills

List No. 7012

135° Split Point / Black Oxide Treated / HSS

List No. CS12X* 135° Split Point / Surface Treated



Description: Flute length is the same as a standard jobber drill. Single piece construction. Spring tempered shanks prevent permanent bending when drilling holes not in direct alignment.

Application: Designed for drilling holes in aircraft assembly work where long reach is needed.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 7012-60 | .0400 | 11/16 | 12 |
| 7012-59 | .0410 | 11/16 | 12 |
| 7012-58 | .0420 | 11/16 | 12 |
| 7012-57 | .0430 | 3/4 | 12 |
| 7012-56 | .0465 | 3/4 | 12 |
| 7012-3/64 | .0469 | 3/4 | 12 |
| 7012-55 | .0520 | 7/8 | 12 |
| 7012-54 | .0550 | 7/8 | 12 |
| 7012-53 | .0595 | 7/8 | 12 |
| 7012-1/16 | .0625 | 7/8 | 12 |
| 7012-52 | .0635 | 7/8 | 12 |
| 7012-51 | .0670 | 1 | 12 |
| 7012-50 | .0700 | 1 | 12 |
| 7012-49 | .0730 | 1 | 12 |
| 7012-48 | .0760 | 1 | 12 |
| 7012-5/64 | .0781 | 1 | 12 |
| 7012-47 | .0785 | 1 | 12 |

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 7012-46 | .0810 | 1-1/8 | 12 |
| 7012-45 | .0820 | 1-1/8 | 12 |
| 7012-44 | .0860 | 1-1/8 | 12 |
| 7012-43 | .0890 | 1-1/4 | 12 |
| 7012-42 | .0935 | 1-1/4 | 12 |
| 7012-3/32 | .0938 | 1-1/4 | 12 |
| 7012-41 | .0960 | 1-3/8 | 12 |
| 7012-40* | .0980 | 1-3/8 | 12 |
| 7012-39 | .0995 | 1-3/8 | 12 |
| 7012-38 | .1015 | 1-7/16 | 12 |
| 7012-37 | .1040 | 1-7/16 | 12 |
| 7012-36 | .1065 | 1-7/16 | 12 |
| 7012-7/64 | .1094 | 1-1/2 | 12 |
| 7012-35 | .1100 | 1-1/2 | 12 |
| 7012-34 | .1110 | 1-1/2 | 12 |
| 7012-33 | .1130 | 1-1/2 | 12 |
| 7012-32 | .1160 | 1-5/8 | 12 |

*Please specify CS12X when ordering.



| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 7012-31 | .1200 | 1-5/8 | 12 |
| 7012-1/8* | .1250 | 1-5/8 | 12 |
| 7012-30* | .1285 | 1-5/8 | 12 |
| 7012-29* | .1360 | 1-3/4 | 12 |
| 7012-28 | .1405 | 1-3/4 | 12 |
| 7012-9/64 | .1406 | 1-3/4 | 12 |
| 7012-27 | .1440 | 1-7/8 | 12 |
| 7012-26 | .1470 | 1-7/8 | 12 |
| 7012-25 | .1495 | 1-7/8 | 12 |
| 7012-24 | .1520 | 2 | 12 |
| 7012-23 | .1540 | 2 | 12 |
| 7012-5/32 | .1562 | 2 | 12 |
| 7012-22 | .1570 | 2 | 12 |
| 7012-21* | .1590 | 2-1/8 | 12 |
| 7012-20* | .1610 | 2-1/8 | 12 |
| 7012-19 | .1660 | 2-1/8 | 12 |
| 7012-18 | .1695 | 2-1/8 | 12 |
| 7012-11/64 | .1719 | 2-1/8 | 12 |
| 7012-17 | .1730 | 2-3/16 | 12 |
| 7012-16 | .1770 | 2-3/16 | 12 |
| 7012-15 | .1800 | 2-3/16 | 12 |
| 7012-14 | .1820 | 2-3/16 | 12 |
| 7012-13 | .1850 | 2-5/16 | 12 |
| 7012-3/16* | .1875 | 2-5/16 | 12 |
| 7012-12 | .1890 | 2-5/16 | 12 |
| 7012-11* | .1910 | 2-5/16 | 12 |
| 7012-10* | .1935 | 2-7/16 | 12 |
| 7012-9 | .1960 | 2-7/16 | 12 |
| 7012-8 | .1990 | 2-7/16 | 12 |
| 7012-7 | .2010 | 2-7/16 | 12 |
| 7012-13/64 | .2031 | 2-7/16 | 12 |
| 7012-6 | .2040 | 2-1/2 | 12 |
| 7012-5 | .2055 | 2-1/2 | 12 |
| 7012-4 | .2090 | 2-1/2 | 12 |
| 7012-3 | .2130 | 2-1/2 | 12 |
| 7012-7/32 | .2188 | 2-1/2 | 12 |
| 7012-2 | .2210 | 2-5/8 | 12 |
| 7012-1* | .2280 | 2-5/8 | 12 |
| 7012-15/64 | .2344 | 2-5/8 | 12 |
| 7012-1/4* | .2500 | 2-3/4 | 12 |
| 7012-17/64 | .2656 | 2-7/8 | 12 |
| 7012-9/32 | .2812 | 2-15/16 | 12 |
| 7012-19/64 | .2969 | 3-1/16 | 12 |
| 7012-5/16* | .3125 | 3-3/16 | 12 |
| 7012-21/64 | .3281 | 3-5/16 | 12 |
| 7012-11/32 | .3438 | 3-7/16 | 12 |
| 7012-23/64 | .3594 | 3-1/2 | 12 |

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 7012-3/8* | .3750 | 3-5/8 | 12 |
| 7012-25/64 | .3906 | 3-3/4 | 12 |
| 7012-13/32 | .4062 | 3-7/8 | 12 |
| 7012-27/64 | .4219 | 3-15/16 | 12 |
| 7012-7/16* | .4375 | 4-1/16 | 12 |
| 7012-29/64 | .4531 | 4-3/16 | 12 |
| 7012-15/32 | .4688 | 4-5/16 | 12 |
| 7012-31/64 | .4844 | 4-3/8 | 12 |
| 7012-1/2* | .5000 | 4-1/2 | 12 |



Flute milling of taper shank drills

CHAMPION

6" Aircraft Extension Drills

List No. 7006

135° Split Point / Black Oxide Treated / HSS

List No. CS6X* 135° Split Point / Surface Treated



Description: The flute length on these drills is the same as a standard jobber drill. Single piece construction.

Application: For drilling holes in "hard-to-reach" places, especially in aircraft assembly work.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 7006-60 | .0400 | 11/16 | 6 |
| 7006-59 | .0410 | 11/16 | 6 |
| 7006-58 | .0420 | 11/16 | 6 |
| 7006-57 | .0430 | 3/4 | 6 |
| 7006-56 | .0465 | 3/4 | 6 |
| 7006-3/64 | .0469 | 3/4 | 6 |
| 7006-55 | .0520 | 7/8 | 6 |
| 7006-54 | .0550 | 7/8 | 6 |
| 7006-53 | .0595 | 7/8 | 6 |
| 7006-1/16* | .0625 | 7/8 | 6 |
| 7006-52 | .0635 | 7/8 | 6 |
| 7006-51 | .0670 | 1 | 6 |
| 7006-50 | .0700 | 1 | 6 |
| 7006-49 | .0730 | 1 | 6 |
| 7006-48 | .0760 | 1 | 6 |
| 7006-5/64* | .0781 | 1 | 6 |
| 7006-47 | .0785 | 1 | 6 |
| 7006-46 | .0810 | 1-1/8 | 6 |
| 7006-45 | .0820 | 1-1/8 | 6 |
| 7006-44 | .0860 | 1-1/8 | 6 |
| 7006-43 | .0890 | 1-1/4 | 6 |
| 7006-42 | .0935 | 1-1/4 | 6 |
| 7006-3/32* | .0938 | 1-1/4 | 6 |
| 7006-41 | .0960 | 1-3/8 | 6 |
| 7006-40* | .0980 | 1-3/8 | 6 |
| 7006-39 | .0995 | 1-3/8 | 6 |
| 7006-38 | .1015 | 1-7/16 | 6 |
| 7006-37 | .1040 | 1-7/16 | 6 |
| 7006-36 | .1065 | 1-7/16 | 6 |
| 7006-7/64* | .1094 | 1-1/2 | 6 |
| 7006-35 | .1100 | 1-1/2 | 6 |
| 7006-34 | .1110 | 1-1/2 | 6 |
| 7006-33 | .1130 | 1-1/2 | 6 |
| 7006-32 | .1160 | 1-5/8 | 6 |
| 7006-31 | .1200 | 1-5/8 | 6 |
| 7006-1/8* | .1250 | 1-5/8 | 6 |
| 7006-30* | .1285 | 1-5/8 | 6 |
| 7006-29* | .1360 | 1-3/4 | 6 |
| 7006-28 | .1405 | 1-3/4 | 6 |
| 7006-9/64* | .1406 | 1-3/4 | 6 |
| 7006-27 | .1440 | 1-7/8 | 6 |
| 7006-26 | .1470 | 1-7/8 | 6 |
| 7006-25 | .1495 | 1-7/8 | 6 |
| 7006-24 | .1520 | 2 | 6 |
| 7006-23 | .1540 | 2 | 6 |
| 7006-5/32* | .1562 | 2 | 6 |
| 7006-22 | .1570 | 2 | 6 |

*Please specify CS6X when ordering.

| EDP No./ Size | Decimal Equivalent | Flute Length | Overall Length |
|---------------|--------------------|--------------|----------------|
| 7006-21* | .1590 | 2-1/8 | 6 |
| 7006-20* | .1610 | 2-1/8 | 6 |
| 7006-19 | .1660 | 2-1/8 | 6 |
| 7006-18 | .1695 | 2-1/8 | 6 |
| 7006-11/64* | .1719 | 2-1/8 | 6 |
| 7006-17 | .1730 | 2-3/16 | 6 |
| 7006-16 | .1770 | 2-3/16 | 6 |
| 7006-15 | .1800 | 2-3/16 | 6 |
| 7006-14 | .1820 | 2-3/16 | 6 |
| 7006-13 | .1850 | 2-5/16 | 6 |
| 7006-3/16* | .1875 | 2-5/16 | 6 |
| 7006-12 | .1890 | 2-5/16 | 6 |
| 7006-11* | .1910 | 2-5/16 | 6 |
| 7006-10* | .1935 | 2-7/16 | 6 |
| 7006-9 | .1960 | 2-7/16 | 6 |
| 7006-8 | .1990 | 2-7/16 | 6 |
| 7006-7 | .2010 | 2-7/16 | 6 |
| 7006-13/64 | .2031 | 2-7/16 | 6 |
| 7006-6 | .2040 | 2-1/2 | 6 |
| 7006-5 | .2055 | 2-1/2 | 6 |
| 7006-4 | .2090 | 2-1/2 | 6 |
| 7006-3 | .2130 | 2-1/2 | 6 |
| 7006-7/32* | .2188 | 2-1/2 | 6 |
| 7006-2 | .2210 | 2-5/8 | 6 |
| 7006-1* | .2280 | 2-5/8 | 6 |
| 7006-A | .2340 | 2-5/8 | 6 |
| 7006-15/64* | .2344 | 2-5/8 | 6 |
| 7006-B | .2380 | 2-3/4 | 6 |
| 7006-C | .2420 | 2-3/4 | 6 |
| 7006-D | .2460 | 2-3/4 | 6 |
| 7006-1/4* | .2500 | 2-3/4 | 6 |
| 7006-E | .2500 | 2-3/4 | 6 |
| 7006-F | .2570 | 2-7/8 | 6 |
| 7006-9/32* | .2812 | 2-15/16 | 6 |
| 7006-5/16* | .3125 | 3-3/16 | 6 |
| 7006-3/8* | .3750 | 3-5/8 | 6 |

In addition, the following CS6X sizes are available

| | | | |
|------------|-------|---------|---|
| CS6X-25/64 | .3906 | 3-3/4 | 6 |
| CS6X-13/32 | .4062 | 3-7/8 | 6 |
| CS6X-27/64 | .4219 | 3-15/16 | 6 |
| CS6X-7/16* | .4375 | 4-1/16 | 6 |
| CS6X-29/64 | .4531 | 4-3/16 | 6 |
| CS6X-15/32 | .4688 | 4-5/16 | 6 |
| CS6X-31/64 | .4844 | 4-3/8 | 6 |
| CS6X-1/2* | .5000 | 4-1/2 | 6 |



Hex Shank Multi Step Drills

List No. MSD-HEX

Titanium Nitride Coated / 1/4" Hex Shank / Split Point



Description: Graduated step design creates clean, accurate, bur free holes of multiple diameters in all sheet metals up to 1/8" thick. Self starting tip eliminates the need for pilot hole drilling. Hex shank for quick fit use in portable power tools.

Application: Junction boxes, switch boxes, metal studs, electrical appliances, lighting fixtures, PVC, plexiglass and auto body repair.

An Entire Drill Set In One Drill



- Titanium Nitride Coated for extended life and increased performance
- Cuts steel plate, stainless steel, sheet metal and tubing
- 1/4" Hex shank for use in QCD (quick change driver)
- Self starting, split-point bites right in, reduces walking
- Step size laser marked onto tool
- 2 flute design provides balanced, symmetrical and faster, cleaner holes
- Great in cordless impact drivers
- Perfect for use in battery powered drills because they cut quickly with low power consumption



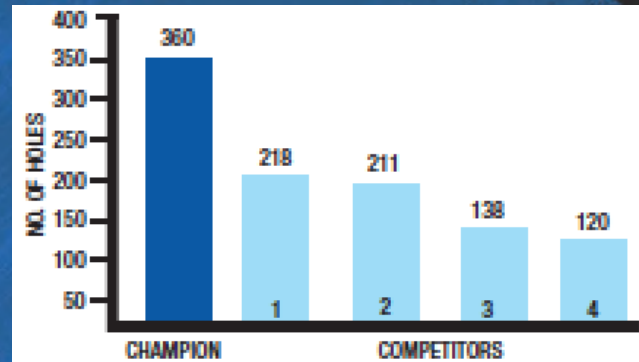
MSD-HEX Performance

65% more holes than the nearest competitor

Life Testing performed on Champion MSD-Hex Drills versus four competitor products.

Test parameters included:

- Fixed force of 50lbs
- 1/2" hole to be drilled
- Maximum time limit of 60 seconds allowed
- Maximum 360 holes per bit recorded



| EDP No./ Diameter | Size Range |
|-------------------|------------|
|-------------------|------------|

| | |
|-----------|-------------------|
| MSD-HEX-1 | 1/8-1/2 (13 Step) |
|-----------|-------------------|

| | |
|-----------|------------------|
| MSD-HEX-3 | 1/4-3/4 (9 Step) |
|-----------|------------------|

| | |
|-----------|--------------------|
| MSD-HEX-4 | 3/16-7/8 (12 Step) |
|-----------|--------------------|

| | |
|------------|---------------------|
| MSD-HEX-13 | 1/4X1-1/8 (13 Step) |
|------------|---------------------|

| EDP No. | Contents |
|---------|----------|
|---------|----------|

| | |
|-------------|---------------------------------------|
| MSD-HEX-SET | MSD-HEX-1, MSD-HEX-3, MSD-HEX-4 & QCD |
|-------------|---------------------------------------|

| EDP No. | Contents |
|---------|----------|
|---------|----------|

| | |
|----------|---|
| ELEC-KIT | MSD-HEX-13, CT3 hole cutters(7/8, 1-1/8, 1-3/8) and QCD (Quick Change Driver) |
|----------|---|

| EDP No. | Contents |
|---------|----------|
|---------|----------|

| | |
|-----|---|
| QCD | Quick change driver for 1/4" & 3/8" hex shank tools |
|-----|---|

1/4" SHANK EXTENSIONS List No. QCD-EXT-6/12/24

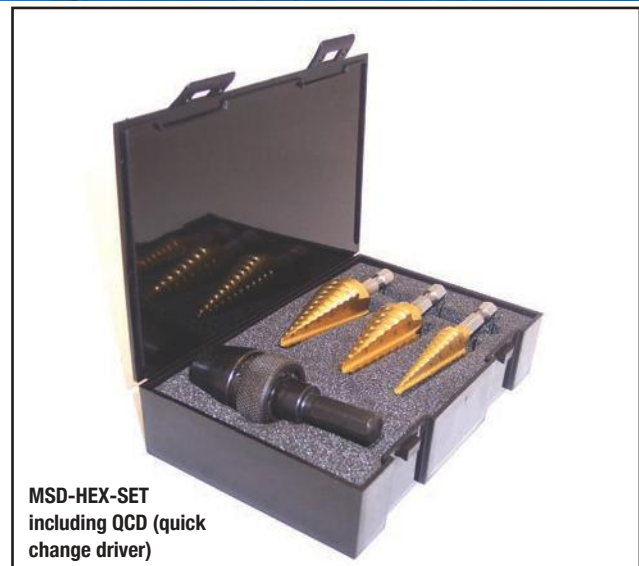
| EDP No. | Description |
|---------|-------------|
|---------|-------------|

| | |
|------------|---|
| QCD-EXT-6* | 6" Extension drive for 1/4" hex shank tools |
|------------|---|

| | |
|-------------|--|
| QCD-EXT-12* | 12" Extension drive for 1/4" hex shank tools |
|-------------|--|

| | |
|-------------|--|
| QCD-EXT-24* | 24" Extension drive for 1/4" hex shank tools |
|-------------|--|

* Will only accommodate 1/4" shanks



MSD-HEX-SET including QCD (quick change driver)



- Industrial quality quick change driver extensions for 1/4" shank tools with hex shanks
- Designed for one-handed quick release
- Carbon steel manufacture for extended tool life
- Fits old and new 1/4" hex shanks with or without power groove



Multi Step Drills

List No. MSD

2 Flute / HSS / Split Point

Description: Graduated step design creates clean, accurate, bur free holes of multiple diameters in all sheet metals up to 1/8" thick. Self starting tip eliminates the need for pilot hole drilling, while the balanced double flute design provides less chattering.

Application: Junction boxes, switch boxes, metal studs, electrical appliances, lighting fixtures, PVC, plexiglass and auto body repair.



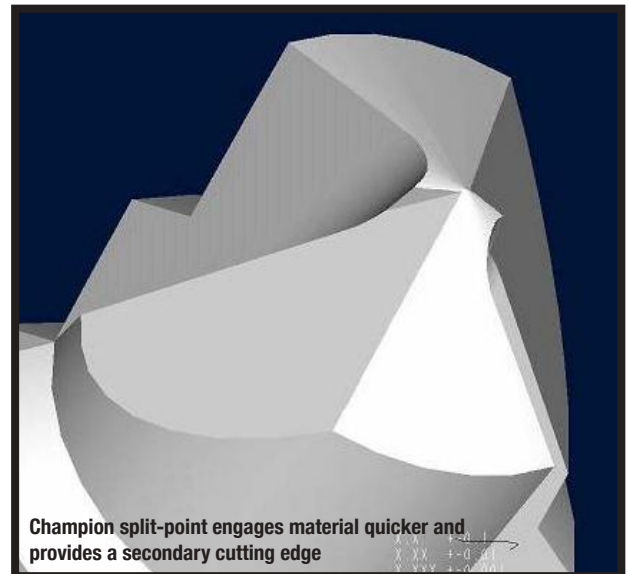
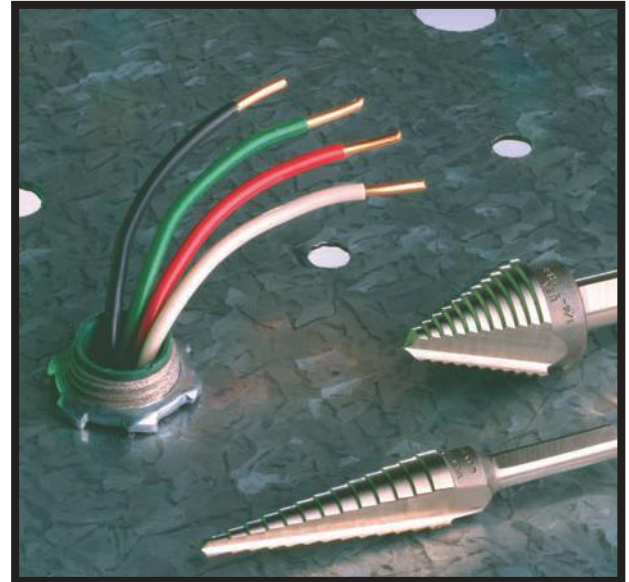
| EDP No./ Diameter | No. of Steps | Size Range |
|-------------------|--------------|---------------------|
| MSD-1/2 x 1/8 | 13 | 1/8-1/2 x 32nds |
| MSD-1/2 x 3/16 | 6 | 3/16-1/2 x 16ths |
| MSD-7/8 x 1/4 | 9 | single hole 7/8 |
| MSD-3/4 x 1/4 | 9 | 1/4-3/4 x 16ths |
| MSD-7/8 x 3/16 | 12 | 3/16-7/8 x 16ths |
| MSD-1-1/8 x 7/16 | 12 | 7/16-1-1/8 x 16ths |
| MSD-3/8 | 1 | single hole - 3/8 |
| MSD-1/2 | 1 | single hole - 1/2 |
| MSD-1 x 9/16* | 9 | 9/16-1 x 16ths |
| MSD-1-3/8 x 1/4 | 10 | 1/4-1-3/8 x 16ths |
| MSD-1-3/8 x 3/4 | 10 | 1/4-1-3/8 x 16ths |
| MSD-1-1/8 x 1/4 | 1 | single hole - 1-1/8 |
| MSD-1-1/2 x 1/4 | 11 | 1/4-1-1/2 x 8ths |

*MSD-1 x 9/16 has no drill point

| EDP No. | Contents |
|---------|--|
| MSD-SET | MSD-1/2 x 1/8, MSD-1/2 x 3/16, MSD-3/4 x 1/4 |



MSD-SET



Champion split-point engages material quicker and provides a secondary cutting edge

CROSS REFERENCE:

| CHAMPION MSD | UNIBIT® | KLEIN® | VARIBIT® | BOSCH® | MK MORSE® |
|--------------|---------|--------|----------|--------|-----------|
| 1/2X1/8 | #1 | 59001 | VB1 | SDH1 | ESD01 |
| 7/8X3/16 | #4 | 590014 | VB8 | SDH2 | ESD03 |
| 3/4X1/4 | #3 | 59003 | VB3 | SDH3 | ESD04 |
| 7/8X1/4 | #11 | 59008 | VB7 | SDH5 | ESD10 |
| 3/8 | #12 | 59007 | VB6 | SDH12 | ESD06 |
| 1/2 | #10 | 59007 | VB6 | SDH8 | ESD07 |
| 1X9/16 | #20 | 59002 | VB2 | SDH7 | ESD08 |
| 1/2X3/16 | #2 | 59005 | VB4 | SDH6 | ESD02 |
| 1-3/8X1/4 | #5 | 59004 | VB12 | | |
| 1-1/8X1/4 | #13 | 590011 | VB11 | SDH11 | ESD05 |



Locksmith Drills

List No. CT705

Carbide Tipped / Straight Flute



Description & Application:

For non-precision drilling of hardened steel and safes. Ideal for drilling and extracting broken hardened bolts, such as grade 5 and grade 8.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| CT705-1/8 | .1250 | 1-1/2 | 2-3/4 | CT705-1/4X6 | .2500 | 4-1/4 | 6 |
| CT705-5/32 | .1562 | 1-7/8 | 3 | CT705-5/16X4 | .3125 | 2-1/2 | 4 |
| CT705-3/16 | .1875 | 1-7/8 | 3 | CT705-5/16X6 | .3125 | 4-1/4 | 6 |
| CT705-7/32 | .2187 | 2-1/2 | 4 | CT705-3/8X6 | .3750 | 4 | 6 |
| CT705-1/4X4 | .2500 | 2-1/2 | 4 | CT705-1/2X6 | .5000 | 4 | 6 |



Die Drills

List No. CT605

Carbide Tipped /118° Point / Straight Flute



Description & Application:

For precision drilling of hardened steel and armor plate in the range of 48 to 65 Rockwell C. Drill body is reduced in size to prevent galling when drilling hard steels.

Use a constant flow of coolant and clear chips frequently. A light feed with steady pressure at 75-100 SFM (surface feed/minute) is recommended.

| EDP No./ Diameter | Decimal Equivalent | Shank Diameter | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Shank Diameter | Flute Length | Overall Length |
|-------------------|--------------------|----------------|--------------|----------------|-------------------|--------------------|----------------|--------------|----------------|
| CT605-3/16 | .1875 | 11/64 | 1-1/2 | 3-1/2 | CT605-1/2 | .5000 | 15/32 | 3-1/2 | 6 |
| CT605-7/32 | .2188 | 13/64 | 1-3/4 | 3-3/4 | CT605-17/32 | .5312 | 1/2 | 3-1/2 | 6 |
| CT605-1/4 | .2500 | 7/32 | 2 | 4 | CT605-9/16 | .5625 | 17/32 | 3-1/2 | 6 |
| CT605-9/32 | .2812 | 1/4 | 2-1/4 | 4-1/4 | CT605-19/32 | .5938 | 9/16 | 4 | 7 |
| CT605-5/16 | .3125 | 9/32 | 2-1/2 | 4-1/2 | CT605-5/8 | .6250 | 19/32 | 4 | 7 |
| CT605-11/32 | .3438 | 5/16 | 2-3/4 | 4-3/4 | CT605-21/32 | .6562 | 5/8 | 4-1/2 | 7-1/2 |
| CT605-3/8 | .3750 | 11/32 | 3 | 5 | CT605-11/16 | .6875 | 21/32 | 4-1/2 | 7-1/2 |
| CT605-13/32 | .4062 | 3/8 | 3 | 5-1/4 | CT605-23/32 | .7188 | 11/16 | 4-3/4 | 8 |
| CT605-7/16 | .4375 | 13/32 | 3 | 5-1/2 | CT605-3/4 | .7500 | 11/16 | 4-3/4 | 8-1/4 |
| CT605-15/32 | .4688 | 7/16 | 3-1/4 | 5-3/4 | | | | | |



Glass & Tile Drills

List No. CT505

High Temperature Brazed Carbide Spear Point / Tool Steel Body



Description & Application:

Drill glass, tile, porcelain and ceramic. Use constant flow of coolant and clear chips frequently. A light feed with steady pressure at 25 SFM (300 to 600 RPM) is recommended.

Material should be backed with wood or rubber for support during drill breakthrough. Avoid vibration and excessive stress. Keep drill sharp to eliminate excessive pressure.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| CT505-1/8 | .1250 | 7/64 | 2-1/2 | CT505-7/16 | .4375 | 3/8 | 3-1/2 |
| CT505-3/16 | .1875 | 5/32 | 2-1/2 | CT505-1/2 | .5000 | 7/16 | 3-1/2 |
| CT505-1/4 | .2500 | 7/32 | 2-1/2 | CT505-9/16 | .5625 | 1/2 | 4 |
| CT505-5/16 | .3125 | 1/4 | 2-3/4 | CT505-5/8 | .6250 | 9/16 | 4 |
| CT505-3/8 | .3750 | 5/16 | 3-1/8 | | | | |



Carbide Tipped Jobber Drills

List No. 705CT

Non-Ferrous Applications / 118° Drill Point



Description & Application:

For drilling cast iron, cast steel, bronze, hard copper, aluminum and other hard and abrasive nonferrous materials.

Not recommended for use in steel.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705CT-1/8 | .1250 | 1-5/8 | 2-3/4 |
| 705CT-9/64 | .1406 | 1-3/4 | 2-7/8 |
| 705CT-5/32 | .1562 | 2 | 3-1/8 |
| 705CT-11/64 | .1719 | 2-1/8 | 3-1/4 |
| 705CT-3/16 | .1875 | 2-5/16 | 3-1/2 |
| 705CT-13/64 | .2031 | 2-7/16 | 3-5/8 |
| 705CT-7/32 | .2188 | 2-1/2 | 3-3/4 |
| 705CT-15/64 | .2344 | 2-5/8 | 3-7/8 |
| 705CT-1/4 | .2500 | 2-3/4 | 4 |
| 705CT-17/64 | .2656 | 2-7/8 | 4-1/8 |
| 705CT-9/32 | .2812 | 2-15/16 | 4-1/4 |
| 705CT-19/64 | .2969 | 3-1/16 | 4-3/8 |
| 705CT-5/16 | .3125 | 3-3/16 | 4-1/2 |

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705CT-21/64 | .3281 | 3-5/16 | 4-5/8 |
| 705CT-11/32 | .3438 | 3-7/16 | 4-3/4 |
| 705CT-23/64 | .3594 | 3-1/2 | 4-7/8 |
| 705CT-3/8 | .3750 | 3-5/8 | 5 |
| 705CT-25/64 | .3906 | 3-3/4 | 5-1/8 |
| 705CT-13/32 | .4062 | 3-7/8 | 5-1/4 |
| 705CT-27/64 | .4219 | 3-15/16 | 5-3/8 |
| 705CT-7/16 | .4375 | 4-1/16 | 5-1/2 |
| 705CT-29/64 | .4531 | 4-3/16 | 5-5/8 |
| 705CT-15/32 | .4688 | 4-5/16 | 5-3/4 |
| 705CT-31/64 | .4844 | 4-3/8 | 5-7/8 |
| 705CT-1/2 | .5000 | 4-1/2 | 6 |



Solid Carbide Drills

List No. 105

118° Drill Point



Description: For non-ferrous applications where extreme rigidity is necessary to maintain drilling accuracy or where high drilling temperatures cause the braze of a carbide tip to soften and fail. Not recommended for use in steel.

Application: Cast iron, aluminum, copper, plastics, bronze and other abrasive materials.

| EDP No./ Diameter | Flute Length | Overall Length |
|-------------------|--------------|----------------|
| 105-1/32 | 1/2 | 1-1/4 |
| 105-3/64 | 3/4 | 1-1/2 |
| 105-1/16 | 3/4 | 1-1/2 |
| 105-5/64 | 7/8 | 1-3/4 |
| 105-3/32 | 1 | 2 |
| 105-7/64 | 1-1/4 | 2-1/4 |
| 105-1/8 | 1-1/4 | 2-1/4 |
| 105-9/64 | 1-3/8 | 2-1/2 |
| 105-5/32 | 1-3/8 | 2-1/2 |
| 105-11/64 | 1-5/8 | 2-3/4 |
| 105-3/16 | 1-5/8 | 2-3/4 |
| 105-13/64 | 1-3/4 | 3 |
| 105-7/32 | 1-3/4 | 3 |
| 105-15/64 | 2 | 3-1/4 |
| 105-1/4 | 2 | 3-1/4 |
| 105-17/64 | 2-1/8 | 3-1/2 |
| 105-9/32 | 2-1/8 | 3-1/2 |

| EDP No./ Diameter | Flute Length | Overall Length |
|-------------------|--------------|----------------|
| 105-19/64 | 2-3/8 | 3-3/4 |
| 105-5/16 | 2-3/8 | 3-3/4 |
| 105-21/64 | 2-1/2 | 4 |
| 105-11/32 | 2-1/2 | 4 |
| 105-23/64 | 2-3/4 | 4-1/4 |
| 105-3/8 | 2-3/4 | 4-1/4 |
| 105-25/64 | 2-7/8 | 4-1/2 |
| 105-13/32 | 2-7/8 | 4-1/2 |
| 105-27/64 | 2-7/8 | 4-1/2 |
| 105-7/16 | 2-7/8 | 4-1/2 |
| 105-29/64 | 3 | 4-3/4 |
| 105-15/32 | 3 | 4-3/4 |
| 105-31/64 | 3 | 4-3/4 |
| 105-1/2 | 3 | 4-3/4 |



Double End Sheeter Drills

List No. 1805

135° Split Point / Black Steam Oxide Surface Treated / HSS



Description: For drilling sheet metal. The split point insures proper centering and easy penetration, while the short flute and overall length provide rigidity.

Application: Metal building erection, automobile and truck manufacturing and auto body repair.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| 1805-30 | .1285 | 1/2 | 2 | 1805-3/16 | .1875 | 1/2 | 2 |
| 1805-7/64 | .1093 | 1/2 | 2 | 1805-7/32 | .2187 | 1/2 | 2 |
| 1805-1/8 | .1250 | 1/2 | 2 | 1805-1/4 | .2500 | 1/2 | 2 |
| 1805-9/64 | .1406 | 1/2 | 2 | | | | |
| 1805-5/32 | .1562 | 1/2 | 2 | | | | |



Corrugated Construction Drills

List No. 2005

135° Split Point / Black & Bright Finish/ HSS



Description: 135° split point and short high helix flute design for self centering, easy penetration and efficient chip removal.

Application: For use in the erection and assembly of corrugated metal buildings.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length | EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|-------------------|--------------------|--------------|----------------|
| 2005-1X2-1/4 | .2280 | 1-5/16 | 2-1/4 | 2005-1X4-1/2 | .2280 | 1-5/16 | 4-1/2 |
| 2005-1X3 | .2280 | 1-5/16 | 3 | 2005-1X6 | .2280 | 1-5/16 | 6 |



Pilot Drill for Hole Saws

List No. 705-Pilot

118° Split Point / Bright Finish / HSS



Description: Triple slab 1/4" pilot drills feature a self centering 118° split point to fit most styles of hole saw arbors. Notches ground into the shank allow adjustment for varying depth hole saws.

Application: Used with hole saws.

| EDP No./ Diameter | Decimal Equivalent | Flute Length | Overall Length |
|-------------------|--------------------|--------------|----------------|
| 705-Pilot | .2500 | 1-5/16 | 4 |
| 705-Pilot-iPac | .2500 | 1-5/16 | 4 |



Drill Gauge Plates

High Quality Hardened Steel/ Stain Resistant

Description: High quality hardened steel, stain resistant, satin, chrome finish.

Application: Offers a quick and accurate method of checking drill and rod sizes.

| EDP No. | Description |
|---------|--------------------|
| G60 | 1 - 60 |
| G29 | 1/16 - 1/2 x 64ths |
| G26 | A - Z |
| GM57 | 1.0 - 5.9mm |
| GM30 | 1.5 - 12.5mm |



BruteLube Cutting Fluid & Wax

List No. XLUB

Description: Multi-purpose cutting and tapping fluid specially formulated to extend tool life and reduce chip welding. Provides a precision finish with closer tolerances on finished work. Complies with OSHA regulations and contains no 1,1,1 Trichloroethane. Formulated to cling to tools for a continuous shield against friction and heat.

List No. XLUB-WAX

Description: Formulated to extend tool life, reduce chip welding and clings to the tool at any angle, including overhead operations. Continuous shield against friction and heat, reducing tool costs and work piece scrap. Provides a close tolerance precision finish. Effective on stainless steel, aluminum, and exotic alloys.



| EDP No. | Description |
|---------------|-------------|
| XLUB4 | 4 oz. |
| XLUB16 | 16 oz. |
| XLUB128 | 1 gallon |
| XLUB-WAX-2 | 2 oz. |
| XLUB-WAX-16 | 16 oz. |
| XLUB-STICK-16 | 16 oz. |

See pages 163-164 for BruteLube Material Safety Data Sheets



Hex Shank Bridge Reamers

List No. XL86

Left Hand Spiral Flute / Right Hand Cut / HSS / Heavy Duty



Description: Use in rotary impact sockets, high helix is faster & chips less than standard helix in impact wrench applications. Shank diameter for each reamer matches socket size

Application: Aligning & enlarging holes in heavy duty structural steel applications

| EDP No./ Diameter | Point Diameter | Flute Length | Overall Length | Hex Dia. |
|-------------------|----------------|--------------|----------------|----------|
| XL86-11/16 | 11/32 | 5-3/4 | 9-3/16 | 1-1/16 |
| XL86-13/16 | 35/64 | 6-3/8 | 9-3/4 | 1-1/4 |
| XL86-15/16 | 11/16 | 7 | 10-13/16 | 1-7/16 |
| XL86-1-1/16 | 13/16 | 7 | 10-15/16 | 1-5/8 |
| XL86-1-3/16 | 57/64 | 7 | 10-31/32 | 1-13/16 |
| XL86-1-5/16 | 1-1/16 | 7 | 11-5/16 | 2 |
| XL86-1-3/8 | 1-1/16 | 7-3/8 | 10 | 2 |
| XL86-1-7/16 | 1-1/8 | 7-3/8 | 10 | 2 |
| XL86-1-1/2 | 1-1-3/16 | 7-3/8 | 10 | 2 |
| XL86-1-9/16 | 1-1/4 | 7-3/8 | 10 | 2 |
| XL86-1-5/8 | 1-5/16 | 7-1/2 | 13 | 2 |

- Designed for aligning and enlarging holes in heavy duty structural steel bridge and ship building
- Hex shank is engineered to enable use in impact sockets for pneumatic and electric power tools
- Heavy duty reaming of irregular and misaligned holes
- Operator can use same power tool for reaming and driving the structural bolts



Hex Shank Magnetic Bridge Reamers

List No. XL86M

Left Hand Spiral Flute / Right Hand Cut / HSS / Heavy



Description: Use in rotary impact sockets, high helix is faster & chips less than standard helix in impact wrench applications. Shank diameter for each reamer matches socket size

Application: Aligning & enlarging holes in heavy duty structural steel applications

| EDP No./ Diameter | Point Diameter | Flute Length | Overall Length | Hex Dia. |
|-------------------|----------------|--------------|----------------|----------|
| XL86M-11/16 | 11/32 | 5-3/4 | 9-3/16 | 1-1/16 |
| XL86M-13/16 | 35/64 | 6-3/8 | 9-3/4 | 1-1/4 |
| XL86M-15/16 | 11/16 | 7 | 10-13/16 | 1-7/16 |
| XL86M-1-1/16 | 13/16 | 7 | 10-15/16 | 1-5/8 |
| XL86M-1-3/16 | 57/64 | 7 | 10-31/32 | 1-13/16 |

- 2 Embedded Magnets To Secure Reamer In Socket For Safety
- Align, enlarge, de-bur holes in structural steel, including stainless steel and tough alloys
- Spiral flute for ejecting chips forward and away from the operator
- For use in electric and pneumatic tools and sockets



Hex Shank Car Reamers

List No. HX80

Straight Flute / Right Hand Cut / HSS



Description: Short length for use in tight areas.

Application: For use in electric and pneumatic tools & sockets.

List No. HX82

Left Hand Spiral Flute / Right Hand Cut / HSS



Description: Spiral flute for ejecting chips forward and away from the operator. Short length for use in tight areas.

Application: For use in electric and pneumatic tools & sockets.

| EDP No./ Diameter | Point Diameter | Flute Length | Overall Length | Hex Dia. | EDP No./ Diameter | Point Diameter | Flute Length | Overall Length | Hex Dia. |
|-------------------|----------------|--------------|----------------|----------|-------------------|----------------|--------------|----------------|----------|
| HX80-11/16 | 11/32 | 5-3/16 | 7 | 1-1/16 | HX82-11/16 | 11/32 | 5-3/16 | 7 | 1-1/16 |
| HX80-13/16 | 35/64 | 5-3/16 | 7 | 1-1/4 | HX82-13/16 | 35/64 | 5-3/16 | 7 | 1-1/4 |
| HX80-15/16 | 11/16 | 5-3/16 | 7 | 1-7/16 | HX82-15/16 | 11/16 | 5-3/16 | 7 | 1-7/16 |
| HX80-1-1/16 | 13/16 | 5-3/16 | 7 | 1-5/8 | HX82-1-1/16 | 13/16 | 5-3/16 | 7 | 1-5/8 |
| HX80-1-3/16 | 57/64 | 5-3/16 | 7 | 1-13/16 | HX82-1-3/16 | 57/64 | 5-3/16 | 7 | 1-13/16 |

Hex shank sizes are the same size as the required nut



Hex Shank Magnetic Car Reamers

List No. HX82M

Left Hand Spiral Flute / Right Hand Cut / HSS / Magnetic Shank



Description: Short length for use in tight areas.

Application: For use in electric and pneumatic tools & sockets.

| EDP No./ Diameter | Point Diameter | Flute Length | Overall Length | Hex Dia. |
|-------------------|----------------|--------------|----------------|----------|
| HX82M-11/16 | 11/32 | 5-3/16 | 7 | 1-1/16 |
| HX82M-13/16 | 35/64 | 5-3/16 | 7 | 1-1/4 |
| HX82M-15/16 | 11/16 | 5-3/16 | 7 | 1-7/16 |
| HX82M-1-1/16 | 13/16 | 5-3/16 | 7 | 1-5/8 |
| HX82M-1-3/16 | 57/64 | 5-3/16 | 7 | 1-13/16 |

Hex shank sizes are the same size as the required nut

• 2 Embedded Magnets To Secure Reamer In Socket For Safety

- Align, enlarge, de-bur holes in structural steel, including stainless steel and tough alloys
- Used in rotary impact sockets, high helix cuts faster and chips less than standard helix in impact wrench applications
- Shank diameter for each reamer matches socket size for bolt which will be driven





Maintenance Reamers

List No. SA80

1/2" Straight Shank* / Left Hand Helix / Right Hand Cut / Collar Stop / HSS



Description: Enlarge and align existing holes. Effortlessly fits into small holes.

Application: Used in steel erection, automotive, truck & trailer manufacturing and repair. Quickly aligns structural steel. Cuts stainless steel & tough alloys. Deburs welded & punched holes. Ideal for maintenance & repair. Reduce cutting speeds and feeds when cutting aluminum.

| EDP No./ Diameter | Decimal Equivalent | No. of Flutes | Point Diameter | Flute Length | Overall Length |
|-------------------|--------------------|---------------|----------------|--------------|----------------|
| SA80-5/16* | .3125 | 4 | .176 | 3 | 4-3/4 |
| SA80-3/8* | .3750 | 4 | .188 | 3 | 5 |
| SA80-7/16* | .4375 | 4 | .218 | 3-1/4 | 5-1/4 |
| SA80-1/2 | .5000 | 5 | .230 | 3-15/16 | 5-15/16 |
| SA80-9/16 | .5625 | 5 | .2925 | 3-15/16 | 5-15/16 |
| SA80-5/8 | .6250 | 5 | .259 | 4-1/2 | 6-9/16 |
| SA80-.652 | .6520 | 5 | .293 | 4-3/4 | 6-9/16 |
| SA80-11/16 | .6875 | 5 | .3125 | 4-1/2 | 6-9/16 |
| SA80-3/4 | .7500 | 5 | .453 | 4-15/16 | 7 |
| SA80-.776 | .7760 | 5 | .461 | 5-3/16 | 7 |
| SA80-13/16 | .8125 | 5 | .5155 | 4-15/16 | 7 |
| SA80-7/8 | .8750 | 5 | .580 | 5-3/16 | 7-1/4 |
| SA80-15/16 | .9375 | 5 | .6425 | 5-3/16 | 7-1/4 |
| SA80-1 | 1.0000 | 5 | .708 | 5-3/16 | 7-1/4 |
| SA80-1-1/16 | 1.0625 | 5 | .753 | 5-7/16 | 7-1/4 |
| SA80-1-1/8** | 1.1250 | 5 | .810 | 5-7/16 | 7-1/4 |
| SA80-1-1/4** | 1.2500 | 5 | .930 | 5-11/16 | 7-1/2 |
| SA80-1-3/8** | 1.3750 | 5 | .930 | 5-11/16 | 7-1/2 |
| SA80-1-1/2** | 1.5000 | 5 | 1.185 | 5-11/16 | 7-1/2 |

*Shank diameter same as reamer diameter.

**3/4" flatted shank

Sizes .652 and .776 are specifically for shoulder bolts used on truck frames.



Bridge Reamers

List No. 982

Taper Shank / Left Hand Spiral Flute / Right Hand Cut /



Description: Cut with a shearing action, sending chips forward and generally give superior hole quality and bind less than the straight flute design. Can be used in RB65 and RB65E magnetic drill presses.

Application: Bridge building, erection and ship building industries. Not for use with regular hand drills - used with

| EDP No./ Diameter | Point Diameter | Overall Length | Flute Length | Shank No. | EDP No./ Diameter | Point Diameter | Overall Length | Flute Length | Shank No. |
|-------------------|----------------|----------------|--------------|-----------|-------------------|----------------|----------------|--------------|-----------|
| 982-7/16 | 1/4 | 8-1/4 | 4-3/8 | 2 | 982-1-1/16 | 3/4 | 12 | 7-3/8 | 3 |
| 982-1/2 | 9/32 | 9 | 5-1/8 | 2 | 982-1-1/8 | 13/16 | 12 | 7-3/8 | 3 |
| 982-9/16 | 11/32 | 9 | 5-1/8 | 2 | 982-1-3/16 | 7/8 | 12 | 7-3/8 | 3 |
| 982-5/8 | 3/8 | 10 | 6-1/8 | 2 | 982-1-1/4 | 15/16 | 13 | 7-3/8 | 4 |
| 982-11/16 | 25/64 | 11-3/4 | 7-1/8 | 3 | 982-1-5/16 | 1 | 13 | 7-3/8 | 4 |
| 982-3/4 | 7/16 | 12 | 7-3/8 | 3 | 982-1-3/8 | 1-1/16 | 13 | 7-3/8 | 4 |
| 982-13/16 | 1/2 | 12 | 7-3/8 | 3 | 982-1-7/16 | 1-1/8 | 13 | 7-3/8 | 4 |
| 982-7/8 | 9/16 | 12 | 7-3/8 | 3 | 982-1-1/2 | 1-3/16 | 13 | 7-3/8 | 4 |
| 982-15/16 | 5/8 | 12 | 7-3/8 | 3 | 982-1-9/16 | 1-1/4 | 13 | 7-3/8 | 4 |
| 982-1 | 13/16 | 12 | 7-3/8 | 3 | 982-1-5/8 | 1-5/16 | 14-3/8 | 7-1/2 | 4 |

CHAMPION

Bridge Reamers

List No. 980

Taper Shank / Straight Flute / Right Hand Cut / HSS



Description: Engineered for heavy duty use in the reaming of off size, misshapen or misaligned holes in structural steel. Easy to hand regrind and when bound in the hole are easy to dislodge. Can be used in RB65E

Application: Bridge building, steel erection and ship building industries

| EDP No./ Diameter | Point Diameter | Overall Length | Flute Length | Shank No. | EDP No./ Diameter | Point Diameter | Overall Length | Flute Length | Shank No. |
|-------------------|----------------|----------------|--------------|-----------|-------------------|----------------|----------------|--------------|-----------|
| 980-7/16 | 1/4 | 8-1/4 | 4-3/8 | 2 | 980-15/16 | 5/8 | 12 | 7-3/8 | 3 |
| 980-1/2 | 9/32 | 9 | 5-1/8 | 2 | 980-1 | 11/16 | 12 | 7-3/8 | 3 |
| 980-9/16 | 11/32 | 9 | 5-1/8 | 2 | 980-1-1/16 | 3/4 | 12 | 7-3/8 | 3 |
| 980-5/8 | 3/8 | 10 | 6-1/8 | 2 | 980-1-1/8 | 13/16 | 12 | 7-3/8 | 3 |
| 980-11/16 | 25/64 | 11-3/4 | 7-1/8 | 3 | 980-1-3/16 | 7/8 | 12 | 7-3/8 | 3 |
| 980-3/4 | 7/16 | 12 | 7-3/8 | 3 | 980-1-1/4 | 15/16 | 13 | 7-3/8 | 4 |
| 980-13/16 | 1/2 | 12 | 7-3/8 | 3 | 980-1-5/16 | 1 | 13 | 7-3/8 | 4 |
| 980-7/8 | 9/16 | 12 | 7-3/8 | 3 | | | | | |

CHAMPION

Taper Pin Reamers

List No. 776

Straight Flute / Square Drive / HSS



List No. 778

Slow Spiral / Square Drive / HSS



List No. 777

Fast Spiral / Round Shank / HSS



Description: Taper pin hand reamers have a square shank for use by hand in tap and reamer wrenches. These reamers have a taper of 1/4"

Application: Often used as "mini" bridge reamers or for deburring the back of holes. The straight flute draws the chips back toward the power source. Used to ream holes by hand into which standard taper pins will fit.

Description: These reamers have a taper of 1/4" per foot, and are used to ream holes by machine into which

Application: Same as other taper pin reamers but at higher production rates.

| No. 776 Straight Flute | No. 777 Fast Spiral | No. 778 Slow Spiral | Nominal Diameter | | Flute Length | Overall Length |
|---------------------------|------------------------|------------------------|------------------|-----------|--------------|----------------|
| | | | Small End | Large End | | |
| 776-7/0 | 777-7/0 | 778-7/0 | .0497 | .0666 | 13/16 | 1-13/16 |
| 776-6/0 | 777-6/0 | 778-6/0 | .0611 | .0806 | 15/16 | 1-15/16 |
| 776-5/0 | 777-5/0 | 778-5/0 | .0719 | .0966 | 1-3/16 | 2-3/16 |
| 776-4/0 | 777-4/0 | 778-4/0 | .0869 | .1142 | 1-5/16 | 2-5/16 |
| 776-3/0 | 777-3/0 | 778-3/0 | .1029 | .1302 | 1-5/16 | 2-5/16 |
| 776-2/0 | 777-2/0 | 778-2/0 | .1137 | .1462 | 1-9/16 | 2-9/16 |
| 776-0 | 777-0 | 778-0 | .1287 | .1638 | 1-11/16 | 2-15/16 |
| 776-1 | 777-1 | 778-1 | .1447 | .1798 | 1-11/16 | 2-15/16 |
| 776-2 | 777-2 | 778-2 | .1605 | .2008 | 1-15/16 | 3-3/16 |
| 776-3 | 777-3 | 778-3 | .1813 | .2294 | 2-5/16 | 3-11/16 |
| 776-4 | 777-4 | 778-4 | .2071 | .2604 | 2-9/16 | 4-1/16 |
| 776-5 | 777-5 | 778-5 | .2409 | .2994 | 2-13/16 | 4-5/16 |
| 776-6 | 777-6 | 778-6 | .2773 | .3540 | 3-11/16 | 5-7/16 |
| 776-7 | 777-7 | 778-7 | .3297 | .4220 | 4-7/16 | 6-5/16 |
| 776-8 | 777-8 | 778-8 | .3971 | .5050 | 5-3/16 | 7-3/16 |
| 776-9 | 777-9 | 778-9 | .4805 | .6066 | 6-1/16 | 8-5/16 |
| 776-10 | 777-10 | 778-10 | .5799 | .7216 | 6-13/16 | 9-5/16 |



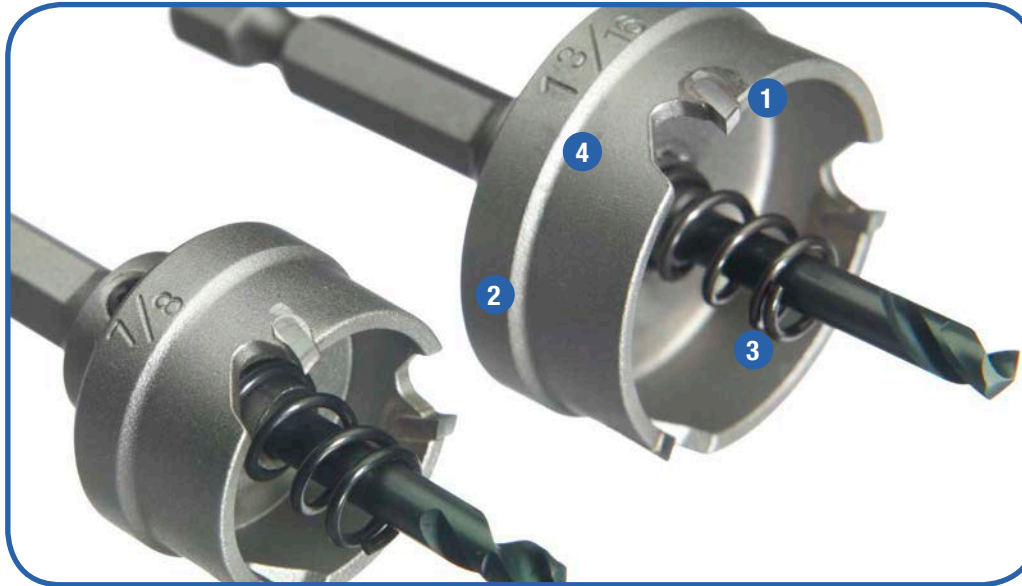
Carbide Tipped Hole Cutters

List No. CT3

Description: Three carbide tips, pilot drill and ejector spring. Features a 1/4" hex shank for use in impact drivers and cordless electric drills



Application: For drilling sheet metal up to 1/8" thick. Ideal for the electrical, HVAC, and sheet metal trades.



1 Special tungsten carbide teeth

- Excellent wear and heat resistance
- Cuts stainless steel and tough alloys

2 One piece construction

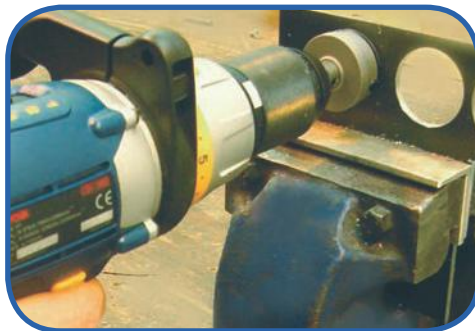
- No assembly required
- Stable accurate drilling

3 Ejector spring (Standard)

- Ejects the slug, thus saving time

4 Safety collar stop

- Prevents over penetration for safer, faster operation.



Applications

- Junction / Switch Boxes
- Metal Studs
- Electrical Appliances
- Lighting Fixtures
- Auto Body Repair
- Truck / Trailer Frames
- Ductile Pipe

The CT3 CARBIDE TIPPED HOLE CUTTER is the ideal solution for drilling holes in sheet metal when using cordless drills

- Perfect for use in battery powered drills because they cut quickly and use very little power
- Engineered for cutting thin materials up to 1/8" with fast, clean cuts everytime
- Cut stainless steel, sheet metal and tubing
- 1/4" Hex Shank for use in impact drivers, cordless electric drills and QCD (quick-change driver)
- See page 141 of the sets section for the full range of CT3 plastic cased sets

Up to 150 holes with each cutter in Stainless Steel

| EDP No./ Size | EDP No./ Size | EDP No./ Size | Description |
|---------------|---|---------------|----------------------------|
| CT3-5/8 | CT3-1-1/16 | CT3-PILOT | Pilot Drill (1-9/16" OAL) |
| CT3-11/16 | CT3-1-1/8 | CT3-SCREW | Screw for CT3 Hole Cutter |
| CT3-3/4 | CT3-1-3/16 | CT3-SPRING | Spring for CT3 Hole Cutter |
| CT3-13/16 | CT3-1-1/4 | | |
| CT3-7/8 | CT3-1-5/16 | | |
| CT3-15/16 | CT3-1-3/8 | | |
| CT3-1 | | | |
| EDP No./ Size | Contents | | |
| ELEC-KIT | MSD-HEX-13, CT3-7/8, CT3-1-1/8, CT3-1-3/8 and QCD | | |

See Page 141 of the Sets section for the full range of CT3 plastic cased sets



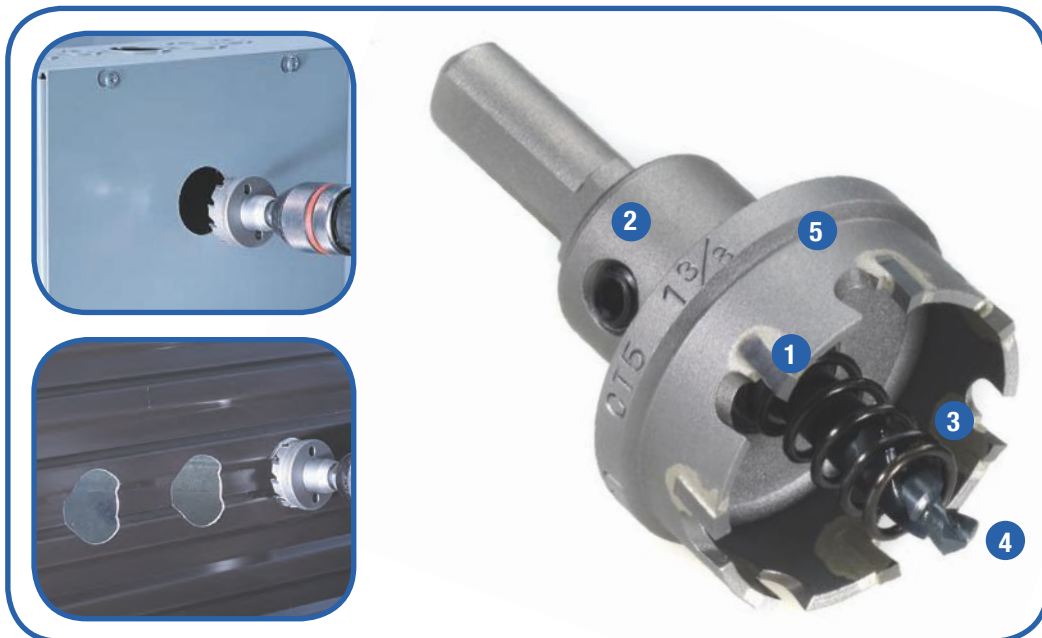
Carbide Tipped Hole Cutters

List No. CT5



Description: Carbide tipped hole cutter features ultra hard tungsten carbide teeth, pilot drill and ejector spring.

Application: For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP and plastics up to 3/16" thick. Ideal for electrical, mechanical and HVAC contractors.



1 Special tungsten carbide teeth with carbide tip pocket

- Excellent wear and heat resistance
- Cuts stainless steel and tough alloys
- Tip pocket for quicker chip extraction

2 One piece construction

- No assembly required
- Stable accurate drilling

3 Strong, heat resistant ejector spring

- Ejects the slug saving time

4 Stepped pilot drill

- Reduces tip impact

5 Safety collar stop

- Prevents over penetration for safer, faster operation.

Applications

- Junction / Switch Boxes
- Metal Studs
- Appliances
- Auto Body Repair
- Truck Body Repair

- Cut longer and faster than holesaws and twist drills, increasing productivity on the job
- Perfect portable tool for the professional electrician, plumber, mechanic and contractor
- Better than bi-metal holesaws
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP (i.e fiberglass) and plastics
- 9/16" to 2-5/8" have 3/8" shank, 2-3/4" to 5" have 1/2" shank
- See page 141 of the sets section for the full range of CT5 plastic cased sets

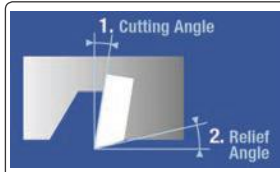
| EDP No./ Size | EDP No./ Size | EDP No./ Size | EDP No./ Size |
|---------------|---------------|---------------|---------------|
| CT5-9/16 | CT5-1-3/8 | CT5-2-1/4 | CT5-3-1/4 |
| CT5-5/8 | CT5-1-7/16 | CT5-2-5/16 | CT5-3-3/8 |
| CT5-11/16 | CT5-1-1/2 | CT5-2-3/8 | CT5-3-1/2 |
| CT5-3/4 | CT5-1-9/16 | CT5-2-7/16 | CT5-3-5/8 |
| CT5-13/16 | CT5-1-5/8 | CT5-2-1/2 | CT5-3-3/4 |
| CT5-7/8 | CT5-1-11/16 | CT5-2-9/16 | CT5-3-7/8 |
| CT5-15/16 | CT5-1-3/4 | CT5-2-5/8 | CT5-4 |
| CT5-1 | CT5-1-13/16 | CT5-2-11/16 | CT5-4-1/8 |
| CT5-1-1/16 | CT5-1-7/8 | CT5-2-3/4 | CT5-4-1/4 |
| CT5-1-1/8 | CT5-1-15/16 | CT5-2-13/16 | CT5-4-3/8 |
| CT5-1-3/16 | CT5-2 | CT5-2-7/8 | CT5-4-1/2 |
| CT5-1-7/32 | CT5-2-1/16 | CT5-2-15/16 | CT5-4-3/4 |
| CT5-1-1/4 | CT5-2-1/8 | CT5-3 | CT5-5 |
| CT5-1-5/16 | CT5-2-3/16 | CT5-3-1/8 | |

SPEED RECOMMENDATIONS

| Diameter | Steel | Stainless Steel |
|-----------------|------------|-----------------|
| 9/16 to 13/16 | 700 - 1000 | 300 - 700 |
| 7/8 to 1-3/16 | 500 - 800 | 200 - 450 |
| 1-1/4 to 1-9/16 | 300 - 600 | 175 - 315 |
| 1-5/8 to 2 | 200 - 500 | 120 - 225 |
| 2-1/16 to 2-3/8 | 200 - 400 | 95 - 195 |
| 2-7/16 to 3 | 150 - 300 | 80 - 150 |
| 3-1/16 to 6 | 100 - 200 | 60 - 120 |

* Sizes 9/16 thru 2-9/16 have 3/8" (10mm) shanks * Sizes 2-5/8 thru 5 have 1/2" (13mm) shanks

| EDP No./ Size | Description |
|---------------|--|
| CT5-PILOT | Pilot Drill (1-7/8" OAL) |
| CT5CO-PILOT | Cobalt Pilot Drill for stainless steel |
| CT5-SCREW | Screw for CT5 Hole Cutter |
| CT5-SPRING | Spring for CT5 Hole Cutter |
| CT5-PILOT-TCT | CarbideTipped Pilot Drill for abrasive materials |



Smooth Cutting Geometry
Champion hole cutters are made with ultra-hard tungsten carbide teeth for cutting stainless and tough alloys. Relief angle permits discharge of metal chips for smooth cutting.

See Page 141 of the Sets section for the full range of CT5 plastic cased sets



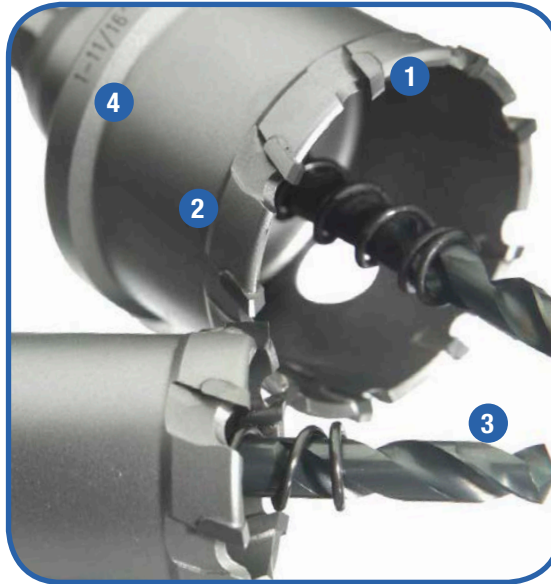


Carbide Tipped Hole Cutters

List No. CT7

Description: Carbide tipped hole cutter features special ultra hard tungsten carbide triple edge cutting system, pilot drill and ejector spring.

Application: For cutting steel plate, stainless steel, iron, aluminium, copper, cast iron, FRP and plastics up to 1" thick.
The perfect, portable tool for the professional electrician, plumber, mechanic and general contractor.



- 1 Special tungsten carbide teeth**
- Excellent wear and heat resistance
 - Cuts stainless steel and tough alloys

- 2 One piece construction**
- No assembly required
 - Stable accurate drilling

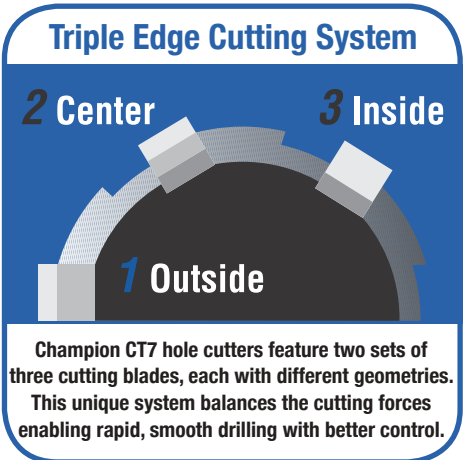
- 3 Ejector Spring**
- Ejects the slug saving time

- 4 Safety collar stop**
- Prevents over penetration for safer, faster operation.

- Cut longer and faster than holesaws and twist drills, increasing productivity on the job
- Perfect portable tool for the professional electrician, plumber, mechanic and contractor
- Better than bi-metal holesaws
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP (i.e fiberglass) and plastics up to 1" thick
- 9/16" to 3" have 3/8" shank, 3-1/4" to 4-1/2" have 1/2" shank
- See page 141 of the sets section for the full range of CT7 plastic cased sets

- Applications**
- Junction / Switch Boxes
 - Metal Studs
 - Appliances
 - Auto Body Repair
 - Truck / Trailer Frames
 - Ductile Pipe

| EDP No./ Size | EDP No./ Size | EDP No./ Size | Description |
|---------------|---------------|---------------|---|
| CT7-9/16 | CT7-1-13/16 | CT7-PILOT | Pilot Drill (2-7/8" OAL) |
| CT7-5/8 | CT7-1-7/8 | CT7CO-PILOT | Cobalt Pilot Drill for stainless steel |
| CT7-11/16 | CT7-1-15/16 | CT7-SCREW | Screw for CT7 Hole Cutter |
| CT7-3/4 | CT7-2 | CT7-SPRING | Spring for CT7 Hole Cutter |
| CT7-13/16 | CT7-2-1/8 | CT7-PILOT-TCT | Carbide Tipped Pilot Drill for abrasive materials |
| CT7-7/8 | CT7-2-1/4 | | |
| CT7-15/16 | CT7-2-3/8 | | |
| CT7-1 | CT7-2-1/2 | | |
| CT7-1-1/16 | CT7-2-9/16 | | |
| CT7-1-1/8 | CT7-2-5/8 | | |
| CT7-1-3/16 | CT7-2-3/4 | | |
| CT7-1-1/4 | CT7-2-7/8 | | |
| CT7-1-5/16 | CT7-3 | | |
| CT7-1-3/8 | CT7-3-1/4 | | |
| CT7-1-7/16 | CT7-3-1/2 | | |
| CT7-1-1/2 | CT7-3-5/8 | | |
| CT7-1-9/16 | CT7-4 | | |
| CT7-1-5/8 | CT7-4-1/8 | | |
| CT7-1-11/16 | CT7-4-1/4 | | |
| CT7-1-3/4 | CT7-4-1/2 | | |



SPEED RECOMMENDATIONS

| Diameter | Steel | Stainless Steel |
|-----------------|------------|-----------------|
| 9/16 to 13/16 | 700 - 1000 | 300 - 700 |
| 7/8 to 1-3/16 | 500 - 800 | 200 - 450 |
| 1-1/4 to 1-9/16 | 300 - 600 | 175 - 315 |
| 1-5/8 to 2 | 200 - 500 | 120 - 225 |
| 2-1/16 to 2-3/8 | 200 - 400 | 95 - 195 |
| 2-7/16 to 3 | 150 - 300 | 80 - 150 |
| 3-1/16 to 6 | 100 - 200 | 60 - 120 |

See Page 141 of the Sets section for the full range of CT7 plastic cased sets



Carbide Tipped Hole Cutters

List No. CT9

Description: 2" depth of cut hole cutter features special ultra hard tungsten carbide triple edge cutting system, pilot drill and ejector spring.

Application: Recommended for drilling steel door lockset holes where extra cutting depth is required.



- 1 Special tungsten carbide teeth**
- Excellent wear and heat resistance
 - Cuts stainless steel and tough alloys

- 2 One piece construction**
- No assembly required
 - Stable accurate drilling

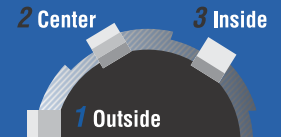
- 3 Extra length tool body**
- For extra length of cutting

THE CHOICE FOR DRILLING LOCKSET AND DEADBOLT HOLES IN STEEL DOORS

- 2" depth for drilling thick materials
- 3/8" shanks
- 2-1/8" designed for door knob, 1-1/2" designed for dead bolt
- See page 141 of the sets section for the full range of CT9 plastic cased sets

| EDP No./ Size | Shank Diameter | EDP No. / Size | Description |
|---------------|----------------|----------------|---------------------------|
| CT9-1-1/2 | 3/8 | CT9-PILOT | Pilot Drill (4" OAL) |
| CT9-2-1/8 | 3/8 | CT9-SCREW | Screw for CT9 Hole Cutter |

Triple Edge Cutting System



CT9 hole cutters feature triple-cutting geometry for smooth, fast cutting. The unique geometry delivers rapid chip removal and better control.



Carbide Tipped Hole Cutter Accessories

CT-EXT Hole Cutter Extensions

List No. CT-EXT

- Extend CT5 and CT7 hole cutters by 4"
- Precision machined tool steel
- Will extend the reach of all 3/8" and 1/2" shank tools



| EDP No./ Size | Description |
|---------------|--|
| CT-EXT-3/8 | 5" x 3/8" shank extension for 3/8" shank CT5/CT7 cutters |
| CT-EXT-1/2 | 5" x 1/2" shank extension for 1/2" shank CT5/CT7 cutters |

QCD Quick-Change Driver

List No. QCD

- Dual 1/4" and 3/8" drill and drive chuck
- 3/8" tools lock into position 1 / 1/4" tools lock into position 2
- Industrial quality with minimal runout (wobble)
- Fits all accessory types, all brands
- Fits old and new hex shanks with or without power groove



| EDP No./ Size | Description |
|---------------|---|
| QCD | Quick Change Driver for 1/4" and 3/8" hex shank tools |

QCD-EXT Quick-Change Driver Extensions

List No. QCD-EXT

- Industrial quality quick change extensions for 1/4" shank tools
- Designed for one-handed quick release
- Carbon steel manufacture for extended tool life
- Fits old and new 1/4" hex shanks with or without power groove



| EDP No./ Size | Description |
|---------------|--|
| QCD-EXT-6* | 6" Extension drive for 1/4" hex shank tools |
| QCD-EXT-12* | 12" Extension drive for 1/4" hex shank tools |
| QCD-EXT-24* | 24" Extension drive for 1/4" hex shank tools |

* Will only accommodate 1/4" hex shanks





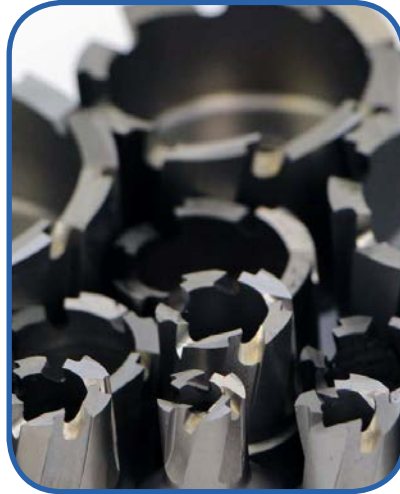
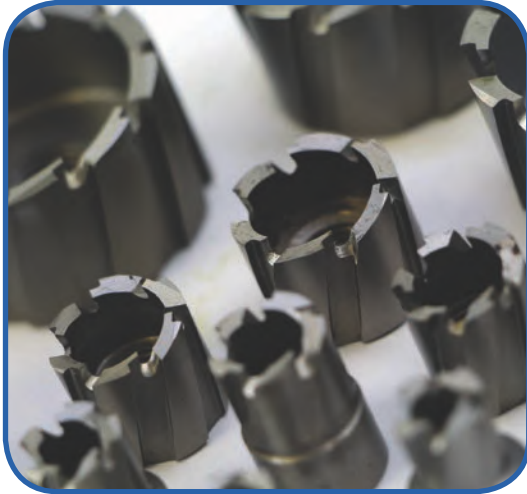
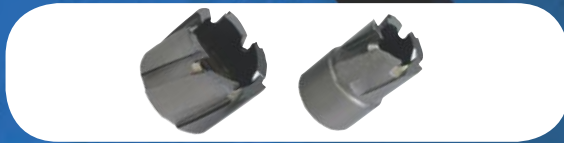
Sheet Metal Cutters

List No. SMC

High Speed Steel / Surface Treated

Description: High speed steel cutters for fast cutting in sheet metal

Application: Drill perfect, bur free holes in sheet metal, plate materials and plastics in two depth of cut options (1/4" and 1/2"). Ideal for electrical / conduit, automotive frame and bodywork, PDR (paintless dent repair) and HVAC industries.



SMC CUTTERS

- Fast cutting sheet metal cutters.
- Bur free holes in sheet metal, plate materials and plastics up to 1/2" thick.
- Surface treated high speed steel.
- 2 depth of cut options - 1/4" and 1/2".
- Full range of pilots and arbors available.

| 1/4" Depth of Cut - 3/8-24 Thread - Use With Arbor SMC-ARBOR-1 | 1/2" Depth of Cut - 1/2-20 Thread - Use With Arbor SMC-ARBOR-2 |
|--|--|
| EDP No. / Size | EDP No. / Size |
| SMC-1/4 | SMC-13/16 |
| SMC-5/16 | SMC-7/8 |
| SMC-3/8 | SMC-15/16 |
| SMC-7/16 | SMC-1 |
| SMC-1/2 | SMC-1-1/16 |
| SMC-9/16 | SMC-1-1/8 |
| SMC-5/8 | SMC-1-3/16 |
| SMC-3/4 | SMC-1-1/4 |
| | SMC-1-3/8 |
| | SMC-1-1/2 |

Sheet Metal Cutters - X-PAC

List No. SMC-XPAC

Description: Fully Assembled SMC-Cutter, SMC-ARBOR-1, SMC-PILOT-1 and SMC-WASHER-1

| EDP No. / Size |
|----------------|
| SMC-XPAC-1/4 |
| SMC-XPAC-5/16 |
| SMC-XPAC-3/8 |

ARBORS



| EDP No./ Size | Description |
|---------------|------------------------------------|
| SMC-ARBOR-1 | Arbor for sizes 1/4" thru 3/4" |
| SMC-ARBOR-2 | Arbor for sizes 13/16" thru 1-1/2" |

PILOTS



| EDP No./ Size | Description |
|---------------|------------------------------------|
| SMC-PILOT-1 | Pilot for sizes 1/4" thru 3/4" |
| SMC-PILOT-2 | Pilot for sizes 13/16" thru 1-1/2" |

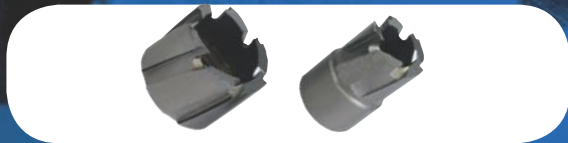
| SMC Cutter Speeds | | | |
|-------------------|-------------|-----------------|---------------|
| Size | STEEL | STAINLESS STEEL | ALUMINUM |
| 1/4 to 1/2 | 500-900 RPM | 350-800 RPM | 1250-2500 RPM |
| 9/16 to 13/16 | 300-500 RPM | 250-350 RPM | 750-1200 RPM |
| 7/8 to 1-1/8 | 250-300 RPM | 170-250 RPM | 550-700 RPM |
| 1-3/16 to 1-1/2 | 150-250 RPM | 120-180 RPM | 400-550 RPM |



Sheet Metal Cutter Sets & Accessories

Description: Produces fast, bur-free holes. Used mostly in hand held portable drills but can be used in a drill press.

Application: Sheet metal, plate materials and plastics up to 1/2" thick. Ideal for electrical/conduit, automotive frame and bodywork, PDR (paintless dent repair) and HVAC.



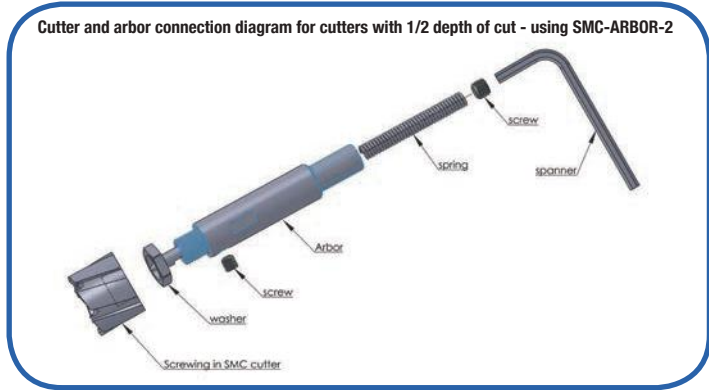
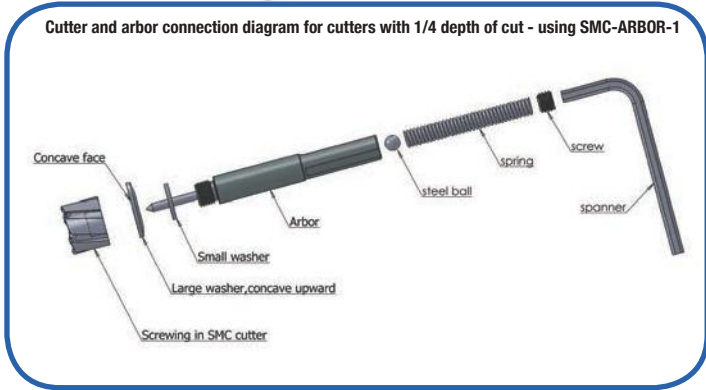
| EDP No./ Size | Contents |
|---------------|--|
| SMC-SET-1 | 13 Piece set contains SMC Sizes 1/4, 5/16, 3/8, 1/2, 9/16, 5/8 & 3/4, Arbor, Pilot, Hex Key, Small & Large Washer and Center Punch |
| SMC-SET-2 | 12 Piece set contains SMC sizes 7/8, 1, 1-1/8, 1-1/4, 1-3/8 & 1-1/2, Arbor, Pilot, 1 Hex Washer, 1 Center Punch and 2 Hex Keys |



SMC-SET-1



SMC-SET-2



ACCESSORIES

| EDP No./ Size | Description |
|----------------|--|
| SMC-HEX-3.0M | Hex Key for use with SMC-ARBOR-2 |
| SMC-HEX-4.0M | Hex Key for use with SMC-ARBOR-1 and 2 |
| SMC-PUNCH | Punch for use with SMC-ARBOR-1 and 2 |
| SMC-WASHER-1 | Washer for use with SMC-ARBOR-1 |
| SMC-WASHER-2 | Washer for use with SMC-ARBOR-1 |
| SMC-WASHER-HEX | Washer for use with SMC-ARBOR-2 |

| EDP No./ Size | Description |
|---------------|---|
| SMC-SPRING | Spring for use with SMC-ARBOR-1 and 2 |
| SMC-M6-SCREW | Screw for use with SMC-ARBOR-2 and SMC-HEX-3.0M |
| SMC-M8-SCREW | Screw for use with SMC-ARBOR-1 and 2 and SMC-HEX-4.0M |
| SMC-BALL | Ball for use with SMC-ARBOR-1 |





Carbide Burs



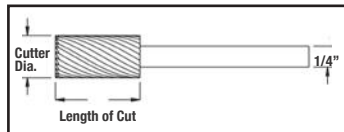
Description: Carbide burs are one of the most versatile metal working tools. Used in virtually every industry, burs are used in mold and pattern making, die sinking, tool making and

Application: Used widely in the automotive, aerospace, foundry, power station and engineering industries.

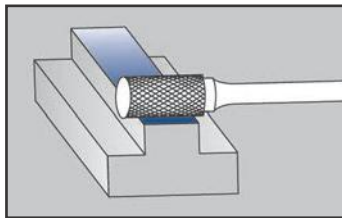
THE QUALITY TO MEET THE MOST DEMANDING JOBS

Manufactured from C2 tungsten carbide, Champion Carbide Burs are precision machine ground using diamond wheels and automated machinery. Standard 1/4" shanks unless specified differently, producing consistent geometry, sharp cutting edges and vibration free performance. Most Champion double cut Carbide Burs are Titanium Nitride Coated for superior surface finish and long life. Ferrous burs are for cutting steel alloys such as stainless steel, cast iron etc., Non-Ferrous Burs are for cutting aluminium & other non-ferrous materials. Miniature, Non-Ferrous & Long Burs are not Titanium Nitride Coated.

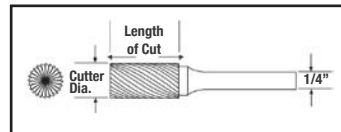
SA Cylinder Shape



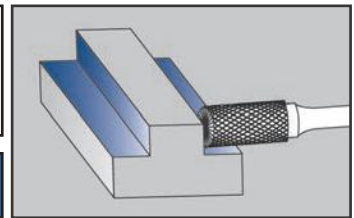
USE FOR DEBURRING



SB Cylinder End Cut



USE FOR INTERIOR CONTOURING WORK



| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/8 | 1/2 | SA11 | - | - |
| 1/8 | 5/8 | SA12 | - | - |
| 5/32 | 5/8 | SA13 | - | - |
| 3/16 | 5/8 | SA14 | - | - |
| 1/4 | 5/8 | SA1*** | - | - |
| 1/4 | 1 | SA1L | - | - |
| 1/4 | 3/4 | - | SA1NF | - |
| 1/4 | 1/2 | - | - | SA1-L6* |
| 5/16 | 3/4 | SA2 | - | - |
| 3/8 | 3/4 | SA3*** | SA3NF | SA3-L6* |
| 3/8 | 1 | SA3L | - | - |
| 3/8 | 1-1/2 | SA3X | - | - |
| 7/16 | 1 | SA4 | - | - |
| 1/2 | 1 | SA5*** | SA5NF | SA5-L6* |
| 5/8 | 1 | SA6 | SA6NF | - |
| 3/4 | 1/2 | SA15 | - | - |
| 3/4 | 3/4 | SA16 | - | - |
| 3/4 | 1 | SA7 | SA7NF | - |
| 3/4 | 1 | - | SA7NF-3/8** | - |
| 7/8 | 1 | SA8 | - | - |
| 1 | 1 | SA9 | - | - |

| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/8 | 1/2 | SB11 | - | - |
| 1/8 | 5/8 | SB12 | - | - |
| 5/32 | 5/8 | SB13 | - | - |
| 3/16 | 5/8 | SB14 | - | - |
| 1/4 | 5/8 | SB1*** | - | - |
| 1/4 | 1 | SB1L | - | - |
| 5/16 | 3/4 | SB2 | - | - |
| 3/8 | 3/4 | SB3*** | - | - |
| 3/8 | 1 | SB3L | - | - |
| 3/8 | 1-1/2 | SB3X | - | - |
| 7/16 | 1 | SB4 | - | - |
| 1/2 | 1 | SB5*** | - | - |
| 5/8 | 1 | SB6*** | - | - |
| 3/4 | 1/2 | SB15 | - | - |
| 3/4 | 3/4 | SB16 | - | - |
| 3/4 | 1 | SB7*** | - | - |
| 7/8 | 1 | SB8 | - | - |
| 1 | 1 | SB9 | - | - |

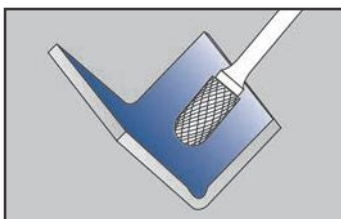
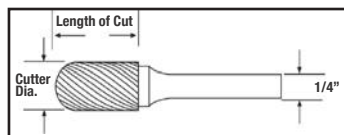
* 6" overall length

** 3/8" shank

*** Available without Titanium Nitride Coating. Specify U (uncoated) when ordering. Example, USA1

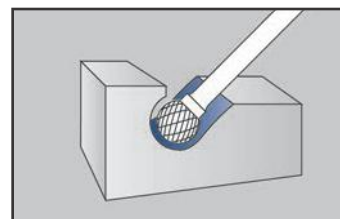
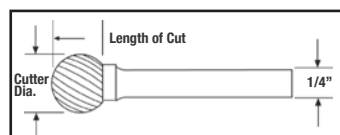


SC Cylinder Radius End



**USE FOR SURFACE MILLING/
CONTOURING**

SD Ball Shape



**USE FOR CONTOURING / HOLE
DEBURRING / MILLING**

| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/8 | 1/2 | SC11*** | - | - |
| 1/8 | 5/8 | SC12 | - | - |
| 5/32 | 5/8 | SC13 | - | - |
| 3/16 | 5/8 | SC14 | - | - |
| 1/4 | 5/8 | SC1*** | - | - |
| 1/4 | 1 | SC1L | - | - |
| 1/4 | 1/2 | - | - | SC1-L6* |
| 1/4 | 3/4 | - | SC1NF | - |
| 5/16 | 3/4 | SC2 | - | - |
| 3/8 | 3/4 | SC3*** | SC3NF | SC3-L6* |
| 3/8 | 1 | SC3L | - | - |
| 3/8 | 1-1/2 | SC3X | - | - |
| 7/16 | 1 | SC4 | - | - |
| 1/2 | 1 | SC5*** | SC5NF | SC5-L6* |
| 5/8 | 1 | SC6 | SC6NF | - |
| 3/4 | 1/2 | SC15 | - | - |
| 3/4 | 3/4 | SC16 | - | - |
| 3/4 | 1 | SC7*** | SC7NF | - |
| 3/4 | 1 | - | SC7NF-3/8** | - |
| 1 | 1 | SC9 | - | - |

| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/8 | 3/32 | SD11 | - | - |
| 3/16 | 1/8 | SD14*** | - | - |
| 1/4 | 7/32 | SD1*** | SD1NF | SD1-L6* |
| 5/16 | 1/4 | SD2*** | - | - |
| 3/8 | 5/16 | SD3*** | SD3NF | SD3-L6* |
| 7/16 | 3/8 | SD4 | - | - |
| 1/2 | 7/16 | SD5*** | SD5NF | - |
| 5/8 | 9/16 | SD6 | SD6NF | - |
| 3/4 | 11/16 | SD7*** | SD7NF | - |
| 3/4 | 11/16 | - | SD7NF-3/8** | - |
| 1 | 15/16 | SD9 | - | - |

* 6" overall length

** 3/8" shank

*** Available without Titanium Nitride Coating.

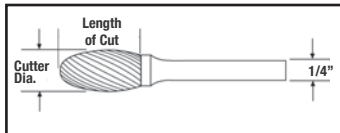
Specify U (uncoated) when ordering.

Example, USA1

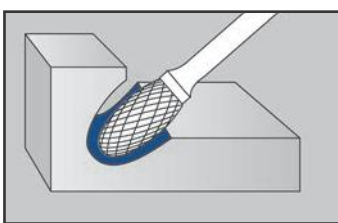




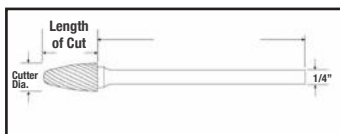
SE Oval Shape



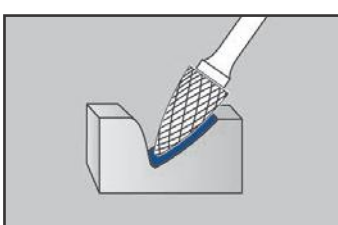
USE FOR CONTOURING



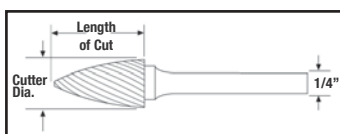
SF Tree Shape Radius End



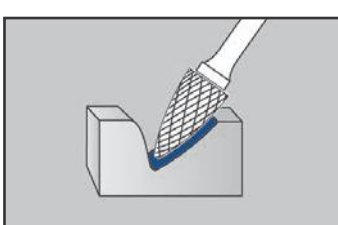
USE FOR WORK ON NARROW CONTOURS



SG Tree Shape



USE FOR NARROW CONTOURS & MILLING



| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 3/16 | 5/16 | SE11 | - | - |
| 1/4 | 3/8 | SE1*** | - | SE1-L6* |
| 3/8 | 5/8 | SE3*** | SE3NF | SE3-L6* |
| 1/2 | 7/8 | SE5*** | SE5NF | SE5-L6* |
| 5/8 | 1 | SE6*** | SE6NF | - |
| 3/4 | 1 | SE7 | SE7NF | - |
| 3/4 | 1 | - | SE7NF-3/8** | - |

| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|--------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/8 | 1/2 | SF11 | - | - |
| 1/4 | 3/4 | SF1*** | SF1NF | - |
| 1/4 | 1/2 | - | - | SF1-L6* |
| 3/8 | 3/4 | SF3*** | SF3-NF | SF3-L6* |
| 7/16 | 1 | SF4 | - | - |
| 1/2 | 3/4 | SF13 | - | - |
| 1/2 | 1 | SF5*** | SF5-NF | SF5-L6* |
| 5/8 | 1 | SF6 | SF6-NF | - |
| 3/4 | 1 | SF7 | - | - |
| 3/4 | 1-1/4 | SF14 | SF14-NF | - |
| 3/4 | 1-1/4 | - | SF14NF-3/8** | - |
| 3/4 | 1-1/2 | SF15 | - | - |

| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/4 | 5/8 | SG1*** | - | - |
| 1/4 | 1/2 | - | - | SG1-L6* |
| 5/16 | 3/4 | SG2 | - | - |
| 3/8 | 3/4 | SG3*** | - | SG3-L6* |
| 1/2 | 3/4 | SG13*** | - | - |
| 1/2 | 1 | SG5*** | - | SG5-L6* |
| 5/8 | 1 | SG6 | - | - |
| 3/4 | 1 | SG7 | - | - |
| 3/4 | 1-1/2 | SG15 | - | - |

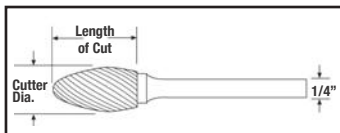
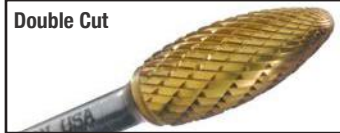
* 6" overall length

** 3/8" shank

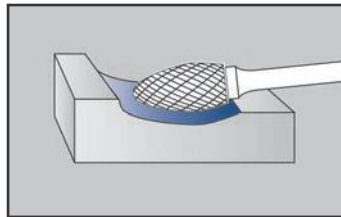
*** Available without Titanium Nitride Coating. Specify U (uncoated) when ordering. Example, USA1



SH Flame Shape

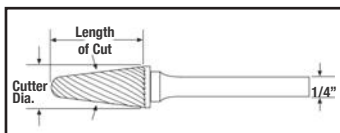
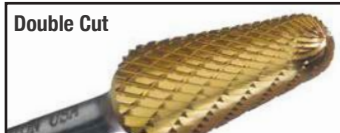


USE FOR CONTOURING

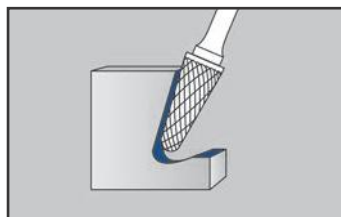


| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/4 | 5/8 | SH1*** | - | - |
| 5/16 | 3/4 | SH2 | - | SH2-L6 |
| 1/2 | 1-1/4 | SH5*** | - | SH5-L6 |
| 5/8 | 1-7/16 | SH6 | - | - |
| 3/4 | 1-5/8 | SH7*** | - | - |

SL SL14° Taper Radius End

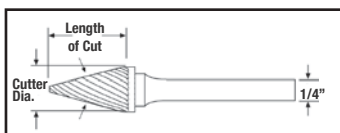


USE FOR NARROW CONTOURS / SURFACE MACHINING

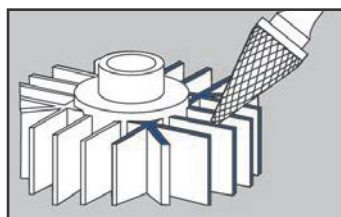


| Cutter Details | | List / EDP No. | | |
|-----------------|---------------|----------------|-------------|-------------|
| Cutter Diameter | Length of Cut | Double Cut | Non Ferrous | Long Series |
| 1/4 | 5/8 | SL1*** | - | SL1-L6 |
| 5/16 | 7/8 | SL2 | - | - |
| 3/8 | 1-1/16 | SL3*** | SL3-NF | SL3-L6 |
| 1/2 | 1-1/8 | SL4*** | SL4-N4 | SL4-L6 |
| 5/8 | 1-3/16 | SL5 | SL5-NF | - |
| 5/8 | 1-5/16 | SL6 | SL6-NF | - |
| 3/4 | 1-1/2 | SL7 | SL7-NF | - |
| 3/4 | 1-1/2 | - | SL7NF-3/8 | - |

SM Cone Shape



USE FOR NARROW CONTOURS / SURFACE MACHINING



| Cutter Details | | | List / EDP No. | |
|-----------------|---------------|----------------|----------------|-------------|
| Cutter Diameter | Length of Cut | Included Angle | Double Cut | Non Ferrous |
| 1/4 | 1/2 | 22° | SM1 | - |
| 1/4 | 3/4 | 14° | SM2*** | - |
| 1/4 | 1 | 10° | SM3*** | - |
| 3/8 | 5/8 | 28° | SM4** | - |
| 1/2 | 7/8 | 28° | SM5*** | - |
| 5/8 | 1 | 31° | SM6 | - |

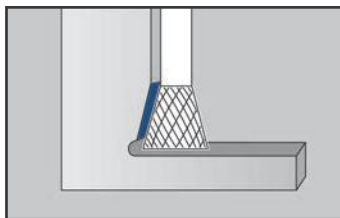
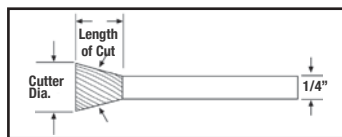
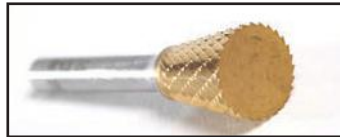
* 6" overall length

** 3/8" shank

*** Available without Titanium Nitride Coating.
Specify U (uncoated) when ordering.
Example, USA1

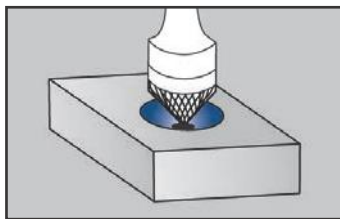
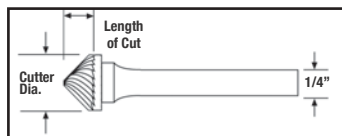


SN Inverted Cone Shape



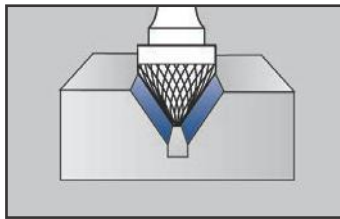
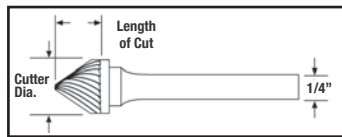
EDGE MACHINING FROM THE REAR IN HARD TO REACH AREAS

SK 90° Cone Shape



MACHINING OF ACUTE ANGLE AREAS / COUNTERSINKING

SJ 60° Cone Shape



MACHINING OF ACUTE ANGLE AREAS / COUNTERSINKING

| CUTTER DETAILS | | | List / EDP No. |
|-----------------|---------------|----------------|----------------|
| Cutter Diameter | Length of Cut | Included Angle | Non Ferrous |
| 1/4 | 5/16 | 10° | SN1*** |
| 3/8 | 3/8 | 13° | SN2 |
| 1/2 | 1/2 | 28° | SN4*** |
| 5/8 | 3/4 | 18° | SN6 |
| 3/4 | 5/8 | 30° | SN7 |

*** Available without Titanium Nitride Coating. Specify US (uncoated) when ordering.

| CUTTER DETAILS | | List / EDP No. |
|-----------------|---------------|----------------|
| Cutter Diameter | Length of Cut | Double Cut |
| 1/4 | 1/8 | SK1 |
| 3/8 | 3/16 | SK3 |
| 1/2 | 1/4 | SK5 |
| 5/8 | 5/16 | SK6 |
| 3/4 | 3/8 | SK7 |
| 1 | 1/2 | SK9 |

| CUTTER DETAILS | | List / EDP No. |
|-----------------|---------------|----------------|
| Cutter Diameter | Length of Cut | Double Cut |
| 1/4 | 3/16 | SJ1 |
| 3/8 | 5/16 | SJ3 |
| 1/2 | 7/16 | SJ5 |
| 5/8 | 9/16 | SJ6 |
| 3/4 | 11/16 | SJ7 |
| 1 | 15/16 | SJ9 |

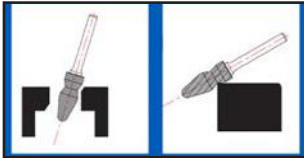


Radius Burs



Description: Multi-purpose burs for a wide range of metal removal jobs. Exclusive inverted curve hugs edges. Use to round sharp edges when subsequent painting of material is required.

Application: Use on a wide variety of materials including titanium, bronze, stainless steel, cast iron, brass and more.

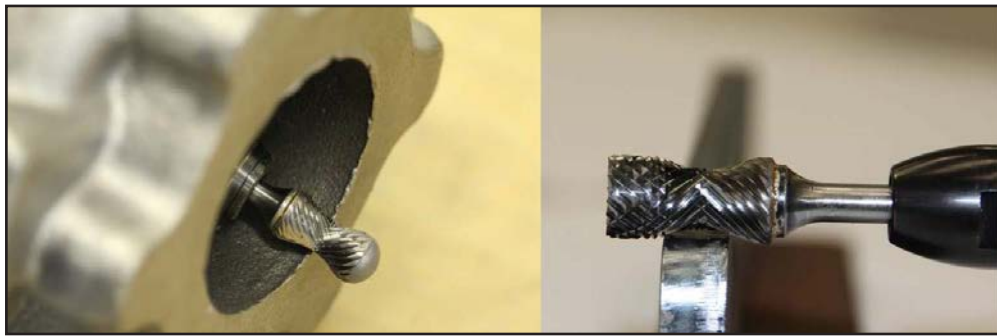
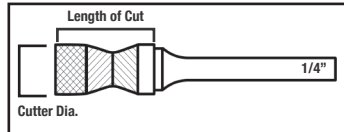


The Inverted Versatile Bur

- Unique inverted curve - ideal for creating a smooth radius on sharp corners
- Unique guide system - for ease of control on sharp edges
- Special tooth geometry - for smooth cutting action using all faces and rapid material removal
- The highest quality sintered tungsten carbide and CNC machining for consistent quality

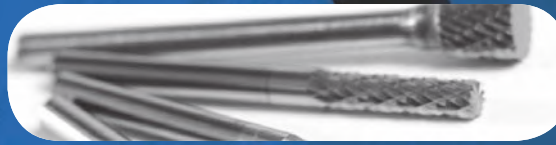
CUTTER DETAILS

| Bur Type and List No. | Cutter Diameter | Length of Cut |
|-----------------------|-----------------|---------------|
| SB5RA | 1/2" | 1" |
| SC5RA | 1/2" | 1" |
| SF5RA | 1/2" | 1-1/4" |





Miniature Burs



Description: Miniature Burs have 1/8" shank diameter and 1-1/2" overall length

Application: Miniature burs are ideal for engraving and use in Dremel like power tools (often called pencil grinders).

| Cutter Details | | | List / EDP No. |
|----------------|-----------------|---------------|--------------------|
| Cut Style | Cutter Diameter | Length of Cut | Double Cut |
| SA | 1/16 | 1/4 | SA41 |
| | 3/32 | 7/16 | SA42 |
| | 1/8 | 9/16 | SA43 |
| | 1/4 | 1/2 | SA51 |
| SB | 1/8 | 9/16 | SB-43 End Cut Only |
| | 1/8 | Double Ended | SB-43 End Cut Only |
| | 1/4 | 3/16 | SB51 |
| SC | 3/32 | 7/16 | SC41 |
| | 1/8 | 9/16 | SC42 |
| | 1/4 | 1/2 | SC51 |
| SD | 3/32 | 3/32 | SD41 |
| | 1/8 | 1/8 | SD42 |
| | 1/4 | 7/32 | SD51 |
| SE | 1/8 | 7/32 | SE41 |
| | 1/4 | 3/8 | SE51 |
| SF | 1/8 | 1/4 | SF41 |
| | 1/8 | 1/2 | SF42 |
| | 1/4 | 1/2 | SF51 |

| Cutter Details | | | List / EDP No. |
|----------------|-----------------|---------------|----------------|
| Cut Style | Cutter Diameter | Length of Cut | Double Cut |
| SG | 1/8 | 1/4 | SG41 |
| | 1/8 | 5/16 | SG42 |
| | 1/8 | 3/8 | SG43 |
| | 1/8 | 1/2 | SG44 |
| | 1/4 | 1/2 | SG51 |
| | 1/8 | 1/4 | SH41 |
| SH | | | |
| SJ | 1/8 | 3/32 | SJ42 |
| SK | 1/8 | 1/16 | SK42 |
| SL | 1/8 | 3/8 | SL41 |
| | 1/4 | 1/2 | SL42 |
| SM | 1/8 | 11/32 | SM41 |
| | 1/8 | 7/16 | SM42 |
| | 1/8 | 5/8 | SM43 |
| SN | 1/4 | 1/2 | SN51 |
| | 3/32 | 1/8 | SN41 |
| | 1/8 | 3/16 | SN42 |
| | 1/4 | 1/4 | SN51 |



Fiberglass Routers - Carbide



Description: Solid carbide fiberglass routers.

Application: Use to shape, cut or remove excess material in fiberglass, plastics and other non-metallic materials. Ideally suited for the production of fiberglass circuit boards and in the boating, aerospace and RV Industries.

| List / EDP No. | Cutter Diameter | Shank Diameter | Flute Length | Overall Length |
|----------------|-----------------|----------------|--------------|----------------|
| FGR-1 | 1/16 | 1/8 | 3/16 | 1-1/2 |
| FGR-1-1 | 3/32 | 1/8 | 3/8 | 1-1/2 |
| FGR-2 | 1/8 | 1/8 | 1/2 | 1-1/2 |
| FGR-3 | 3/16 | 3/16 | 5/8 | 2 |
| FGR-4 | 3/16 | 1/4 | 5/8 | 2 |
| FGR-5 | 1/4 | 1/4 | 3/4 | 2 |
| FGR-6 | 1/4 | 1/4 | 3/4 | 2-1/2 |
| FGR-6-1 | 1/4 | 1/4 | 1 | 3 |
| FGR-7 | 5/16 | 5/16 | 1 | 2-1/2 |
| FGR-8 | 3/8 | 3/8 | 1 | 2-1/2 |
| FGR-9 | 1/2 | 1/2 | 1 | 3 |

Please specify FGR-A (No End Cut), FGR-B (Bur End), FGR-C (End Mill Cut) or FGR-D (Drill End) when ordering.
Ordering Example: FGR-A-6-1.

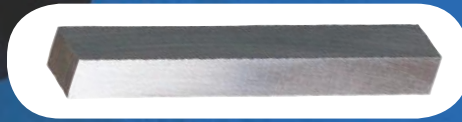




Square Tool Bits

Square Turning Tools

High Speed / Cobalt



Brazed Carbide Tool Bits

Single Point Turning Tools

Straight / Lead Angle / Square Nose / Pointed Nose / Threading / Cut Off



Square Tool Bits

| Size | Overall Length | Size | Overall Length |
|-------|----------------|--------|----------------|
| 1/8* | 2-1/2 | 5/8* | 4-1/2 |
| 3/16* | 2-1/2 | 3/4* | 5 |
| 1/4* | 2-1/2 | 7/8* | 6 |
| 5/16* | 2-1/2 | 1* | 7 |
| 3/8* | 3 | 1-1/4* | 8 |
| 1/2* | 4 | | |

* Please specify 515 or 516 when ordering.

Square Tool Bits

High Speed

List No.515*

High Speed Steel / 10° Bevel
Description: Premium grade of high speed steel for long life and high performance.

Application: Heavy duty machining of hard and tough materials

Square Tool Bits

Cobalt

List No.516*

M35 5% Cobalt / 10° Bevel
Description: M35 cobalt steel for greater wear resistance.

Application: Heavy duty machining of hard and tough materials.

Square Tool Bits

| Grade 883 / EDP No. | Grade 370 / EDP No. | Shank Dimension | | |
|--|---------------------|-----------------|--------|--------|
| | | Width | Height | Length |
| Straight Turning Tools - List No.AR For turning to square shoulder | | | | |
| AR4-883 | AR4-370 | 1/4 | 1/4 | 2 |
| AR5-883 | AR5-370 | 5/16 | 5/16 | 2-1/4 |
| AR6-883 | AR6-370 | 3/8 | 3/8 | 2-1/2 |
| AR7-883 | AR7-370 | 7/16 | 7/16 | 3 |
| AR8-883 | AR8-370 | 1/2 | 1/2 | 3-1/2 |
| AR10-883 | AR10-370 | 5/8 | 5/8 | 4 |
| AR12-883 | AR12-370 | 3/4 | 3/4 | 4-1/2 |
| AR16-883 | AR16-370 | 1 | 1 | 7 |
| AR20-883 | AR20-370 | 1-1/4 | 1-1/4 | 8 |
| AR44-883 | AR44-370 | 1/2 | 1/2 | 9 |



| Grade 883 / EDP No. | Grade 370 / EDP No. | Shank Dimension | | |
|---|---------------------|-----------------|--------|--------|
| | | Width | Height | Length |
| Straight Turning Tools - List No.AL For facing to square shoulder | | | | |
| AL4-883 | AL4-370 | 1/4 | 1/4 | 2 |
| AL5-883 | AL5-370 | 5/16 | 5/16 | 2-1/4 |
| AL6-883 | AL6-370 | 3/8 | 3/8 | 2-1/2 |
| AL7-883 | AL7-370 | 7/16 | 7/16 | 3 |
| AL8-883 | AL8-370 | 1/2 | 1/2 | 3-1/2 |
| AL10-883 | AL10-370 | 5/8 | 5/8 | 4 |
| AL12-883 | AL12-370 | 3/4 | 3/4 | 4-1/2 |
| AL16-883 | AL16-370 | 1 | 1 | 7 |
| | AL20-370 | 1-1/4 | 1-1/4 | 8 |



Straight Angle Turning Tools - List No.BR

For rough turning where square shoulder is not required

| | | | | |
|----------|----------|-------|-------|-------|
| BR4-883 | BR4-370 | 1/4 | 1/4 | 2 |
| BR5-883 | BR5-370 | 5/16 | 5/16 | 2-1/4 |
| BR6-883 | BR6-370 | 3/8 | 3/8 | 2-1/2 |
| BR7-883 | BR7-370 | 7/16 | 7/16 | 3 |
| BR8-883 | BR8-370 | 1/2 | 1/2 | 3-1/2 |
| BR10-883 | BR10-370 | 5/8 | 5/8 | 4 |
| BR12-883 | BR12-370 | 3/4 | 3/4 | 4-1/2 |
| BR16-883 | BR16-370 | 1 | 1 | 7 |
| BR20-883 | BR20-370 | 1-1/4 | 1-1/4 | 8 |



Lead Angle Turning Tools - List No.BL

For rough turning where square shoulder is not required

| | | | | |
|----------|----------|-------|-------|-------|
| BL4-883 | BL4-370 | 1/4 | 1/4 | 2 |
| BL5-883 | BL5-370 | 5/16 | 5/16 | 2-1/4 |
| BL6-883 | BL6-370 | 3/8 | 3/8 | 2-1/2 |
| BL7-883 | BL7-370 | 7/16 | 7/16 | 3 |
| BL8-883 | BL8-370 | 1/2 | 1/2 | 3-1/2 |
| BL10-883 | BL10-370 | 5/8 | 5/8 | 4 |
| BL12-883 | BL12-370 | 3/4 | 3/4 | 4-1/2 |
| BL16-883 | BL16-370 | 1 | 1 | 7 |
| BL20-883 | BL20-370 | 1-1/4 | 1-1/4 | 8 |



Straight Nose Tools - List No.C

For chamfering

| | | | | |
|---------|---------|-------|-------|-------|
| C4-883 | C4-370 | 1/4 | 1/4 | 2 |
| C5-883 | C5-370 | 5/16 | 5/16 | 2-1/4 |
| C6-883 | C6-370 | 3/8 | 3/8 | 2-1/2 |
| C7-883 | C7-370 | 7/16 | 7/16 | 3 |
| C8-883 | C8-370 | 1/2 | 1/2 | 3-1/2 |
| C10-883 | C10-370 | 5/8 | 5/8 | 4 |
| C12-883 | C12-370 | 3/4 | 3/4 | 4-1/2 |
| C16-883 | C16-370 | 1 | 1 | 7 |
| C20-883 | C20-370 | 1-1/4 | 1-1/4 | 8 |
| C44-883 | C44-370 | 1/2 | 1/2 | 9 |



Pointed Nose Tools - List No.D

For undercutting and chamfering

| | | | | |
|---------|---------|------|------|-------|
| D4-883 | D4-370 | 1/4 | 1/4 | 2 |
| D5-883 | D5-370 | 5/16 | 5/16 | 2-1/4 |
| D6-883 | D6-370 | 3/8 | 3/8 | 2-1/2 |
| D7-883 | D7-370 | 7/16 | 7/16 | 3 |
| D8-883 | D8-370 | 1/2 | 1/2 | 3-1/2 |
| D10-883 | D10-370 | 5/8 | 5/8 | 4 |
| D12-883 | D12-370 | 3/4 | 3/4 | 4-1/2 |
| D16-883 | D16-370 | 1 | 1 | 7 |



Threading Tools - List No.E

For universal threading 30° chamfering, notching and undercutting

| | | | | |
|---------|---------|------|------|-------|
| E4-883 | E4-370 | 1/4 | 1/4 | 2 |
| E5-883 | E5-370 | 5/16 | 5/16 | 2-1/4 |
| E6-883 | E6-370 | 3/8 | 3/8 | 2-1/2 |
| E7-883 | E7-370 | 7/16 | 7/16 | 3 |
| E8-883 | E8-370 | 1/2 | 1/2 | 3-1/2 |
| E10-883 | E10-370 | 5/8 | 5/8 | 4 |
| E12-883 | E12-370 | 3/4 | 3/4 | 4-1/2 |



Brazed Carbide Tool Bits

List No.883**

Description: Series 883 is equivalent to C2 grade.
Application: Commonly used for turning non-ferrous materials such as brass & aluminum as well as cast iron.

Brazed Carbide Tool Bits

List No.370**

Description: Series 370 is equivalent to C6 grade.

Application: For use on steel.

** Please specify 883 / 370 when ordering.





Single Flute Countersinks

List No. XL801

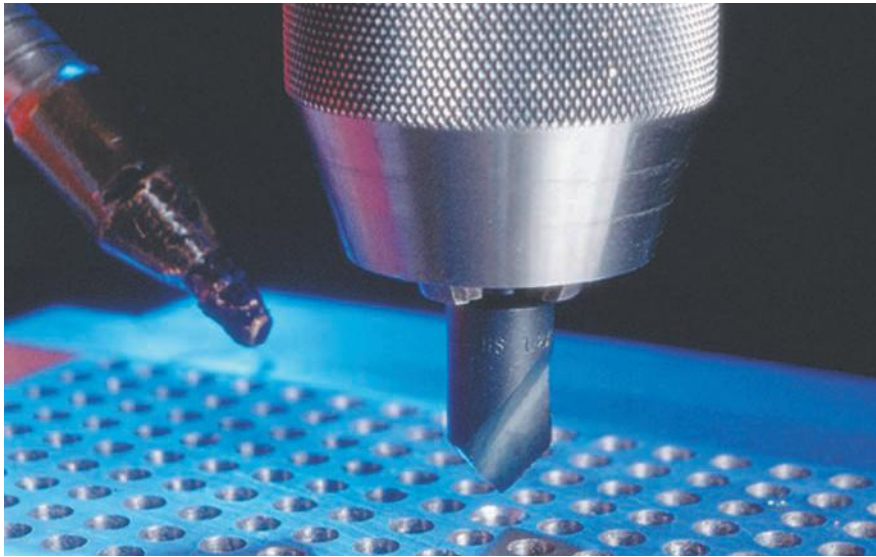
High Hook / HSS

Description: Self centering and good for non-rigid machining set up. Also able to countersink a wide range of hole sizes with one tool size.

Application: For use in a portable drill, drill press or Bridgeport type machine



| EDP No./Diameter | | | | | Shank Diameter | Overall Length |
|------------------|----------------|----------------|-----------------|-----------------|----------------|----------------|
| 60° | 82° | 90° | 100° | 120° | | |
| XL801-1/4X60 | XL801-1/4X82 | XL801-1/4X90 | XL801-1/4X100 | XL801-1/4X120 | 1/4 | 1-1/2 |
| XL801-3/8X60 | XL801-3/8X82 | XL801-3/8X90 | XL801-3/8X100 | XL801-3/8X120 | 1/4 | 1-3/4 |
| XL801-1/2X60 | XL801-1/2X82 | XL801-1/2X90 | XL801-1/2X100 | XL801-1/2X120 | 3/8 | 2 |
| XL801-5/8X60 | XL801-5/8X82 | XL801-5/8X90 | XL801-5/8X100 | XL801-5/8X120 | 3/8 | 2-1/4 |
| XL801-3/4X60 | XL801-3/4X82 | XL801-3/4X90 | XL801-3/4X100 | XL801-3/4X120 | 1/2 | 2-5/8 |
| XL801-1X60 | XL801-1X82 | XL801-1X90 | XL801-1X100 | XL801-1X120 | 1/2 | 2-3/4 |
| XL801-1-1/4X60 | XL801-1-1/4X82 | XL801-1-1/4X90 | XL801-1-1/4X100 | XL801-1-1/4X120 | 1/2 | 2-3/4 |
| XL801-1-1/2X60 | XL801-1-1/2X82 | XL801-1-1/2X90 | XL801-1-1/2X100 | XL801-1-1/2X120 | 3/4 | 2-7/8 |
| XL801-2X60 | XL801-2X82 | XL801-2X90 | XL801-2X100 | XL801-2X120 | 3/4 | 3-1/4 |



If angle is not specified - 82° will be supplied.



Four Flute Machine Countersinks

List No. 800

HSS

Description: Countersink, chamfer or debur existing holes. Additional shank length for use in screw machines and turret lathes.

Application: For machine countersinking and chamfering a variety of steels and alloys.



| EDP No./Diameter | | | Shank Diameter | Overall Length |
|------------------|------------|------------|----------------|----------------|
| 60° | 82° | 90° | | |
| 800-1/2X60 | 800-1/2X82 | 800-1/2X90 | 1/2 | 3-7/8 |
| 800-5/8X60 | 800-5/8X82 | 800-5/8X90 | 1/2 | 4 |
| 800-3/4X60 | 800-3/4X82 | 800-3/4X90 | 1/2 | 4-1/8 |
| 800-7/8X60 | 800-7/8X82 | 800-7/8X90 | 1/2 | 4-1/4 |
| 800-1X60 | 800-1X82 | 800-1X90 | 1/2 | 4-3/8 |



Three Flute Countersinks

List No. 799
HSS



Description: Designed for chatter-free performance (smooth finish) in both portable power tools and drill presses.

Application: For machine countersinking and chamfering a variety of steels and alloys.

| EDP No./Diameter | | | | | Shank Diameter | Overall Length |
|------------------|------------|------------|-------------|-------------|----------------|----------------|
| 60° | 82° | 90° | 100° | 120° | | |
| 799-1/4X60 | 799-1/4X82 | 799-1/4X90 | 799-1/4X100 | 799-1/4X120 | 1/4 | 1-7/16 |
| 799-3/8X60 | 799-3/8X82 | 799-3/8X90 | 799-3/8X100 | 799-3/8X120 | 1/4 | 1-21/32 |
| 799-1/2X60 | 799-1/2X82 | 799-1/2X90 | 799-1/2X100 | 799-1/2X120 | 1/4 | 1-27/32 |
| 799-5/8X60 | 799-5/8X82 | 799-5/8X90 | 799-5/8X100 | 799-5/8X120 | 3/8 | 2-3/32 |
| 799-3/4X60 | 799-3/4X82 | 799-3/4X90 | 799-3/4X100 | 799-3/4X120 | 1/2 | 2-13/32 |
| 799-1X60 | 799-1X82 | 799-1X90 | 799-1X100 | 799-1X120 | 1/2 | 2-13/16 |



Large Four Flute Countersinks

List No. 799L
HSS



Description: For the countersinking of large diameter holes. Good for mild steel and use in standard portable hand held drills.

Application: For machine countersinking and chamfering a variety of steels and alloys.

| EDP No./Diameter | | | Shank Diameter | Overall Length |
|------------------|---------------|---------------|----------------|----------------|
| 60° | 82° | 90° | | |
| 799L-1-1/4X60 | 799L-1-1/4X82 | 799L-1-1/4X90 | 1/2 | 2-1/8 |
| 799L-1-1/2X60 | 799L-1-1/2X82 | 799L-1-1/2X90 | 3/4 | 2-3/8 |
| 799L-1-3/4X60 | 799L-1-3/4X82 | 799L-1-3/4X90 | 3/4 | 2-5/8 |
| 799L-2X60 | 799L-2X82 | 799L-2X90 | 3/4 | 2-7/8 |



Combined Drill and Countersinks

List No. 798

Plain Style / 60° included angle / HSS



Description: Often referred to as center drills.

Application: Designed for drilling the center holes in the ends of material that will be held on machine center. Most common style used.

| EDP No./ Diameter | Body Diameter | Drill Diameter | Drill Length | Overall Length |
|-------------------|---------------|----------------|--------------|----------------|
| 798-00 | 1/8 | .025 | .030 | 1-1/8 |
| 798-0 | 1/8 | 1/32 | .038 | 1-1/8 |
| 798-1 | 1/8 | 3/64 | 3/64 | 1-1/4 |
| 798-2 | 3/16 | 5/64 | 5/64 | 1-7/8 |
| 798-3 | 1/4 | 7/64 | 7/64 | 2 |

| EDP No./ Diameter | Body Diameter | Drill Diameter | Drill Length | Overall Length |
|-------------------|---------------|----------------|--------------|----------------|
| 798-4 | 5/16 | 1/8 | 1/8 | 2-1/8 |
| 798-5 | 7/16 | 3/16 | 3/16 | 2-3/4 |
| 798-6 | 1/2 | 7/32 | 7/32 | 3 |
| 798-7 | 5/8 | 1/4 | 1/4 | 3-1/4 |
| 798-8 | 3/4 | 5/16 | 5/16 | 3-1/2 |



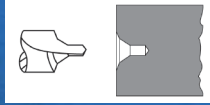
Carbide Combined Drill and Countersinks

List No. 198

Plain Style / 60° included angle / Solid Carbide

Description: Often referred to as center drills.

Application: Designed for drilling the center holes in the ends of material that will be held on machine center. Most common style used.



| EDP No./ Size | Body Diameter | Drill Diameter | Overall Length |
|---------------|---------------|----------------|----------------|
| 198-1 | 1/8 | 3/64 | 1-1/4 |
| 198-2 | 3/16 | 5/64 | 1-7/8 |
| 198-3 | 1/4 | 7/64 | 2 |

| EDP No./ Size | Body Diameter | Drill Diameter | Overall Length |
|---------------|---------------|----------------|----------------|
| 198-4 | 5/16 | 1/8 | 2-1/8 |
| 198-5 | 7/16 | 3/16 | 2-3/4 |
| 198-6 | 1/2 | 7/32 | 3 |



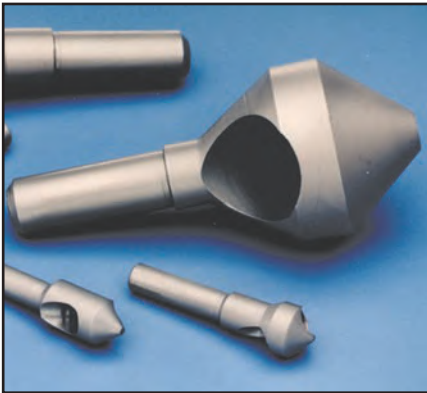
Zero Flute Countersinks (Deburring Tools)

List No. CSK

82° Piloted / HSS

Description: Chatterless finish, single cutting edge for fast stock removal, free-cutting, easily sharpened.

Application: Ideal for use in portable applications and materials, including metal, plastic, wood & aluminum. Ideal for glass, window and door frame installations.



Champion's high speed steel zero flute countersinks (deburring tools) offer superior quality, unique designs and outstanding performance, yielding excellent workpiece finish.

These tools can be easily sharpened by use of a small mounted grinding wheel inserted in the hole.

| EDP No./ Size | Screw Size | Shank Diameter | Overall Length | Body Diameter | Pilot Diameter |
|---------------|------------|----------------|----------------|---------------|----------------|
| CSK8-1 | 1/4 | 3/8 | 2 | 33/64 | 1/4 |
| CSK8-2 | 1/4 | 3/8 | 2 | 33/64 | 17/64 |
| CSK10-1 | 5/16 | 3/8 | 2-3/16 | 41/64 | 5/16 |
| CSK10-2 | 5/16 | 3/8 | 2-3/16 | 41/64 | 21/64 |
| CSK12-1 | 3/8 | 1/2 | 2-5/8 | 49/64 | 3/8 |
| CSK12-2 | 3/8 | 1/2 | 2-5/8 | 49/64 | 25/64 |
| CSK14-1 | 7/16 | 1/2 | 2-3/4 | 53/64 | 7/16 |
| CSK14-2 | 7/16 | 1/2 | 2-3/4 | 53/64 | 29/64 |
| CSK16-1 | 1/2 | 1/2 | 2-13/16 | 15/16 | 1/2 |
| CSK16-2 | 1/2 | 1/2 | 2-13/16 | 15/16 | 33/64 |



Zero Flute Countersinks (Deburring Tools)

List No. CSK

82° Pilotless / Round Shank / HSS

Description: Chatterless finish, single cutting edge for fast stock removal, free-cutting, easily sharpened.

Application: Ideal for use in portable applications and materials, including metal, plastic, wood & aluminum. Ideal for the glass and window design industry. Windows & door frames, store front installers & glaziers



| EDP No./ Size | Diameter of Cut | Shank Diameter | Overall Length | Body Diameter | EDP No./ Size | Screw Size | Shank Diameter | Overall Length | Body Diameter |
|---------------|-----------------|----------------|----------------|---------------|---------------|------------|----------------|----------------|---------------|
| CSK3S | .073 to 15/64 | 1/4 | 1-3/4 | 1/4 | CSK5S | No. 4, 5 | 1/4 | 1-1/2 | 17/64 |
| CSK18 | 3/16 to 17/32 | 1/4 | 1-7/8 | 9/16 | CSK6S | No. 6 | 1/4 | 1-1/2 | 19/64 |
| CSK26 | .307 to 25/32 | 1/2 | 2-5/8 | 13/16 | CSK8S | No. 8 | 1/4 | 1-5/8 | 11/32 |
| CSK26A | .307 to 25/32 | 1/4 | 2-1/16 | 13/16 | CSK10S | No. 10 | 1/4 | 1-5/8 | 25/64 |
| CSK36 | .431 to 7/8 | 1/2 | 2-13/16 | 1-1/8 | | | | | |
| CSK48 | 1/2 to 1-15/32 | 1/2 | 3-1/2 | 1-1/2 | | | | | |



Zero Flute Countersinks (Deburring Tools)

List No. CSK-SH

1/4" Hex Shank / HSS



Description: Chatterless finish, single cutting edge for fast stock removal, free-cutting, easily sharpened.

Application: Ideal for use in portable applications and materials, including metal, plastic, wood & aluminum. Ideal for the glass and window design industry. Windows & door frames, store front installers & glaziers

| EDP No./ Size | Screw Size | Shank Diameter | Overall Length | Body Diameter | EDP No./ Size | Screw Size | Shank Diameter | Overall Length | Body Diameter |
|---------------|------------|----------------|----------------|---------------|---------------|--------------|----------------|----------------|---------------|
| CSK-3SH | No. 2,3,4 | Hex | 1-27/32 | 1/4 | CSK-18SH | No. 10,12,14 | Hex | 2-5/16 | 9/16 |
| CSK-8SH | No. 5,6,8 | Hex | 2 | 11/32 | | | | | |



Zero Flute Countersinks

List No. CSA

100° / HSS



Description: Chatterless finish, single cutting edge for fast stock removal, free-cutting, easily sharpened.

Application: Used in a wide variety of materials, including metal, plastic and wood. Ideal for the glass and window design industry.

| EDP No./ Size | Diameter of Cut | Shank Diameter | Overall Length | Body Diameter |
|---------------|-----------------|----------------|----------------|---------------|
| CSKA8 | 3/32 TO 1/4 | 1/4 | 1-1/2 | 17/64 |
| CSKA14 | 1/8 TO 27/64 | 1/4 | 1-11/16 | 7/16 |
| CSKA18 | 3/16 TO 35/64 | 1/4 | 1-7/8 | 9/16 |



Zero Flute Countersinks

List No. DBK

90° / HSS



Description: Chatterless finish, single cutting edge for fast stock removal, free-cutting, easily sharpened.

Application: Use in a wide variety of materials, including metal, plastic and wood. Ideal for the glass and window design industry.

| EDP No./ Size | Diameter of Cut | Shank Diameter | Overall Length | Body Diameter |
|---------------|-----------------|----------------|----------------|---------------|
| DBK4* | 1/64 TO 11/64 | 3/16 | 1-1/2 | NA |
| DBK6* | 1/16 TO 11/64 | 3/16 | 1-1/2 | NA |
| DBK8* | 1/8 TO 15/64 | 1/4 | 1-3/4 | NA |
| DBK14 | 5/32 TO 13/32 | 1/4 | 1-11/16 | 7/16 |
| DBK18 | 3/16 TO 17/32 | 1/4 | 1-7/8 | 9/16 |
| DBK26 | 5/16 TO 25/32 | 1/2 | 2-19/32 | 13/16 |
| DBK26A | 5/16 TO 25/32 | 1/4 | 2-1/32 | 13/16 |
| DBK36 | 9/16 TO 1-3/32 | 1/2 | 2-13/16 | 1-1/8 |
| DBK48 | 1/2 TO 1-15/32 | 1/2 | 3-1/2 | 1-1/2 |

* Double ended





Combination Drill & Taps

List No. DT22
2 Flute / 118° Point / HSS

List No. DT22M
Metric Drills & Taps

Description: Combination drill and tap available in standard, metric and titanium coated.

Application: Create holes and tap in a single operation. No center drilling or punching required.



List No. DT22T

Titanium Nitride Coated



- Ideal for use in Multi-Spindle heads with reversing capability and in RotoBrute™ variable speed/reverse magnetic drills when used with tapping heads
- Tapered neck design reduces drill & tap breakage
- 118° Split point permits holes and threads to be cut at high speeds
- Produces a class 2B fit. No special holders or collets required

| EDP No./ Diameter | Overall Length | Drill Length | Drill Diameter | Top Length |
|-------------------|----------------|--------------|----------------|------------|
| DT22-4-40 | 1-7/8 | 1/4 | .0910 | 3/8 |
| DT22-4-48 | 1-7/8 | 1/4 | .0945 | 3/8 |
| DT22-5-40 | 1-15/16 | 9/32 | .1040 | 13/32 |
| DT22-5-44 | 1-15/16 | 9/32 | .1060 | 13/32 |
| DT22-6-32 | 2 | 5/16 | .1115 | 7/16 |
| DT22-6-40 | 2 | 5/16 | .1170 | 7/16 |
| DT22-8-32 | 2-1/8 | 3/8 | .1375 | 1/2 |
| DT22-8-36 | 2-1/8 | 3/8 | .1405 | 1/2 |
| DT22-10-24 | 2-3/8 | 13/32 | .1545 | 5/8 |
| DT22-10-32 | 2-3/8 | 13/32 | .1635 | 5/8 |
| DT22-12-24 | 2-3/8 | 15/32 | .1805 | 21/32 |
| DT22-12-28 | 2-3/8 | 15/32 | .1860 | 21/32 |
| DT22-1/4-20 | 2-1/2 | 17/32 | .2080 | 25/32 |
| DT22-1/4-28 | 2-1/2 | 17/32 | .2220 | 25/32 |
| DT22-5/16-18 | 2-27/32 | 11/16 | .2660 | 15/16 |
| DT22-5/16-24 | 2-27/32 | 11/16 | .2770 | 15/16 |
| DT22-3/8-16 | 3-3/8 | 13/16 | .3225 | 1-1/16 |
| DT22-3/8-24 | 3-3/8 | 13/16 | .3395 | 1-1/16 |
| DT22-7/16-14 | 3-3/4 | 1 | .3770 | 1-1/4 |
| DT22-7/16-20 | 3-3/4 | 1 | .3955 | 1-1/4 |
| DT22-1/2-13 | 4-1/16 | 1-1/8 | .4350 | 1-3/8 |
| DT22-1/2-20 | 4-1/16 | 1-1/8 | .4580 | 1-3/8 |

| EDP No./ Diameter | Overall Length | Drill Length | Drill Diameter | Top Length |
|-------------------|----------------|--------------|----------------|------------|
| DT22M-3X.5 | 1-5/16 | 9/32 | .1015 | 3/16 |
| DT22M-3.5X.6 | 2 | 5/16 | .1178 | 3/16 |
| DT22M-4X.7 | 2-1/8 | 3/8 | .1340 | 1/4 |
| DT22M-4.5X7.5 | 2-3/8 | 13/32 | .1520 | 5/8 |
| DT22M-5X.8 | 2-3/8 | 13/32 | .1700 | 1/4 |
| DT22M-6X1 | 2-1/2 | 17/32 | .2030 | 5/16 |
| DT22M-7X1 | 2-27/32 | 11/16 | .2420 | 15/16 |
| DT22M-8X1.25 | 2-27/32 | 11/16 | .2730 | 15/16 |
| DT22M-10X1.5 | 3.3/8 | 13/16 | .3440 | 15/16 |
| DT22M-12X1.75 | 4-1/16 | 1-1/8 | .4140 | 1-1/16 |



Combination Drill & Taps

List No. DT22HEX - DT22HEXM

2 Flute / 135° Split Point / HSS / Black & Gold / Hex Shank



Description: Hex Shank, split point combination drill and tap available in standard and metric sizes

Application: Create holes and tap in a single operation. No center drilling or punching required, hex shank makes it ideally suited to cordless drills.

- Create the hole and thread in a single operation. No center drilling or punching required
- Its tapered neck design significantly reduces drill & tap breakage
- A 135° split point permits hole and thread to be cut at high speeds
- Available in standard, metric, and machine screw tap sizes
- Superior strength and durability provided by high molybdenum, high speed steel
- Functional black and gold surface treatment holds lubricant for smoother drilling
- 1/4" and 11/32" Hex shank can be used in QCD (Quick Change Driver)



| EDP No./ Diameter | Drill Diameter | Drill Length (inches) | Overall Length (inches) | Thread Length (inches) |
|-------------------|----------------|-----------------------|-------------------------|------------------------|
| DT22HEX-6-32* | 7/64 | 5/16 | 2-5/16 | 7/16 |
| DT22HEX-8-32* | 29 | 5/16 | 2-1/2 | 1/2 |
| DT22HEX-10-24* | 25 | 5/16 | 2-1/2 | 5/8 |
| DT22HEX-10-32* | 21 | 5/16 | 2-1/2 | 5/8 |
| DT22HEX-12-24* | 17 | 3/8 | 2-3/8 | 11/16 |
| DT22HEX-1/4-20* | 6 | 7/16 | 2-7/8 | 3/4 |
| DT22HEX-1/4-28* | 3 | 7/16 | 2-7/8 | 3/4 |
| DT22HEX-5/16-18* | G | 1/2 | 3-1/4 | 15/16 |
| DT22HEX-5/16-24* | I | 1/2 | 3-1/4 | 15/16 |
| DT22HEX-3/8-16** | 5/16 | 3/4 | 3-1/2 | 1-1/16 |
| DT22HEX-3/8-24** | Q | 3/4 | 3-1/2 | 1-1/16 |
| DT22HEX-7/16-14** | U | 3/4 | 3-7/8 | 1-1/4 |
| DT22HEX-7/16-20** | 25/64 | 3/4 | 3-7/8 | 1-1/4 |
| DT22HEX-1/2-13** | 27/64 | 1 | 4 | 1-3/8 |
| DT22HEX-1/2-20** | 29/64 | 1 | 4 | 1-3/8 |

| EDP No./ Diameter | Drill Diameter | Drill Length (inches) | Overall Length (inches) | Thread Length (inches) |
|-------------------|----------------|-----------------------|-------------------------|------------------------|
| DT22HEX-M4X.7* | 30 | 5/16 | 2-7/16 | 1/2 |
| DT22HEX-M5X.8* | 19 | 3/8 | 2-1/2 | 9/16 |
| DT22HEX-M6X1* | 9 | 3/8 | 2-3/4 | 11/16 |
| DT22HEX-M8X1.25* | 17/64 | 1/2 | 3-1/8 | 7/8 |
| DT22HEX-M10X1.5** | Q | 3/4 | 3-1/4 | 15/16 |
| DT22HEX-M12X1.75* | Y | 7/8 | 3-5/8 | 1-1/16 |

* 1/4" Hex Shank
 ** 11/32" Hex Shank
 DT22HEX is ideal for the following industries:

- Electrical
- Maintenance
- Industrial
- Automotive

DT22HEX is ideal for the following materials:

- Aluminum
- Steel / Stainless Steel
- Bronze / Brass
- Cast Iron
- Zinc

* 1/4" Hex Shank
 ** 11/32" Hex Shank

DT22Hex are available in 5, 6 and 10 piece plastic cased sets. Refer to page 137.



DT22HEX-SET10



XLT TAPPER

Power Tapper
List No. XLT

Description:
Thread holes in seconds.
Tap accurate threads every time.
Eliminate tap misalignment.
Eliminate tap breakage.

Application:
Engineered for heavy duty use on-site or in the shop. Popular applications include, architectural glass and metal work, steel fabrication, fleet maintenance, railway repair, elevator maintenance, door and hardware fabrication/installation.

Designed for high production tapping with high-speed steel taps. Features include: automatic reverse and pivoting tap collet for fast, trouble-free alignment. Especially productive when hundreds of holes need to be threaded. The XLT Tapper is easy to use, powerful and lightweight. Controlled speeds allow operator to thread perfect holes every time. With safety in mind, the tapper was designed with a built-in-safety clutch, reducing injuries in the field. Fits all standard square shank taps from #10 to 9/16" in steel, and #10 to 5/8" in aluminum.

Tap More Holes • Save More Time • Create Precise Threads



Tap Faster

Tap Longer

Tap Accurate

• When Finished Tapping, Pull Back To Activate Auto Reverse



• Adjustable depth-stop controls threading depth



• Pivoting tap collet for trouble-free tap alignment
• Spindle clutch for safer jam-free tapping



Includes:
• Carrying Case • Side Handle
• Depth Gauge • 4mm Hex Key

High Performance

- Tap 10x Faster Than Hand Tapping
- Less Tap Breakage Increases Productivity
- Powerful 450 Watt Motor

High Tech

- Automatic Reversing Action
- Consistent Speed Control
- Built-in pivoting tap collet

Easy To Use & Safe

- Built-In Safety Clutch
- Lightweight: 6 lbs
- Unique Gearbox Design For Precise Torque Control
- Depth Stop

High Capacity

- Fits standard square shank taps
- Steel (ferrous materials) #10 up to 9/16" (14mm)
- Aluminum (non-ferrous materials) #10 up to 5/8" (16mm)



Spiral Point Taps

List No. XL22

Plug Style / Three Flute / Heavy Duty / Surface Treated

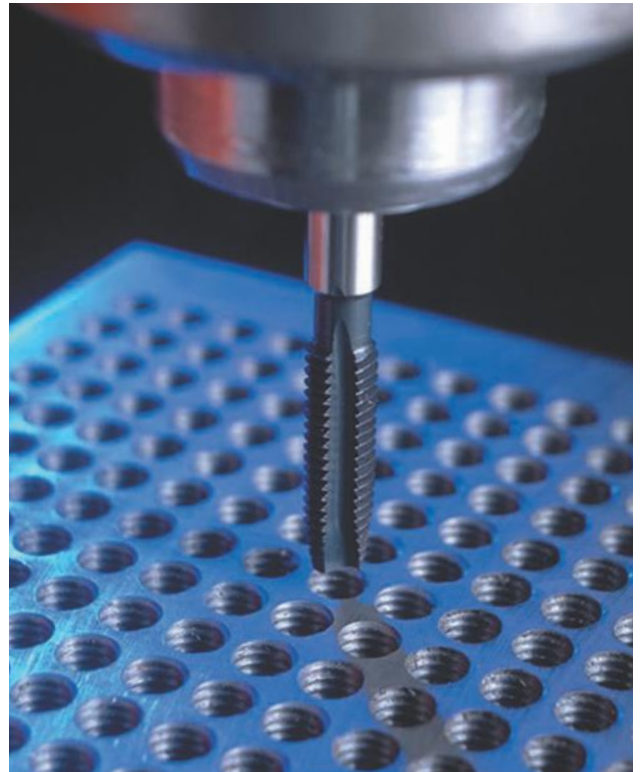


Description: Spiral point taps eject chips forward. Necked design for deeper, more trouble free tapping. Freer coolant flow to cutting edges. Heavier core for less breakage. Three flutes for 50 % less toothload. Promotes faster tapping and extended tool life. Good for stainless steel.

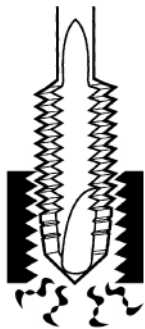
Application: Recommended for all through-hole applications. Used on low through high carbon steel, alloyed steels, steel drop forgings, grey cast iron, titanium, stainless steel, nimonic alloys, manganese, spring steels



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| XL22-4-40 | H2 | 3 | 9/16 | 2 |
| XL22-6-32 | H3 | 3 | 11/16 | 2 |
| XL22-6-40 | H2 | 3 | 11/16 | 2 |
| XL22-8-32 | H3 | 3 | 3/4 | 2-1/8 |
| XL22-8-36 | H2 | 3 | 3/4 | 2-1/8 |
| XL22-10-24 | H3 | 3 | 7/8 | 2-3/8 |
| XL22-10-32 | H3 | 3 | 7/8 | 2-3/8 |
| XL22-12-24 | H3 | 3 | 15/16 | 2-3/8 |
| XL22-12-28 | H3 | 3 | 15/16 | 2-3/8 |
| XL22-1/4-20 | H3 | 3 | 1 | 2-1/2 |
| XL22-1/4-28 | H3 | 3 | 1 | 2-1/2 |
| XL22-5/16-18 | H3 | 3 | 1-1/8 | 2-3/4 |
| XL22-5/16-24 | H3 | 3 | 1-1/8 | 2-3/4 |
| XL22-3/8-16 | H3 | 3 | 1-1/4 | 2-15/16 |
| XL22-3/8-24 | H3 | 3 | 1-1/4 | 2-15/16 |
| XL22-7/16-14 | H3 | 3 | 1-7/16 | 3-5/32 |
| XL22-7/16-20 | H3 | 3 | 1-7/16 | 3-5/32 |
| XL22-1/2-13 | H3 | 3 | 1-21/32 | 3-3/8 |
| XL22-1/2-20 | H3 | 3 | 1-21/32 | 3-3/8 |
| XL22-5/8-11 | H3 | 3 | 1-13/16 | 3-13/16 |
| XL22-5/8-18 | H3 | 3 | 1-13/16 | 3-13/16 |
| XL22-3/4-10 | H3 | 3 | 2 | 4-1/4 |
| XL22-3/4-16 | H3 | 3 | 2 | 4-1/4 |



Available in iPac



Commonly referred to as “gun taps”, spiral point quickly shears and ejects chips ahead of the tap. They are recommended for tapping stainless steel and tough alloys.



Metric Spiral Point Taps

List No. XL22M

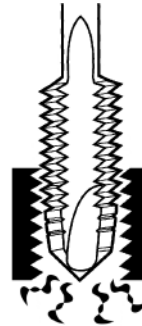
Plug Style / Three Flute / Heavy Duty / Surface Treated



Description: Spiral point taps eject chips forward. Necked design for deeper, more trouble free tapping. Freer coolant flow to cutting edges. Heavier core for less breakage. Three flutes for 50% less tooth load. Promotes faster tapping and extended tool life. Good for stainless steel.

Application: Recommended for all through-hole applications. Used on low through high carbon steel, alloyed steels, steel drop forgings, grey cast iron, titanium, stainless steel, nimonic alloys, manganese, spring steels

| EDP No./ Size | D Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| XL22M-2.5x.45 | D3 | 2 | 1/2 | 1-13/16 |
| XL22M-3x.5 | D3 | 2 | 5/8 | 1-15/16 |
| XL22M-3.5x.6 | D4 | 2 | 11/16 | 2 |
| XL22M-4x.7 | D4 | 3 | 3/4 | 2-1/8 |
| XL22M-5x.8 | D4 | 3 | 7/8 | 2-3/8 |
| XL22M-6x1 | D5 | 3 | 1 | 2-1/2 |
| XL22M-8x1.25 | D5 | 3 | 1-1/8 | 2-23/32 |
| XL22M-10x1.5 | D6 | 3 | 1-1/4 | 2-15/16 |
| XL22M-12x1.75 | D6 | 3 | 1-21/32 | 3-3/8 |
| XL22M-14x2 | D7 | 3 | 1-21/32 | 3-19/32 |
| XL22M-16x2 | D7 | 3 | 1-13/16 | 3-13/16 |



Commonly referred to as "gun taps", spiral point quickly shears and ejects chips ahead of the tap. They are recommended for tapping stainless steel and tough alloys.



Spiral Point Taps Titanium Nitride Coated

List No. XL22T

Plug Style / Three Flute / Heavy Duty



Description: Titanium Nitride surface treatment for longer tap life and less breakage. Three flute design reduces torque while the neck promotes coolant flow to the cutting edges. TiN coating gives increased surface hardness, increased durability and high lubricity.

Application: Permits tapping of high tensile martensitic stainless steels and titanium alloys at high speeds.

| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length | EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|---------------|----------|---------------|------------------|----------------|
| XL22T-4-40 | H2 | 3 | 9/16 | 2 | XL22T-5/16-24 | H3 | 3 | 1-1/8 | 2-3/4 |
| XL22T-6-32 | H3 | 3 | 11/16 | 2 | XL22T-3/8-16 | H3 | 3 | 1-1/4 | 2-15/16 |
| XL22T-6-40 | H2 | 3 | 11/16 | 2 | XL22T-3/8-24 | H3 | 3 | 1-1/4 | 2-15/16 |
| XL22T-8-32 | H3 | 3 | 3/4 | 2-1/8 | XL22T-7/16-14 | H3 | 3 | 1-7/16 | 3-5/32 |
| XL22T-8-36 | H2 | 3 | 3/4 | 2-1/8 | XL22T-7/16-20 | H3 | 3 | 1-7/16 | 3-5/32 |
| XL22T-10-24 | H3 | 3 | 7/8 | 2-3/8 | XL22T-1/2-13 | H3 | 3 | 1-21/32 | 3-3/8 |
| XL22T-10-32 | H3 | 3 | 7/8 | 2-3/8 | XL22T-1/2-20 | H3 | 3 | 1-21/32 | 3-3/8 |
| XL22T-12-24 | H3 | 3 | 15/16 | 2-3/8 | XL22T-5/8-11 | H3 | 3 | 1-13/16 | 3-13/16 |
| XL22T-12-28 | H3 | 3 | 15/16 | 2-3/8 | XL22T-5/8-18 | H3 | 3 | 1-13/16 | 3-13/16 |
| XL22T-1/4-20 | H3 | 3 | 1 | 2-1/2 | XL22T-3/4-10 | H3 | 3 | 2 | 4-1/4 |
| XL22T-1/4-28 | H3 | 3 | 1 | 2-1/2 | XL22T-3/4-16 | H3 | 3 | 2 | 4-1/4 |
| XL22T-5/16-18 | H3 | 3 | 1-1/8 | 2-3/4 | | | | | |



Spiral Point Taps

List No.321

Plug Style / Standard "H" Limits
HSS

List No. 321M

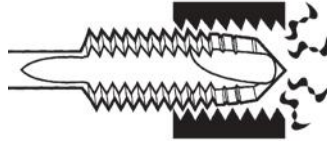
Metric Hand Taps / HSS
Plug Style / Ground Threads

Description: Spiral point taps cut with a shearing action that shoots the chips ahead of the tap.

Application: For tapping of "through holes" or deep blind holes where a shoulder exists for chips to collect.



Spiral point quickly shears and ejects chips ahead of the tap.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 321-0-80 | H1 | 2 | 5/16 | 1-5/8 |
| 321-1-64 | H1 | 2 | 3/8 | 1-11/16 |
| 321-1-72 | H1 | 2 | 3/8 | 1-11/16 |
| 321-2-56 | H2 | 2 | 7/16 | 1-3/4 |
| 321-2-64 | H2 | 2 | 7/16 | 1-3/4 |
| 321-3-48 | H2 | 2 | 1/2 | 1-13/16 |
| 321-3-56 | H2 | 2 | 1/2 | 1-13/16 |
| 321-4-36 | H2 | 2 | 9/16 | 1-7/8 |
| 321-4-40 | H2 | 2 | 9/16 | 1-7/8 |
| 321-4-48 | H2 | 2 | 9/16 | 1-7/8 |
| 321-5-40 | H2 | 2 | 5/8 | 1-15/16 |
| 321-5-44 | H2 | 2 | 5/8 | 1-15/16 |
| 321-6-32 | H2 | 2 | 11/16 | 2 |
| 321-6-40 | H2 | 2 | 11/16 | 2 |
| 321-8-32 | H2 | 2 | 3/4 | 2-1/8 |
| 321-8-36 | H2 | 2 | 3/4 | 2-1/8 |
| 321-10-24 | H3 | 2 | 7/8 | 2-3/8 |
| 321-10-32 | H3 | 2 | 7/8 | 2-3/8 |
| 321-12-24 | H3 | 2 | 15/16 | 2-3/8 |
| 321-12-28 | H3 | 2 | 15/16 | 2-3/8 |
| 321-1/4-20 | H3 | 2 | 1 | 2-1/2 |
| 321-1/4-28 | H3 | 2 | 1 | 2-1/2 |
| 321-5/16-18 | H3 | 2 | 1-1/8 | 2-23/32 |
| 321-5/16-24 | H3 | 2 | 1-1/8 | 2-23/32 |
| 321-3/8-16 | H3 | 3 | 1-1/4 | 2-15/16 |
| 321-3/8-24 | H3 | 3 | 1-1/4 | 2-15/16 |
| 321-7/16-14 | H3 | 3 | 1-7/16 | 3-5/32 |
| 321-7/16-20 | H3 | 3 | 1-7/16 | 3-5/32 |
| 321-1/2-13 | H3 | 3 | 1-21/32 | 3-3/8 |
| 321-1/2-20 | H3 | 3 | 1-21/32 | 3-3/8 |
| 321-5/8-11 | H3 | 3 | 1-13/16 | 3-13/16 |
| 321-5/8-18 | H3 | 3 | 1-13/16 | 3-13/16 |
| 321-3/4-10 | H3 | 3 | 2 | 4-1/4 |
| 321-3/4-16 | H3 | 3 | 2 | 4-1/4 |

| EDP No./ Size | D Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 321M-1.6x.35 | 3 | 2 | 5/16 | 1-5/8 |
| 321M-2x.4 | 3 | 2 | 7/16 | 1-3/4 |
| 321M-2.2x.45 | 3 | 2 | 7/16 | 1-3/4 |
| 321M-2.5x.45 | 3 | 2 | 1/2 | 1-13/16 |
| 321M-3x.5 | 3 | 2 | 5/8 | 1-15/16 |
| 321M-3.5x.6 | 4 | 2 | 11/16 | 2 |
| 321M-4x.7 | 4 | 2 | 3/4 | 2-1/8 |
| 321M-4.5x.75 | 4 | 2 | 7/8 | 2-3/8 |
| 321M-5x.8 | 4 | 2 | 7/8 | 2-3/8 |
| 321M-6x1 | 5 | 2 | 1 | 2-1/2 |
| 321M-7x1 | 5 | 2 | 1-1/8 | 2-23/32 |
| 321M-8x1 | 5 | 3 | 1-1/8 | 2-23/32 |
| 321M-8x1.25 | 5 | 2 | 1-1/8 | 2-23/32 |
| 321M-10x1.25 | 5 | 3 | 1-1/4 | 2-15/16 |
| 321M-10x1.5 | 6 | 3 | 1-1/4 | 2-15/16 |
| 321M-12x1.25 | 5 | 3 | 1-21/32 | 3-3/8 |
| 321M-12x1.75 | 6 | 3 | 1-21/32 | 3-3/8 |
| 321M-14x1.5 | 6 | 3 | 1-21/32 | 3-19/32 |
| 321M-14x2 | 7 | 3 | 1-21/32 | 3-19/32 |
| 321M-16x1.5 | 6 | 3 | 1-13/16 | 3-13/16 |
| 321M-16x2 | 7 | 3 | 1-13/16 | 3-13/16 |
| 321M-18x2.5 | 7 | 3 | 1-13/16 | 4-1/32 |
| 321M-20x2.5 | 7 | 3 | 2 | 4-15/32 |

List 321 / 321M is only available in plug style.



Spiral Point Taps TiN Coated

List No. 321T

Plug Style / Titanium Nitride Coated / HSS

Description: Cut with a shearing action that shoots the chips ahead of the tap. TiN coating gives increased surface hardness, greater durability & high lubricity.

Application: For tapping of "through holes" or deep blind holes where a shoulder exists for chips to collect.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 321T-6-32 | H3 | 2 | 11/16 | 2 |
| 321T-8-32 | H3 | 2 | 3/4 | 2-1/8 |
| 321T-8-36 | H2 | 2 | 3/4 | 2-1/8 |
| 321T-10-24 | H3 | 2 | 7/8 | 2-3/8 |
| 321T-10-32 | H3 | 2 | 7/8 | 2-3/8 |
| 321T-12-24 | H3 | 2 | 15/16 | 2-3/8 |
| 321T-12-28 | H3 | 2 | 15/16 | 2-3/8 |
| 321T-1/4-20 | H3 | 2 | 1 | 2-1/2 |
| 321T-1/4-28 | H3 | 2 | 1 | 2-1/2 |
| 321T-5/16-18 | H3 | 2 | 1-1/8 | 2-23/32 |
| 321T-5/16-24 | H3 | 2 | 1-1/8 | 2-23/32 |
| 321T-3/8-16 | H3 | 3 | 1-1/4 | 2-15/16 |
| 321T-3/8-24 | H3 | 3 | 1-1/4 | 2-15/16 |
| 321T-7/16-14 | H3 | 3 | 1-7/16 | 3-5/32 |
| 321T-7/16-20 | H3 | 3 | 1-7/16 | 3-5/32 |
| 321T-1/2-13 | H3 | 3 | 1-21/32 | 3-3/8 |
| 321T-1/2-20 | H3 | 3 | 1-21/32 | 3-3/8 |
| 321T-5/8-11 | H3 | 3 | 1-13/16 | 3-13/16 |
| 321T-5/8-18 | H3 | 3 | 1-13/16 | 3-13/16 |
| 321T-3/4-10 | H3 | 3 | 2 | 4-1/4 |
| 321T-3/4-16 | H3 | 3 | 2 | 4-1/4 |



High Speed Hand Taps

List No. 308

Standard "H" Limits / Ground Thread



Description: High quality high speed hand tap.

Application: Operated in tap wrenches or production tapping heads for general purpose tapping supplied in standard "H" limits that will provide an adequate "class of fit" for standard tapping applications.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 308-0-80 | H1 | 2 | 5/16 | 1-5/8 |
| 308-1-64 | H1 | 2 | 3/8 | 1-11/16 |
| 308-1-72 | H1 | 2 | 3/8 | 1-11/16 |
| 308-2-56 | H2 | 3 | 7/16 | 1-3/4 |
| 308-2-64 | H2 | 3 | 7/16 | 1-3/4 |
| 308-3-48 | H2 | 3 | 1/2 | 1-13/16 |
| 308-3-56 | H3 | 3 | 1/2 | 1-13/16 |
| 308-4-40* | H2 | 3 | 9/16 | 1-7/8 |
| 308-4-48 | H2 | 3 | 9/16 | 1-7/8 |
| 308-4-36 | H2 | 3 | 9/16 | 1-7/8 |
| 308-5-40 | H3 | 3 | 5/8 | 1-15/16 |
| 308-5-44 | H2 | 3 | 5/8 | 1-15/16 |
| 308-6-32*† | H3 | 3 | 11/16 | 2 |



* Available in iPac

† Available in iPac Tap & Drill combination pack with either XL5 or XGO jobber drill bits.

CHAMPION

List No. 308 continued



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length | EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|---------------|----------|---------------|------------------|----------------|
| 308-6-40* | H2 | 3 | 11/16 | 2 | 308-5/8-11 | H3 | 4 | 1-13/16 | 3-13/16 |
| 308-8-32* | H3 | 4 | 3/4 | 2-1/8 | 308-5/8-18 | H3 | 4 | 1-13/16 | 3-13/16 |
| 308-8-36* | H2 | 4 | 3/4 | 2-1/8 | 308-11/16-11 | H3 | 4 | 1-13/16 | 4-1/32 |
| 308-10-24*† | H3 | 4 | 7/8 | 2-3/8 | 308-11/16-16 | H3 | 4 | 1-13/16 | 4-1/32 |
| 308-10-32* | H3 | 4 | 7/8 | 2-3/8 | 308-3/4-10 | H3 | 4 | 2 | 4-1/4 |
| 308-12-24*† | H3 | 4 | 15/16 | 2-3/8 | 308-3/4-16 | H3 | 4 | 2 | 4-1/2 |
| 308-12-28* | H3 | 4 | 15/16 | 2-3/8 | 308-7/8-9 | H4 | 4 | 2-7/32 | 4-11/16 |
| 308-1/4-20*† | H3 | 4 | 1 | 2-1/2 | 308-7/8-14 | H4 | 4 | 2-7/32 | 4-11/16 |
| 308-1/4-28* | H3 | 4 | 1 | 2-1/2 | 308-1-8 | H4 | 4 | 2-1/2 | 5-1/8 |
| 308-5/16-18*† | H3 | 4 | 1-1/8 | 2-23/32 | 308-1-12 | H4 | 4 | 2-1/2 | 5-1/8 |
| 308-5/16-24* | H3 | 4 | 1-1/8 | 2-23/32 | 308-1-14 | H4 | 4 | 2-1/2 | 5-1/8 |
| 308-3/8-16*† | H3 | 4 | 1-1/4 | 2-15/16 | 308-1-1/8-7 | H4 | 4 | 2-9/16 | 5-7/16 |
| 308-3/8-24* | H3 | 4 | 1-1/4 | 2-15/16 | 308-1-1/8-12 | H4 | 4 | 2-9/16 | 5-7/16 |
| 308-7/16-14*† | H3 | 4 | 1-7/16 | 3-5/32 | 308-1-1/4-7 | H4 | 4 | 2-9/16 | 5-3/4 |
| 308-7/16-20* | H3 | 4 | 1-7/16 | 3-5/32 | 308-1-1/4-12 | H4 | 6 | 2-9/16 | 5-3/4 |
| 308-1/2-13*† | H3 | 4 | 1-21/32 | 3-3/8 | 308-1-3/8-6 | H4 | 4 | 3 | 6-1/16 |
| 308-1/2-20* | H3 | 4 | 1-21/32 | 3-3/8 | 308-1-3/8-12 | H4 | 6 | 3 | 6-1/16 |
| 308-9/16-12 | H3 | 4 | 1-21/32 | 3-19/32 | 308-1-1/2-6 | H4 | 4 | 3 | 6-3/8 |
| 308-9/16-18 | H3 | 4 | 1-21/32 | 3-19/32 | 308-1-1/2-12 | H4 | 6 | 3 | 6-3/8 |

CHAMPION

Left Hand High Speed Hand Taps

List No. 308LH

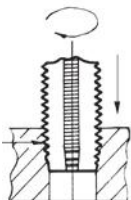
Left Hand / Standard "H" Limits / Ground Thread



Description: High quality left hand high speed hand tap.

Application: Operated in tap wrenches or production tapping heads for general purpose tapping supplied in standard "H" limits that will provide an adequate "class of fit" for standard tapping applications.

| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length | EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|---------------|----------|---------------|------------------|----------------|
| 308LH-10-32 | H3 | 4 | 7/8 | 2-3/8 | 308LH-1/2-13 | H3 | 4 | 1-21/32 | 3-3/8 |
| 308LH-1/4-20 | H3 | 4 | 1 | 2-1/2 | 308LH-1/2-20 | H3 | 4 | 1-21/32 | 3-3/8 |
| 308LH-1/4-28 | H3 | 4 | 1 | 2-1/2 | 308LH-9/16-12 | H3 | 4 | 1-21/32 | 3-19/32 |
| 308LH-5/16-18 | H3 | 4 | 1-1/8 | 2-23/32 | 308LH-9/16-18 | H3 | 4 | 1-21/32 | 3-19/32 |
| 308LH-5/16-24 | H3 | 4 | 1-1/8 | 2-23/32 | 308LH-5/8-11 | H3 | 4 | 1-13/16 | 3-13/16 |
| 308LH-3/8-16 | H3 | 4 | 1-1/4 | 2-15/16 | 308LH-5/8-18 | H3 | 4 | 1-13/16 | 3-13/16 |
| 308LH-3/8-24 | H3 | 4 | 1-1/4 | 2-15/16 | 308LH-3/4-10 | H3 | 4 | 2 | 4-1/4 |
| 308LH-7/16-14 | H3 | 4 | 1-7/16 | 3-5/32 | 308LH-3/4-16 | H3 | 4 | 2 | 4-1/4 |
| 308LH-7/16-20 | H3 | 4 | 1-7/16 | 3-5/32 | 308LH-7/8-9 | H4 | 4 | 2-7/32 | 4-11/16 |
| | | | | | 308LH-7/8-14 | H4 | 4 | 2-7/32 | 4-11/16 |
| | | | | | 308LH-1-8 | H4 | 4 | 2-1/2 | 5-1/8 |
| | | | | | 308LH-1-12 | H4 | 4 | 2-1/2 | 5-1/8 |
| | | | | | 308LH-1-14 | H4 | 4 | 2-1/2 | 5-1/8 |



Cuts threads with a left hand rotation used in applications where left hand studs or fasteners are required.

Please specify taper, plug, bottom or set when ordering.



Metric High Speed Hand Taps

List No. 308M

Metric / Ground Thread / HSS



Description: High quality metric high speed hand tap.

Application: Operated in tap wrenches or production tapping heads for general purpose tapping supplied in standard "D" limits that will provide an adequate "class of fit" for standard tapping applications.

| EDP No./ Size | D Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 308M-1.6x.35 | 3 | 2 | 1-5/8 | 5/16 |
| 308M-1.8x.35 | 3 | 2 | 1-11/16 | 3/8 |
| 308M-2x.4 | 3 | 3 | 1-3/4 | 7/16 |
| 308M-2.2x.45 | 3 | 3 | 1-3/4 | 7/16 |
| 308M-2.5x.45 | 3 | 3 | 1-13/16 | 1/2 |
| 308M-3x.5 | 3 | 3 | 1-15/16 | 5/8 |
| 308M-3x.6-P | 3 | 3 | 2 | 11/16 |
| 308M-3.5x6 | - | - | - | - |
| 308M-4x.7 | 4 | 4 | 2-1/8 | 3/4 |
| 308M-4x.75P | - | - | - | - |
| 308M-4.5x.75 | 4 | 4 | 2-3/8 | 7/8 |
| 308M-5x.8 | 4 | 4 | 2-3/8 | 7/8 |
| 308M-5x.9P | - | - | - | - |
| 308M-5.5x.9 | 3 | 4 | 2-3/8 | 7/8 |
| 308M-6x.75 | 3 | 4 | 2-3/8 | 7/8 |
| 308M-6x1 | 5 | 4 | 2-1/2 | 1 |
| 308M-7x.75 | 3 | 4 | 2-3/8 | 7/8 |
| 308M-7x1 | 5 | 4 | 2-3/8 | 15/16 |
| 308M-8x1.0 | 5 | 4 | 2-23/32 | 1-1/8 |
| 308M-8x1.25 | 5 | 4 | 2-23/32 | 1-1/8 |
| 308M-9x1P | - | - | - | - |
| 308M-9x1.25 | 5 | 4 | 2-53/64 | 55/64 |
| 308M-10x1.25 | 5 | 6 | 2-15/16 | 1-1/4 |
| 308M-10x1.5 | 6 | 4 | 2-15/16 | 1-1/4 |
| 308M-11x1.5 | 5 | 4 | 3-11/32 | 31/32 |
| 308M-12x1.25 | 5 | 4 | 3-3/8 | 1-21/32 |
| 308M-12x1.5P | - | - | - | - |
| 308M-12x1.75 | 6 | 4 | 3-3/8 | 1-21/32 |
| 308M-14x1.5 | 6 | 4 | 3-19/32 | 1-21/32 |
| 308M-14x2 | 7 | 4 | 3-19/32 | 1-21/32 |
| 308M-16x1.5 | 6 | 4 | 3-13/16 | 1-13/16 |
| 308M-16x2 | 7 | 4 | 3-13/16 | 1-13/16 |
| 308M-18x1.5 | 6 | 4 | 4-1/32 | 1-13/16 |
| 308M-18x2.5 | 7 | 4 | 4-13/32 | 1-29/64 |
| 308M-20x2.5 | 7 | 4 | 4-15/32 | 2 |
| 308M-22x2.5 | 7 | 4 | 4-11/16 | 2-7/32 |
| 308M-24x3 | 8 | 4 | 4-29/32 | 2-7/32 |
| 308M-27x3 | 8 | 4 | 5-1/8 | 2-1/2 |
| 308M-30x3.5 | 9 | 4 | 5-7/16 | 2-9/16 |
| 308M-33x3.5 | 9 | 4 | 5-3/4 | 2-9/16 |
| 308M-36x4 | 9 | 4 | 6-1/16 | 3 |
| 308M-39x4 | 9 | 6 | 6-11/16 | 3-3/16 |
| 308M-42x4.5 | 10 | 6 | 7 | 3-3/16 |
| 308M-45x4.5 | 10 | 6 | 7-5/16 | 3-9/16 |
| 308M-48x5 | 11 | 6 | 7-5/8 | 3-9/16 |
| 308M-52x5 | 11 | 6 | 8 | 3-9/16 |
| 308M-56x5.5 | 11 | 6 | 8-1/4 | 3-9/16 |



Taper taps

Distribute the cutting load across 7-10 threads. Used for starting a threaded hole.



Plug taps

Most commonly used, distribute the load across 3-5 threads of chamber.



Bottoming taps

Have only 1-1/2 threads of chamfer and are used to tap to the bottom of a blind hole.

Please specify:

T (taper), P (plug), B (bottom) or S (set) when ordering. If not specified then plug style will be supplied.





Carbon Steel Hand Taps

List No. 302

List No. 302M

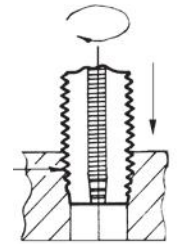
Metric Hand Taps

Plug Style

Description/Application: For hand tapping in maintenance and repair work and for re-threading applications where extreme thread accuracy and tolerance is not critical.

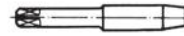


| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|
| 302-4-40 | 3 | 9/16 | 1-7/8 |
| 302-4-48 | 3 | 9/16 | 1-7/8 |
| 302-5-40 | 3 | 5/8 | 1-15/16 |
| 302-5-44 | 3 | 5/8 | 1-15/16 |
| 302-6-32 | 3 | 11/16 | 2 |
| 302-6-40 | 3 | 11/16 | 2 |
| 302-8-32 | 4 | 3/4 | 2-1/8 |
| 302-8-36 | 4 | 3/4 | 2-1/8 |
| 302-10-24 | 4 | 7/8 | 2-3/8 |
| 302-10-32 | 4 | 7/8 | 2-3/8 |
| 302-12-24 | 4 | 15/16 | 2-3/8 |
| 302-12-28 | 4 | 15/16 | 2-3/8 |
| 302-1/4-20 | 4 | 1 | 2-1/2 |
| 302-1/4-28 | 4 | 1 | 2-1/2 |
| 302-5/16-18 | 4 | 1-1/8 | 2-23/32 |
| 302-5/16-24 | 4 | 1-1/8 | 2-23/32 |
| 302-3/8-16 | 4 | 1-1/4 | 2-15/16 |
| 302-3/8-24 | 4 | 1-1/4 | 2-15/16 |
| 302-7/16-14 | 4 | 1-7/16 | 3-5/32 |
| 302-7/16-20 | 4 | 1-7/16 | 3-5/32 |
| 302-1/2-13 | 4 | 1-21/32 | 3-3/8 |
| 302-1/2-20 | 4 | 1-21/32 | 3-3/8 |
| 302-9/16-12 | 4 | 1-21/32 | 3-19/32 |
| 302-9/16-18 | 4 | 1-21/32 | 3-19/32 |
| 302-5/8-11 | 4 | 1-13/16 | 3-13/16 |
| 302-5/8-18 | 4 | 1-13/16 | 3-13/16 |
| 302-3/4-10 | 4 | 2 | 4-1/4 |
| 302-3/4-16 | 4 | 2 | 4-1/4 |
| 302-7/8-9 | 4 | 2-7/32 | 4-11/16 |
| 302-7/8-14 | 4 | 2-7/32 | 4-11/16 |
| 302-1-8 | 4 | 2-1/2 | 5-1/8 |
| 302-1-12 | 4 | 2-1/2 | 5-1/8 |
| 302-1-14 | 4 | 2-1/2 | 5-1/8 |
| 302-1-1/8-7 | 4 | 2-9/16 | 5-7/16 |
| 302-1-1/8-12 | 4 | 2-9/16 | 5-7/16 |
| 302-1-1/4-7 | 4 | 2-9/16 | 5-3/4 |
| 302-1-1/4-12 | 4 | 2-9/16 | 5-3/4 |
| 302-1-3/8-6 | 4 | 3 | 6-1/16 |
| 302-1-3/8-12 | 4 | 3 | 6-1/16 |
| 302-1-1/2-6 | 4 | 3 | 6-3/8 |
| 302-1-1/2-12 | 4 | 3 | 6-3/8 |



Taper taps

Distribute the cutting load across 7–10 threads. Used for starting a threaded hole.



Plug taps

Most commonly used, distribute the load across 3–5 threads of chamfer.



Bottoming taps

Have only 1 to 1-1/2 threads of chamfer and are used to tap to the bottom of a blind hole.

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|----------------|---------------|------------------|----------------|
| 302M-3X.5-P | 3 | 5/8 | 1-5/16 |
| 302M-3X.6-P | 3 | 5/8 | 1-5/16 |
| 302M-4X.7-P | 4 | 3/4 | 2-1/8 |
| 302M-4X.75-P | 4 | 3/4 | 2-1/8 |
| 302M-5X.8-P | 4 | 15/16 | 2-3/8 |
| 302M-5X.9-P | 4 | 15/16 | 2-3/8 |
| 302M-6X1-P | 4 | 1 | 2-1/2 |
| 302M-7X1-P | 4 | 1-1/8 | 2-1/2 |
| 302M-8X1.25-P | 4 | 1-1/8 | 2-23/32 |
| 302M-9X1-P | 4 | 1-1/4 | 2-7/8 |
| 302M-9X1.25-P | 4 | 1-1/4 | 2-7/8 |
| 302M-10X1.25-P | 4 | 1-1/4 | 2-15/16 |
| 302M-10X1.5-P | 4 | 1-1/4 | 2-15/16 |
| 302M-11X1.5-P | 4 | 1-7/16 | 3-5/32 |
| 302M-12X1.5-P | 4 | 1-21/32 | 3-3/8 |
| 302M-12X1.75-P | 4 | 1-21/32 | 3-3/8 |
| 302M-14X1.25-P | 4 | 1-21/32 | 3-21/32 |
| 302M-14X2-P | 4 | 1-21/32 | 3-21/32 |
| 302M-16X1.5-P | 4 | 1-13/16 | 3-13/16 |
| 302M-16X2-P | 4 | 1-13/16 | 3-13/16 |
| 302M-18X1.5-P | 4 | 1-13/16 | 4-1/32 |
| 302M-18X2.5-P | 4 | 1-13/16 | 4-1/32 |

Please specify T (taper), P (plug), B (bottom) or S (set) when ordering. If not specified then plug style will be supplied.

List 302M is only available in plug style.



Heavy Duty Spiral Flute Taps

List No. XL46

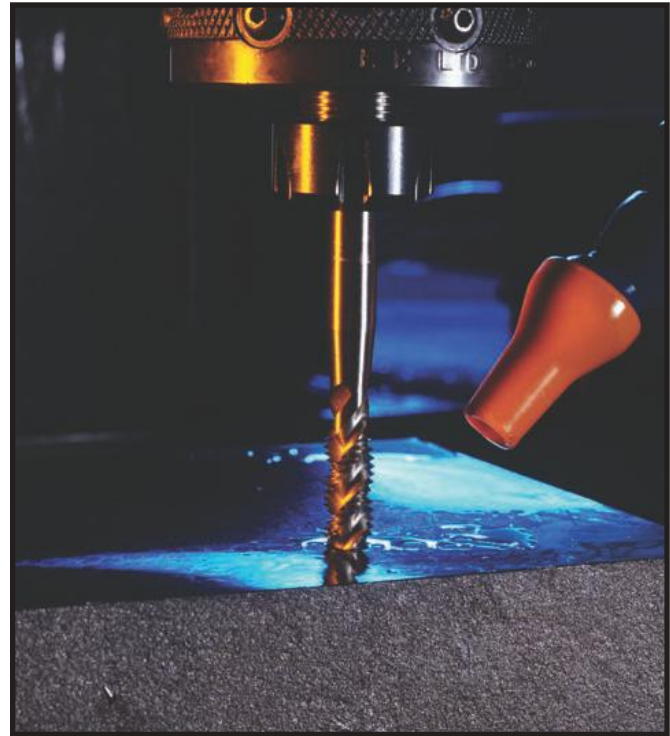
Description: Spiral flute taps are designed to tap "blind holes", improved chip lifting for faster tapping and increased threading accuracy.

Application: Heavy duty design cuts easily through steel alloys.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| XL46-6-32 | 3 | 2 | 11/16 | 2 |
| XL46-8-32 | 3 | 3 | 3/4 | 2-1/8 |
| XL46-10-24 | 3 | 3 | 7/8 | 2-3/8 |
| XL46-10-32 | 3 | 3 | 7/8 | 2-3/8 |
| XL46-12-24 | 3 | 3 | 15/16 | 2-3/8 |
| XL46-1/4-20 | 3 | 3 | 1 | 2-1/2 |
| XL46-1/4-28 | 3 | 3 | 1 | 2-1/2 |
| XL46-5/16-18 | 3 | 3 | 1-1/8 | 2-23/32 |
| XL46-5/16-24 | 3 | 3 | 1-1/8 | 2-23/32 |
| XL46-3/8-16 | 3 | 3 | 1-1/4 | 2-15/16 |
| XL46-3/8-24 | 3 | 3 | 1-1/4 | 2-15/16 |
| XL46-7/16-14 | 3 | 3 | 1-7/16 | 3-5/32 |
| XL46-7/16-20 | 3 | 3 | 1-7/16 | 3-5/32 |
| XL46-1/2-13 | 3 | 3 | 1-21/32 | 3-3/8 |
| XL46-1/2-20 | 3 | 3 | 1-21/32 | 3-3/8 |

Specify plug or bottom when ordering.



Pulley Taps

List No. 3006

4 Flute / Ground Thread / Plug Style / HSS

Description / Application: Originally designed to provide extra reach to tap the oil cups and set screw holes of pulley parts. The long shank permits tapping other long reach applications.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 3006-1/4-20 | H3 | 4 | 1 | 6 |
| 3006-5/16-18 | H3 | 4 | 1-1/8 | 6 |
| 3006-3/8-16 | H3 | 4 | 1-1/4 | 6 |
| 3006-7/16-14 | H3 | 4 | 1-7/16 | 6 |
| 3006-1/2-13 | H3 | 4 | 1-21/32 | 6 |
| 3006-5/8-11 | H3 | 4 | 1-13/16 | 6 |



8 Thread High Speed Hand Taps

List No. 3088

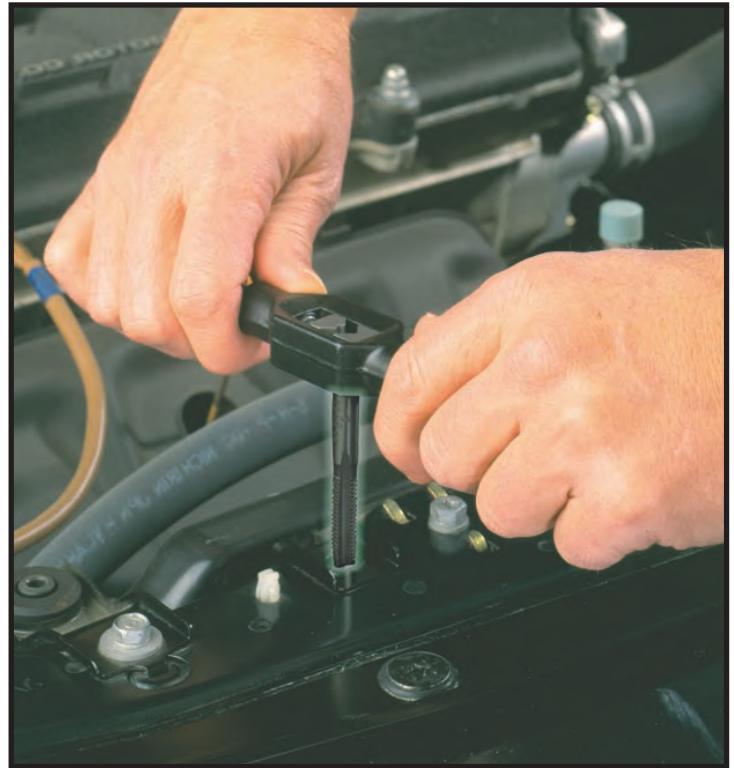
8 Thread Special / Ground Thread

Description: High speed steel special "8 thread" series taps all feature 8 threads per inch.

Application: Engineered specifically for liquid transmission equipment found extensively in the oil fields.



| EDP No./ Size | H Limits | No. of Flutes | Length of Thread | Overall Length |
|---------------|----------|---------------|------------------|----------------|
| 3088-1-1/8 | H5 | 4 | 2-9/16 | 5-7/16 |
| 3088-1-1/4 | H5 | 4 | 2-9/16 | 5-3/4 |
| 3088-1-3/8 | H5 | 4 | 3 | 6-1/16 |
| 3088-1-1/2 | H5 | 4 | 3 | 6-3/8 |
| 3088-1-5/8 | H6 | 6 | 3-3/16 | 6-11/16 |
| 3088-1-3/4 | H6 | 6 | 3-3/16 | 7 |
| 3088-1-7/8 | H6 | 6 | 3-9/16 | 7-5/16 |
| 3088-2 | H6 | 6 | 3-9/16 | 7-5/8 |
| 3088-2-1/8 | H6 | 6 | 3-9/16 | 8 |
| 3088-2-1/4 | H6 | 6 | 3-9/16 | 8-1/4 |
| 3088-2-3/8 | H6 | 6 | 4 | 8-1/2 |
| 3088-2-1/2 | H6 | 6 | 4 | 8-3/4 |
| 3088-2-5/8 | H6 | 6 | 4 | 8-3/4 |
| 3088-2-3/4 | H8 | 6 | 4 | 9-1/4 |
| 3088-2-7/8 | H8 | 8 | 4 | 9-1/4 |
| 3088-3 | H8 | 8 | 4-9/16 | 9-3/4 |
| 3088-3-1/4 | H8 | 8 | 4-9/16 | 10 |
| 3088-3-1/2 | H8 | 8 | 4-15/16 | 10-1/2 |
| 3088-3-3/4 | H8 | 8 | 5-5/16 | 10-1/2 |
| 3088-4 | H8 | 8 | 5-5/16 | 10-3/4 |



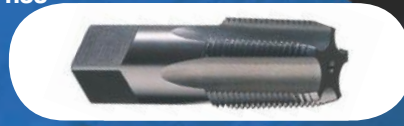
Specify taper, plug, bottoming or set when ordering.



Taper Pipe Taps

List No. 324

NPT / Regular Hook / 3/4" taper/ft. / Ground Thread / HSS



Description: Designed to produce threads where mated parts are not required to withstand high fluid or gas pressures & where the use of a sealing compound or tape is acceptable to produce a leakproof thread.

Application: For tapping of pipe and pipe fittings.

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length | EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|------------------|---------------|------------------|----------------|
| 324-1/16-27 | 4 | 11/16 | 2-1/8 | 324-3/4-14 | 5 | 1-3/8 | 3-1/4 |
| 324-1/8-27 | 4 | 3/4 | 2-1/8 | 324-1-11-1/2 | 5 | 1-3/4 | 3-3/4 |
| 324-1/4-18 | 4 | 1-1/16 | 2-7/16 | 324-1-1/4-11-1/2 | 5 | 1-3/4 | 4 |
| 324-3/8-18 | 4 | 1-1/16 | 2-9/16 | 324-1-1/2-11-1/2 | 7 | 1-3/4 | 4-1/4 |
| 324-1/2-14 | 4 | 1-3/8 | 3-1/8 | 324-2-11-1/2 | 7 | 1-3/4 | 4-1/2 |



High Hook Taper Pipe Taps

List No. 324H

NPT / High Hook / 3/4" taper/ft. / Ground Thread / HSS



Description: Designed for ductile materials which normally produce long continuous chips, such as aluminum, free machining stainless, mild steels and plastics.

Application: For tapping of pipe and pipe fittings.

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length | EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|-------------------|---------------|------------------|----------------|
| 324H-1/16-27 | 4 | 11/16 | 2-1/8 | 324H-3/4-14 | 5 | 1-3/8 | 3-1/4 |
| 324H-1/8-27 | 4 | 3/4 | 2-1/8 | 324H-1-11-1/2 | 5 | 1-3/4 | 3-3/4 |
| 324H-1/4-18 | 4 | 1-1/16 | 2-7/16 | 324H-1-1/4-11-1/2 | 5 | 1-3/4 | 4 |
| 324H-3/8-18 | 4 | 1-1/16 | 2-9/16 | 324H-1-1/2-11-1/2 | 7 | 1-3/4 | 4-1/4 |
| 324H-1/2-14 | 4 | 1-3/8 | 3-1/8 | 324H-2-11-1/2 | 7 | 1-3/4 | 4-1/2 |



Interrupted Thread Taper Pipe Taps

List No. 324I

NPT / Ground Thread / HSS

Description: For threading a wide variety of materials, both ferrous and non ferrous, where chip disposal is a problem.

Application: For materials which are difficult to work in, such as stainless steel, titanium and bronzes.



The first few threads are full and the balance interrupted, to reduce drag while taper pipe threading. Easier for the lubricant to reach the cutting edges. Reduces the friction and tapping torque.

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|
| 324I-1/8-27 | 5 | 3/4 | 2-1/8 |
| 324I-1/4-18 | 5 | 1-1/16 | 2-7/16 |
| 324I-3/8-18 | 5 | 1-1/16 | 2-9/16 |
| 324I-1/2-14 | 5 | 1-3/8 | 3-1/8 |
| 324I-3/4-14 | 5 | 1-3/8 | 3-1/4 |

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|-------------------|---------------|------------------|----------------|
| 324I-1-11-1/2 | 5 | 1-3/4 | 3-3/4 |
| 324I-1-1/4-11-1/2 | 5 | 1-3/4 | 4 |
| 324I-1-1/2-11-1/2 | 7 | 1-3/4 | 4-1/4 |
| 324I-2-11-1/2 | 7 | 1-3/4 | 4-1/2 |



Straight Pipe Taps

List No. 325

NPS / Ground Thread / HSS

Description: Identical with Taper style but have a straight thread.

Application: For tapping holes or couplings. For low pressure work to assemble with taper threaded pipe or fittings to secure a tight joint when a sealer is used.



| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|
| 325-1/8-27 | 4 | 3/4 | 2-1/8 |
| 325-1/4-18 | 4 | 1-1/16 | 2-7/16 |
| 325-3/8-18 | 4 | 1-1/16 | 2-9/16 |

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|
| 325-1/2-14 | 4 | 1-3/8 | 3-1/8 |
| 325-3/4-14 | 5 | 1-3/8 | 3-1/4 |
| 325-1-11-1/2 | 5 | 1-3/4 | 3-3/4 |



Carbon Steel Taper Pipe Taps

List No. 304

NPT / 3/4" taper/ft. / Carbon Steel

Description: Nominal size is that of the pipe fitting to be tapped.

Application: Retreading, cleaning up damaged and rusty threads.



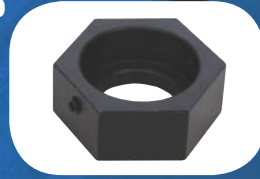
Diameter of tap increases from the entering end of the thread portion at the rate of 3/4" per foot; the angle formed by the sides of the thread is 60°.

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|---------------|---------------|------------------|----------------|
| 304-1/8-27 | 4 | 3/4 | 2-1/8 |
| 304-1/4-18 | 4 | 1-1/16 | 2-7/16 |
| 304-3/8-18 | 4 | 1-1/16 | 2-9/16 |
| 304-1/2-14 | 4 | 1-3/8 | 3-1/8 |
| 304-3/4-14 | 5 | 1-3/8 | 3-1/4 |

| EDP No./ Size | No. of Flutes | Length of Thread | Overall Length |
|------------------|---------------|------------------|----------------|
| 304-1-11-1/2 | 5 | 1-3/4 | 3-3/4 |
| 304-1-1/4-11-1/2 | 5 | 1-3/4 | 4 |
| 304-1-1/2-11-1/2 | 6 | 1-3/4 | 4-1/4 |
| 304-2-11-1/2 | 6 | 1-3/4 | 4-1/2 |
| 304-2-1/2-8 | 6 | 1-3/4 | 4-1/2 |
| 304-3-8 | 6 | 1-3/4 | 4-1/2 |



Hex Converter for Round Dies List No. 3305



Description: Hexagon adaptors for round dies permit the use of round adjustable dies with a wrench when the use of a die stock is impractical.

Application: Enables round dies to be held securely in an open end wrench or in a vise.

| EDP No./ Size | O.D. | Size Across Flats |
|---------------|-------|-------------------|
| 3305-13/16 | 13/16 | 1 |
| 3305-1 | 1 | 1-1/4 |
| 3305 | 1-1/2 | 2 |
| 3305-2 | 2 | 2-1/2 |



"T" Handle Tap Wrenches List No. 3002 / 2002



Description: For use with taps or reamers with squared shanks in hand operations.

"T" Handle Tap Wrenches List No. 3002 "T" Handle

| EDP No./ Size | Range |
|---------------|----------|
| 3002-1 | 1/16-1/4 |
| 3002-2 | 7/32-1/2 |

List No. 3002 "T" Handle Ratchet Style

| EDP No./ Size | Range |
|---------------|----------|
| 3002-3 | 1/16-1/4 |
| 3002-4 | 7/32-1/2 |

List No. 2002 "T" Handle Contractor Series

| EDP No./ Size | Range |
|---------------|---------|
| 2002-1 | 0-1/4 |
| 2002-2 | 1/4-1/2 |

Note: When starting a tap by hand, care should be taken to assure that the tap and the drilled hole are correctly aligned or failure of the tap or crossed threads will result.





Bar Handle Tap Wrenches List No. 3001

Description: For use with taps or reamers with squared shanks in hand operations.



| EDP No./ Size | Overall Length | Range |
|---------------|----------------|-----------|
| 3001-0 | 7-1/2 | 1/16-1/4 |
| 3001-15 | 11-1/2 | 5/32-1/2 |
| 3001-13 | 15-1/2 | 5/32-3/4 |
| 3001-7 | 19-1/2 | 1/4-1-1/8 |
| 3001-8 | 42-1/2 | 3/4-1-5/8 |
| 3001-22 | 56-1/2 | 1-2-1/2 |



Round Die Stocks List No. 3291

Description: Die stock for use with round dies.



| EDP No./ Size | Overall Length |
|---------------|----------------|
| 3291x13/16 | 6-1/4" |
| 3291x1 | 9" |
| 3291x1-1/2 | 14" |
| 3291x2 | 23" |



Hex Die Stocks List No. 3292

Description: Hex die stocks for use with CS30, CS30M dies.



| EDP No./ Size | Overall Length |
|---------------|----------------|
| 3292x1 | 9-1/2" |
| 3292x1-7/16 | 13" |



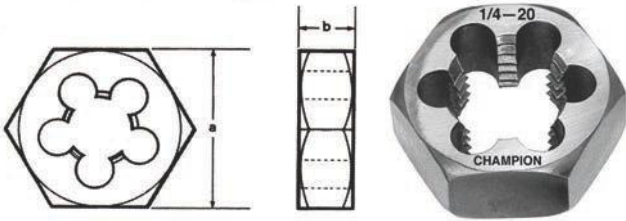
Hexagon Rethreading Dies

List No. 330 / List No. 330LH
Carbon Steel Carbon Steel / Left Hand

Description: Use with any open end, box or adjustable wrench. Chamfered on both sides, double the life of the single chamfer style. Often referred to as thread chasers.



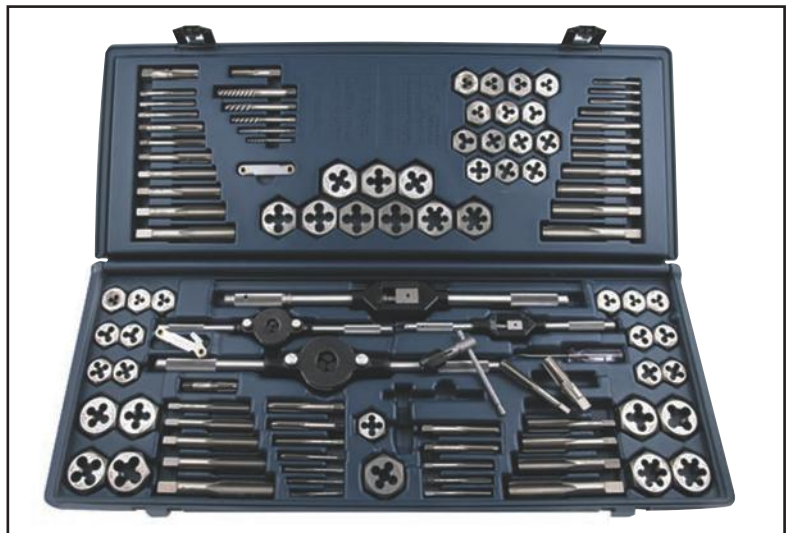
Application: For dressing over bruised or rusty threads.



| EDP No./ Size | (A) Size Across Flats | (B) Die Thickness |
|---------------|-----------------------|-------------------|
| 330-6-32 | 19/32 | 1/4 |
| 330-8-32 | 19/32 | 1/4 |
| 330-10-24 | 19/32 | 1/4 |
| 330-10-32 | 19/32 | 1/4 |
| 330-12-24 | 19/32 | 1/4 |
| 330-1/4-20 | 19/32 | 1/4 |
| 330-1/4-28 | 19/32 | 1/4 |
| 330-5/16-18 | 11/16 | 5/16 |
| 330-5/16-24 | 11/16 | 5/16 |
| 330-3/8-16 | 25/32 | 3/8 |
| 330-3/8-24 | 25/32 | 3/8 |
| 330-7/16-14 | 7/8 | 7/16 |
| 330-7/16-20 | 7/8 | 7/16 |
| 330-1/2-13 | 1-1/16 | 1/2 |
| 330-1/2-20 | 1-1/16 | 1/2 |
| 330-9/16-12 | 1-1/16 | 1/2 |
| 330-9/16-18 | 1-1/16 | 1/2 |
| 330-5/8-11 | 1-1/4 | 5/8 |
| 330-5/8-18 | 1-1/4 | 5/8 |
| 330-11/16-11 | 1-7/16 | 3/4 |
| 330-11/16-16 | 1-7/16 | 3/4 |

| EDP No./ Size | (A) Size Across Flats | (B) Die Thickness |
|-----------------|-----------------------|-------------------|
| 330-3/4-10 | 1-7/16 | 3/4 |
| 330-3/4-16 | 1-7/16 | 3/4 |
| 330-7/8-9 | 1-5/8 | 7/8 |
| 330-7/8-14 | 1-5/8 | 7/8 |
| 330-1-8 | 1-13/16 | 1 |
| 330-1-12 | 1-13/16 | 1 |
| 330-1-14 | 1-13/16 | 1 |
| 330-1-1/8-7 | 2 | 1 |
| 330-1-1/8-12 | 2 | 1 |
| 330-1-1/4-7 | 2-3/16 | 1 |
| 330-1-1/4-12 | 2-3/16 | 1 |
| 330-1-3/8-6 | 2-3/8 | 1 |
| 330-1-3/8-12 | 2-3/8 | 1 |
| 330-1-1/2-6 | 2-9/16 | 1 |
| 330-1-1/2-12 | 2-9/16 | 1 |
| 330-1-3/4-5 | 3 | 1 |
| 330-1-3/4-12 | 3 | 1 |
| 330-2-4-1/2 | 3-7/16 | 1-1/4 |
| 330-2-12 | 3-7/16 | 1-1/4 |
| 330-2-1/4-4-1/2 | 3-3/4 | 1-1/4 |
| 330-2-1/4-12 | 3-3/4 | 1-1/4 |
| 330-2-1/2-4 | 4-1/4 | 1-7/16 |
| 330-2-1/2-12 | 4-1/4 | 1-7/16 |
| 330-1/8NPT | 1-1/16 | 3/8 |
| 330-1/4NPT | 1-1/4 | 5/8 |
| 330-3/8NPT | 1-7/16 | 5/8 |
| 330-1/2NPT | 1-5/8 | 3/4 |
| 330-3/4NPT | 2 | 13/16 |
| 330-1 NPT | 2-3/8 | 1 |

Specify List No. 330LH for left hand hex dies.



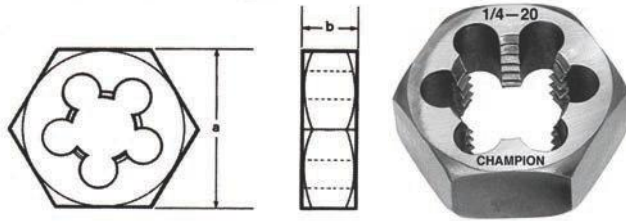
List No. CS107P includes NC, NF, and metric taps and dies.



Hexagon Rethreading Dies List No. 330M

Description: Use with any open end, box or adjustable wrench. Chamfered on both sides, double the life of the single chamfer style. Often referred to as thread chasers.

Application: For dressing over bruised or rusty threads.



| EDP No./ Size | (A) Size Across Flats | (B) Die Thickness |
|---------------|-----------------------|-------------------|
| 330M-3.5x.6 | 0.710 | 1/4 |
| 330M-4x.7 | 0.710 | 1/4 |
| 330M-4.5x.75 | 0.710 | 1/4 |
| 330M-5x.8 | 0.710 | 1/4 |
| 330M-6x1 | 0.710 | 1/4 |
| 330M-7x1 | 0.820 | 5/16 |
| 330M-8x1 | 0.820 | 5/16 |

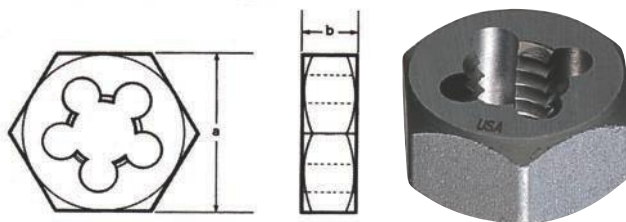
| EDP No./ Size | (A) Size Across Flats | (B) Die Thickness |
|---------------|-----------------------|-------------------|
| 330M-8x1.25 | 0.820 | 5/16 |
| 330M-10x1.5 | 0.920 | 7/16 |
| 330M-12x1.25 | 1.100 | 1/2 |
| 330M-12x1.75 | 1.100 | 1/2 |
| 330M-14x1.5 | 1.300 | 1/2 |
| 330M-14x2 | 1.300 | 5/8 |
| 330M-16x2 | 1.300 | 5/8 |
| 330M-18x1.5 | 1.480 | 11/16 |
| 330M-18x2.5 | 1.480 | 11/16 |
| 330M-20x1.5 | 1.480 | 5/8 |
| 330M-20x2.5 | 1.480 | 11/16 |
| 330M-22x2.5 | 1.670 | 13/16 |
| 330M-24x3 | 2.050 | 15/16 |
| 330M-27x3 | 2.220 | 1-1/16 |



Hexagon Rethreading Dies List No. 3308 8 Thread Special / Carbon

Description: Use with any open end, box or adjustable wrench. Chamfered on both sides, double the life of the single chamfer style. Often referred to as thread chasers.

Application: For dressing over bruised or rusty threads. 8 pitch threads are a standard requirement in the energy industry. Popular applications include power equipment, oilfield and gas applications.



| EDP No./ Size | No. of Flutes |
|---------------|---------------|
| 3308-1-1/8 | 2-1/2 |
| 3308-1-1/4 | 2-1/2 |
| 3308-1-3/8 | 2-1/2 |
| 3308-1-1/2 | 2-1/2 |
| 3308-1-5/8 | 3 |
| 3308-1-3/4 | 3 |

| EDP No./ Size | (A) Size Across Flats |
|---------------|-----------------------|
| 3308-1-7/8 | 3 |
| 3308-2 | 3 |
| 3308-2-1/8 | 4 |
| 3308-2-1/4 | 4 |
| 3308-2-3/8 | 4 |
| 3308-2-1/2 | 4 |
| 3308-2-5/8 | 5 |
| 3308-2-3/4 | 5 |
| 3308-2-7/8 | 5 |
| 3308-3 | 5 |
| 3308-3-1/4 | 6 |
| 3308-3-1/2 | 6 |
| 3308-3-3/4 | 6 |
| 3308-4 | 6 |

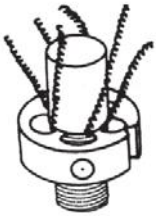


Screw Adjustable Round Dies

List No. 328
High Speed

Description: To cut new threads

Application: Can be adjusted for a tight or loose class of fit by the use of a set screw which can also be used to compensate for tool wear.



EDP No./ Size

| 13/16" O.D. | 1" O.D. | 1-1/2" O.D. | 2" O.D. |
|-------------------|---------------|-------------------|--------------|
| 328-6-32x13/16 | 328-6-32x1 | - | - |
| 328-6-40x13/16 | - | - | - |
| 328-8-32x13/16 | 328-8-32x1 | - | - |
| 328-8-36-13/16 | - | - | - |
| 328-10-24x13/16 | 328-10-24x1 | - | - |
| 328-10-32x13/16 | 328-10-32x1 | - | - |
| 328-12-24x13/16 | 328-12-24x1 | - | - |
| 328-12-28x13/16 | - | - | - |
| 328-1/4-20x13/16 | 328-1/4-20x1 | 328-1/4-20x1-1/2 | - |
| 328-1/4-28x13/16 | 328-1/4-28x1 | 328-1/4-28x1-1/2 | - |
| 328-5/16-18x13/16 | 328-5/16-18x1 | 328-5/16-18x1-1/2 | - |
| 328-5/16-24x13/16 | 328-5/16-24x1 | 328-5/16-24x1-1/2 | - |
| - | 328-3/8-16x1 | 328-3/8-16x1-1/2 | - |
| - | 328-3/8-24x1 | 328-3/8-24x1-1/2 | - |
| - | 328-7/16-14x1 | 328-7/16-14x1-1/2 | - |
| - | 328-7/16-20x1 | 328-7/16-20x1-1/2 | - |
| - | - | 328-1/2-13x1-1/2 | - |
| - | - | 328-1/2-20x1-1/2 | - |
| - | - | 328-9/16-12x1-1/2 | - |
| - | - | 328-9/16-18x1-1/2 | - |
| - | - | 328-5/8-11x1-1/2 | 328-5/8-11x2 |
| - | - | 328-5/8-18x1-1/2 | 328-5/8-18x2 |
| - | - | - | 328-3/4-10x2 |
| - | - | - | 328-3/4-16x2 |
| - | - | - | 328-7/8-9x2 |
| - | - | - | 328-7/8-14x2 |
| - | - | - | 328-1-8x2 |
| - | - | - | 328-1-12x2 |
| - | - | - | 328-1-14x2 |



Hexagon Rethreading Dies

List No. CS30

Carbon Steel

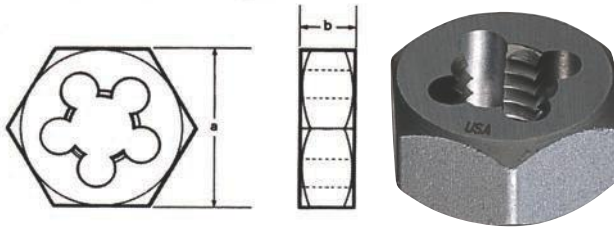
List No. CS30M

Metric Carbon Steel



Description: Use with any open end, box or adjustable wrench. Chamfered on both sides, double the life of the single chamfer style. Often referred to as thread chasers.

Application: For dressing over bruised or rusty threads.



| EDP No./ Size | (A) Size Across Flats | (B) Die Thickness | EDP No./ Size | (A) Size Across Flats | (B) Die Thickness |
|---------------|-----------------------|-------------------|------------------|-----------------------|-------------------|
| CS30-4-40 | 1 | 3/8 | CS30M-3X.5 | 1 | 3/8 |
| CS30-6-32 | 1 | 3/8 | CS30M-3X.6 | 1 | 3/8 |
| CS30-8-32 | 1 | 3/8 | CS30M-4X.7 | 1 | 3/8 |
| CS30-10-24 | 1 | 3/8 | CS30M-4X.75 | 1 | 3/8 |
| CS30-10-32 | 1 | 3/8 | CS30M-5X.8 | 1 | 3/8 |
| CS30-12-24 | 1 | 3/8 | CS30M-5X.9 | 1 | 3/8 |
| CS30-1/4-20 | 1 | 3/8 | CS30M-6X1 | 1 | 3/8 |
| CS30-1/4-28 | 1 | 3/8 | CS30M-7X1 | 1 | 3/8 |
| CS30-5/16-18 | 1 | 3/8 | CS30M-8X1.25 | 1 | 3/8 |
| CS30-5/16-24 | 1 | 3/8 | CS30M-9X1 | 1 | 3/8 |
| CS30-3/8-16 | 1 | 3/8 | CS30M-9X1.25 | 1 | 3/8 |
| CS30-3/8-24 | 1 | 3/8 | CS30M-10X1.25 | 1 | 3/8 |
| CS30-7/16-14 | 1 | 3/8 | CS30M-10X1.5 | 1 | 3/8 |
| CS30-7/16-20 | 1 | 3/8 | CS30M-11X1.5 | 1 | 3/8 |
| CS30-1/2-13 | 1 | 3/8 | CS30M-12X1.5 | 1 | 3/8 |
| CS30-1/2-20 | 1 | 3/8 | CS30M-12X1.75 | 1 | 3/8 |
| CS30-9/16-12 | 1-7/16 | 1/2 | CS30M-14X1.25 | 1-7/16 | 1/2 |
| CS30-9/16-18 | 1-7/16 | 1/2 | CS30M-14X2 | 1-7/16 | 1/2 |
| CS30-5/8-11 | 1-7/16 | 1/2 | CS30M-16X1.5 | 1-7/16 | 1/2 |
| CS30-5/8-18 | 1-7/16 | 1/2 | CS30M-16X2 | 1-7/8 | 1/2 |
| CS30-3/4-10 | 1-7/16 | 1/2 | CS30M-18X1.5 | 1-7/8 | 1/2 |
| CS30-3/4-16 | 1-7/16 | 1/2 | CS30M-18X2.5 | 1-7/8 | 1/2 |
| CS30-7/8-9 | 1-7/8 | 5/8 | CS30M-1/8-28-BSP | 1 | 3/8 |
| CS30-7/8-14 | 1-7/8 | 5/8 | | | |
| CS30-1-8 | 1-7/8 | 5/8 | | | |
| CS30-1-12 | 1-7/8 | 5/8 | | | |
| CS30-1-14 | 1-7/8 | 5/8 | | | |



Solid Carbide End Mills

List No. 106

2 Flute / Single End / Center Cutting / Right Hand Helix



Description: Can be used to plunge cut. Recommended for slotting applications.

Application: Milling cast irons, non-ferrous light metals and plastics.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|---------------|----------------|--------------|----------------|
| 106-1/32X1/8 | 1/8 | 3/32 | 1-1/2 | 106-3/8X3/8 | 3/8 | 7/8 | 2-1/2 |
| 106-1/16X1/8 | 1/8 | 3/16 | 1-1/2 | 106-7/16X7/16 | 7/16 | 1 | 2-3/4 |
| 106-3/32X1/8 | 1/8 | 3/8 | 1-1/2 | 106-1/2X1/2 | 1/2 | 1 | 3 |
| 106-1/8X1/8 | 1/8 | 1/2 | 1-1/2 | 106-9/16X9/16 | 9/16 | 1-1/4 | 3-1/2 |
| 106-5/32X3/16 | 3/16 | 9/16 | 2 | 106-5/8X5/8 | 5/8 | 1-1/4 | 3-1/2 |
| 106-3/16X3/16 | 3/16 | 5/8 | 2 | 106-3/4X3/4 | 3/4 | 1-1/2 | 4 |
| 106-7/32X1/4 | 1/4 | 5/8 | 2 | 106-7/8X7/8 | 7/8 | 1-1/2 | 4 |
| 106-1/4X1/4 | 1/4 | 3/4 | 2-1/2 | 106-1X1 | 1 | 1-1/2 | 4 |
| 106-5/16X5/16 | 5/16 | 13/16 | 2-1/2 | | | | |



Solid Carbide End Mills

List No. 107

2 Flute / Double End / Center Cutting / Right Hand Helix



Description: Recommended for slotting applications and plunge cutting.

Application: Plunge cutting, slotting, pocketing and profiling of cast irons, aluminum, copper, magnesium, plastics, composites & brass.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|---------------|----------------|--------------|----------------|
| 107-1/8X1/8 | 1/8 | 1/4 | 1-1/2 | 107-9/32X5/16 | 5/16 | 1/2 | 2-1/2 |
| 107-5/32X3/16 | 3/16 | 5/16 | 2 | 107-5/16X5/16 | 5/16 | 1/2 | 2-1/2 |
| 107-3/16X3/16 | 3/16 | 3/8 | 2 | 107-3/8X3/8 | 3/8 | 9/16 | 2-1/2 |
| 107-7/32X1/4 | 1/4 | 1/2 | 2-1/2 | 107-7/16X7/16 | 7/16 | 9/16 | 2-3/4 |
| 107-1/4X1/4 | 1/4 | 1/2 | 2-1/2 | 107-1/2X1/2 | 1/2 | 5/8 | 3 |



CHAMPION

High Speed End Mills List No. 600

2 Flute / Single End / Center Cutting / HSS / Right Hand Helix



Description: Center cutting ability and wide deep flutes. For milling of keyways, slots and pockets.

Application: Plunge cutting, slotting, pocketing and profiling of aluminum, carbon steel, alloy steel, tool steel & cast iron.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|
| 600-1/8X3/8 | 3/8 | 3/8 | 2-5/16 |
| 600-3/16X3/8 | 3/8 | 7/16 | 2-5/16 |
| 600-1/4X3/8 | 3/8 | 1/2 | 2-5/16 |
| 600-5/16X3/8 | 3/8 | 9/16 | 2-5/16 |
| 600-3/8X3/8 | 3/8 | 9/16 | 2-5/16 |
| 600-7/16X3/8 | 3/8 | 13/16 | 2-1/2 |
| 600-1/2X3/8 | 3/8 | 13/16 | 2-1/2 |
| 600-1/2X1/2 | 1/2 | 1 | 3 |
| 600-9/16X1/2 | 1/2 | 1-1/8 | 3-1/8 |
| 600-5/8X1/2 | 1/2 | 1-1/8 | 3-1/8 |
| 600-5/8X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600-11/16X1/2 | 1/2 | 1-5/16 | 3-5/16 |
| 600-11/16X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600-3/4X1/2 | 1/2 | 1-5/16 | 3-5/16 |
| 600-3/4X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600-3/4X3/4 | 3/4 | 1-5/16 | 3-9/16 |

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|-----------------|----------------|--------------|----------------|
| 600-13/16X5/8 | 5/8 | 1-1/2 | 3-5/8 |
| 600-7/8X5/8 | 5/8 | 1-1/2 | 3-5/8 |
| 600-7/8X7/8 | 7/8 | 1-1/2 | 3-3/4 |
| 600-1X5/8 | 5/8 | 1-1/2 | 3-5/8 |
| 600-1X3/4 | 3/4 | 1-1/2 | 3-3/4 |
| 600-1X7/8 | 7/8 | 1-1/2 | 3-3/4 |
| 600-1X1 | 1 | 1-5/8 | 4-1/8 |
| 600-1-1/8X7/8 | 7/8 | 1-5/8 | 3-7/8 |
| 600-1-1/8X1 | 1 | 1-5/8 | 4-1/8 |
| 600-1-1/4X7/8 | 7/8 | 1-5/8 | 3-7/8 |
| 600-1-1/4X1 | 1 | 1-5/8 | 4-1/8 |
| 600-1-1/4X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600-1-3/8X1 | 1 | 1-5/8 | 4-1/8 |
| 600-1-1/2X1 | 1 | 1-5/8 | 4-1/8 |
| 600-1-1/2X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600-1-3/4X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600-2X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |

CHAMPION

TiN Coated End Mills List No. 600T

2 Flute / Single End / Center Cutting / HSS / Right Hand Helix



Description: Titanium Nitride Coating increases surface hardness and lubricity which protects the cutting edge, reducing abrasive wear and friction.

Application: For production profiling and milling of keyways, slots and pockets

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|----------------|----------------|--------------|----------------|
| 600T-1/8X3/8 | 3/8 | 3/8 | 2-5/16 |
| 600T-3/16X3/8 | 3/8 | 7/16 | 2-5/16 |
| 600T-1/4X3/8 | 3/8 | 1/2 | 2-5/16 |
| 600T-5/16X3/8 | 3/8 | 9/16 | 2-5/16 |
| 600T-3/8X3/8 | 3/8 | 9/16 | 2-5/16 |
| 600T-7/16X3/8 | 3/8 | 13/16 | 2-1/2 |
| 600T-1/2X3/8 | 3/8 | 13/16 | 2-1/2 |
| 600T-1/2X1/2 | 1/2 | 1 | 3 |
| 600T-9/16X1/2 | 1/2 | 1-1/8 | 3-1/8 |
| 600T-5/8X1/2 | 1/2 | 1-1/8 | 3-1/8 |
| 600T-5/8X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600T-11/16X1/2 | 1/2 | 1-5/16 | 3-5/16 |
| 600T-11/16X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600T-3/4X1/2 | 1/2 | 1-5/16 | 3-5/16 |
| 600T-3/4X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| 600T-3/4X3/4 | 3/4 | 1-5/16 | 3-9/16 |
| 600T-13/16X5/8 | 5/8 | 1-1/2 | 3-5/8 |
| 600T-7/8X5/8 | 5/8 | 1-1/2 | 3-5/8 |

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|------------------|----------------|--------------|----------------|
| 600T-7/8X7/8 | 7/8 | 1-1/2 | 3-3/4 |
| 600T-1X5/8 | 5/8 | 1-1/2 | 3-5/8 |
| 600T-1X3/4 | 3/4 | 1-1/2 | 3-3/4 |
| 600T-1X7/8 | 7/8 | 1-1/2 | 3-3/4 |
| 600T-1X1 | 1 | 1-5/8 | 4-1/8 |
| 600T-1-1/8X7/8 | 7/8 | 1-5/8 | 3-7/8 |
| 600T-1-1/8X1 | 1 | 1-5/8 | 4-1/8 |
| 600T-1-1/4X7/8 | 7/8 | 1-5/8 | 3-7/8 |
| 600T-1-1/4X1 | 1 | 1-5/8 | 4-1/8 |
| 600T-1-1/4X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600T-1-3/8X1 | 1 | 1-5/8 | 4-1/8 |
| 600T-1-1/2X1 | 1 | 1-5/8 | 4-1/8 |
| 600T-1-1/2X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600T-1-3/4X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |
| 600T-2X1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 |



TiN Coated End Mills List No. XL600

2 Flute / Single End / Center Cutting / M42 Cobalt
Right Hand Helix



Description: For milling of tough, high strength alloys, these tools are made from a high cobalt steel to resist the stress and heat generated at the cutting edge.

Application: Plunge cutting, slotting, pocketing and profiling of aluminum, austenitic alloys, nickel alloys, stainless steel and titanium alloys.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|----------------|----------------|--------------|----------------|---------------|----------------|--------------|----------------|
| XL600-1/8X3/8 | 3/8 | 3/8 | 2-5/16 | XL600-1/2X1/2 | 1/2 | 1 | 3 |
| XL600-3/16X3/8 | 3/8 | 7/16 | 2-5/16 | XL600-5/8X5/8 | 5/8 | 1-5/16 | 3-7/16 |
| XL600-1/4X3/8 | 3/8 | 1/2 | 2-5/16 | XL600-3/4X3/4 | 3/4 | 1-5/16 | 3-9/16 |
| XL600-5/16X3/8 | 3/8 | 9/16 | 2-5/16 | XL600-1X3/4 | 3/4 | 1-1/2 | 3-3/4 |
| XL600-3/8X3/8 | 3/8 | 9/16 | 2-5/16 | XL600-1-1/4X1 | 1 | 1-5/8 | 4-1/8 |



High Speed End Mills List No. 602

2 Flute / Double End / Center Cutting / HSS / Right Hand Helix



Description: Economical general purpose milling of keyways, slots and pockets. Center cutting and wide deep flutes.

Application: Plunge cutting, slotting, pocketing and profiling of aluminum, carbon steel, alloy steel, tool steel & cast iron.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|---------------|----------------|--------------|----------------|
| 602-1/8X3/8 | 3/8 | 3/8 | 3-1/16 | 602-7/16X1/2 | 1/2 | 13/16 | 3-3/4 |
| 602-5/32X3/8 | 3/8 | 7/16 | 3-1/8 | 602-15/32X1/2 | 1/2 | 13/16 | 3-3/4 |
| 602-3/16X3/8 | 3/8 | 7/16 | 3-1/8 | 602-1/2X1/2 | 1/2 | 13/16 | 3-3/4 |
| 602-7/32X3/8 | 3/8 | 1/2 | 3-1/8 | 602-9/16X5/8 | 5/8 | 1-1/8 | 4-1/2 |
| 602-1/4X3/8 | 3/8 | 1/2 | 3-1/8 | 602-5/8X5/8 | 5/8 | 1-1/8 | 4-1/2 |
| 602-9/32X3/8 | 3/8 | 9/16 | 3-1/8 | 602-11/16X3/4 | 3/4 | 1-5/16 | 5 |
| 602-5/16X3/8 | 3/8 | 9/16 | 3-1/8 | 602-3/4X3/4 | 3/4 | 1-5/16 | 5 |
| 602-11/32X3/8 | 3/8 | 9/16 | 3-1/8 | 602-7/8X7/8 | 7/8 | 1-9/16 | 5-1/2 |
| 602-3/8X3/8 | 3/8 | 9/16 | 3-1/8 | 602-1X1 | 1 | 1-5/8 | 5-7/8 |
| 602-13/32X1/2 | 1/2 | 13/16 | 3-3/4 | | | | |



Cobalt End Mills List No. 602CO

2 Flute / Double End / Center Cutting / M42 Cobalt
Right Hand Helix



Description: For milling keyways, slots and pockets in high tensile martensitic stainless steels and tough materials where the high "red hardness" and wear resistance of cobalt steel is needed to provide effective operation and long tool life.

Application: Plunge cutting, slotting, pocketing and profiling of aluminum, austenitic alloys, nickel alloys, stainless steel and titanium alloys.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|---------------|----------------|--------------|----------------|
| 602CO-1/8 | 3/8 | 3/8 | 3-1/16 | 602CO-1/2 | 1/2 | 13/16 | 3-3/4 |
| 602CO-3/16 | 3/8 | 7/16 | 3-1/8 | 602CO-5/8 | 5/8 | 1-1/8 | 4-1/2 |
| 602CO-1/4 | 3/8 | 1/2 | 3-1/8 | 602CO-3/4 | 3/4 | 1-5/16 | 5 |
| 602CO-5/16 | 3/8 | 9/16 | 3-1/8 | 602CO-7/8 | 7/8 | 1-9/16 | 5-1/2 |
| 602CO-3/8 | 3/8 | 9/16 | 3-1/8 | 602CO-1 | 1 | 1-5/8 | 5-7/8 |
| 602CO-7/16 | 1/2 | 13/16 | 3-3/4 | | | | |



High Speed End Mills List No. 601

Multi Flute / Single End / HSS / Right Hand Helix



Description: Non-Center Cut for general purpose profiling and milling of slots and pockets where "plunge" cutting is not required. Manufactured to a (+) tolerance on diameter, they produce a finer finish on work that has previously been roughed out.

Application: Profile & slotting of copper alloys, cast irons, alloy steels, & tool steel. Good for finishing in all materials.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|---------------|----------------|--------------|----------------|---------------|-----------------|----------------|--------------|----------------|---------------|
| 601-1/8X3/8 | 3/8 | 3/8 | 2-1/16 | 4 | 601-7/8X5/8 | 5/8 | 1-7/8 | 4 | 6 |
| 601-3/16X3/8 | 3/8 | 1/2 | 2-3/8 | 4 | 601-7/8X7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 |
| 601-1/4X3/8 | 3/8 | 5/8 | 2-7/16 | 4 | 601-1X5/8 | 5/8 | 1-7/8 | 4 | 6 |
| 601-5/16X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 601-1X3/4 | 3/4 | 1-7/8 | 4-1/8 | 4 |
| 601-3/8X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 601-1X7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 |
| 601-7/16X3/8 | 3/8 | 1 | 2-11/16 | 4 | 601-1X1 | 1 | 2 | 4-1/2 | 4 |
| 601-1/2X3/8 | 3/8 | 1 | 2-11/16 | 4 | 601-1-1/8X7/8 | 7/8 | 2 | 4-1/4 | 6 |
| 601-1/2X1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 601-1-1/8X1 | 1 | 2 | 4-1/2 | 6 |
| 601-9/16X1/2 | 1/2 | 1-3/8 | 3-3/8 | 4 | 601-1-1/4X7/8 | 7/8 | 2 | 4-1/4 | 6 |
| 601-5/8X1/2 | 1/2 | 1-3/8 | 3-3/8 | 4 | 601-1-1/4X1 | 1 | 2 | 4-1/2 | 6 |
| 601-5/8X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601T1-1/4x1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601-11/16X1/2 | 1/2 | 1-5/8 | 3-5/8 | 4 | 601-1-3/8X1 | 1 | 2 | 4-1/2 | 6 |
| 601-11/16X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601-1-1/2X1 | 1 | 2 | 4-1/2 | 6 |
| 601-3/4X1/2 | 1/2 | 1-5/8 | 3-3/4 | 4 | 601-1-1/2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601-3/4X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601-1-3/4X1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601-3/4X3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 601-2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 8 |
| 601-13/16X5/8 | 5/8 | 1-7/8 | 4 | 6 | | | | | |



TiN Coated End Mills List No. 601T

Multi Flute / Single End / HSS / Right Hand Helix



Description: For high production profiling and milling of keyways, slots and pockets. Titanium nitride offers extreme hardness and lubricity which protects the cutting edge, reducing abrasive wear and friction. TiN coating offers increased surface hardness, increased durability and high lubricity

Application: Profiling and slotting of carbon steel, cast iron, die steels, stainless steel, Inconel, hardened steel and titanium. Good for finishing in many materials.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|----------------|----------------|--------------|----------------|---------------|------------------|----------------|--------------|----------------|---------------|
| 601T-1/8X3/8 | 3/8 | 3/8 | 2-1/16 | 4 | 601T-7/8X5/8 | 5/8 | 1-7/8 | 4 | 6 |
| 601T-3/16X3/8 | 3/8 | 1/2 | 2-3/8 | 4 | 601T-7/8X7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 |
| 601T-1/4X3/8 | 3/8 | 5/8 | 2-7/16 | 4 | 601T-1X5/8 | 5/8 | 1-7/8 | 4 | 6 |
| 601T-5/16X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 601T-1X3/4 | 3/4 | 1-7/8 | 4-1/8 | 4 |
| 601T-3/8X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 601T-1X7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 |
| 601T-7/16X3/8 | 3/8 | 1 | 2-11/16 | 4 | 601T-1X1 | 1 | 2 | 4-1/2 | 4 |
| 601T-1/2X3/8 | 3/8 | 1 | 2-11/16 | 4 | 601T-1-1/8X7/8 | 7/8 | 2 | 4-1/4 | 6 |
| 601T-1/2X1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 601T-1-1/8X1 | 1 | 2 | 4-1/2 | 6 |
| 601T-9/16X1/2 | 1/2 | 1-3/8 | 3-3/8 | 4 | 601T-1-1/4X7/8 | 7/8 | 2 | 4-1/4 | 6 |
| 601T-5/8X1/2 | 1/2 | 1-3/8 | 3-3/8 | 4 | 601T-1-1/4X1 | 1 | 2 | 4-1/2 | 6 |
| 601T-5/8X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601T-1-1/4x1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601T-11/16X1/2 | 1/2 | 1-5/8 | 3-5/8 | 4 | 601T-1-3/8X1 | 1 | 2 | 4-1/2 | 6 |
| 601T-11/16X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601T-1-1/2X1 | 1 | 2 | 4-1/2 | 6 |
| 601T-3/4X1/2 | 1/2 | 1-5/8 | 3-3/4 | 4 | 601T-1-1/2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601T-3/4X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 601T-1-3/4X1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 601T-3/4X3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 601T-2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 8 |
| 601T-13/16X5/8 | 5/8 | 1-7/8 | 4 | 6 | | | | | |



TiN Coated Cobalt End Mills List No. XL606

Multi Flute / Single End / Center Cutting / M42 Cobalt
Right Hand Helix



Description: For milling of tough, high strength alloys. Made from M42 cobalt to resist the stress and heat generated in the milling of high tensile alloys.

Application: Profiling and slotting of carbon steel, cast iron, die steels, stainless steel, Inconel, hardened steel and titanium. Good for finishing in many materials.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|----------------|----------------|--------------|----------------|---------------|-------------------|----------------|--------------|----------------|---------------|
| XL606-1/8X3/8 | 3/8 | 3/8 | 2-5/16 | 4 | XL606-5/8X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 |
| XL606-3/16X3/8 | 3/8 | 1/2 | 2-3/8 | 4 | XL606-3/4X3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 |
| XL606-1/4X3/8 | 3/8 | 5/8 | 2-7/16 | 4 | XL606-1X3/4 | 3/4 | 1-7/8 | 4-1/8 | 4 |
| XL606-5/16X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | XL606-1-1/4X1 | 1 | 2 | 4-1/2 | 6 |
| XL606-3/8X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | XL606-1-1/2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 |
| XL606-1/2X1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | | | | | |



High Speed End Mills List No. 604

2 Flute / Single End / Ball Nose / Center Cutting / HSS
Right Hand Helix



Description: Engineered for milling radius bottom slots and fillets, rounding the bottom of holes and all general purpose radius milling. Designed to plunge cut.

Application: Plunge cutting, slotting, pocketing and profiling of aluminum, austenitic alloys, nickel alloys, stainless steel and titanium alloys.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | EDP No./ Size | Shank Diameter | Flute Length | Overall Length |
|---------------|----------------|--------------|----------------|-----------------|----------------|--------------|----------------|
| 604-1/8X3/8 | 3/8 | 3/8 | 2-1/16 | 604-5/8X5/8 | 5/8 | 1-3/8 | 3-1/2 |
| 604-3/16X3/8 | 3/8 | 1/2 | 2-3/8 | 604-3/4X1/2 | 1/2 | 1-5/16 | 3-5/16 |
| 604-1/4X3/8 | 3/8 | 5/8 | 2-7/16 | 604-3/4X3/4 | 3/4 | 1-5/8 | 3-7/8 |
| 604-5/16X3/8 | 3/8 | 3/4 | 2-1/2 | 604-7/8X7/8 | 7/8 | 2 | 4-1/4 |
| 604-3/8X3/8 | 3/8 | 3/4 | 2-1/2 | 604-1X1 | 1 | 2-1/4 | 4-3/4 |
| 604-7/16X1/2 | 1/2 | 1 | 3 | 604-1-1/8X1 | 1 | 2-1/4 | 4-3/4 |
| 604-1/2X1/2 | 1/2 | 1 | 3 | 604-1-1/4X1-1/4 | 1-1/4 | 2-1/2 | 5 |
| 604-9/16X1/2 | 1/2 | 1-1/8 | 3-1/8 | 604-1-1/2X1-1/4 | 1-1/4 | 2-1/2 | 5 |
| 604-5/8X1/2 | 1/2 | 1-1/8 | 3-1/8 | | | | |



High Speed End Mills List No. 606

4 Flute / Single End / Center Cutting / HSS / Right Hand Helix



Description: For general purpose milling of slots and pockets where plunge cutting and a fine surface finish is required.

Application: Plunge cutting, profile & slotting of copper alloys, cast irons, alloy steels & tool steel.

| EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Size | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|---------------|----------------|--------------|----------------|---------------|-----------------|----------------|--------------|----------------|---------------|
| 606-1/8X3/8 | 3/8 | 3/8 | 2-5/16 | 4 | 606-5/8X5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 |
| 606-3/16X3/8 | 3/8 | 1/2 | 2-3/8 | 4 | 606-3/4X3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 |
| 606-1/4X3/8 | 3/8 | 5/8 | 2-7/16 | 4 | 606-1X1 | 1 | 2 | 4-1/2 | 4 |
| 606-5/16X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 606-1-1/4X1-1/4 | 1-1/4 | 2 | 4-1/2 | 4 |
| 606-3/8X3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 606-1-1/2X1-1/4 | 1-1/4 | 2 | 4-1/2 | 4 |
| 606-1/2X1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | | | | | |



High Speed End Mills List No. 603

4 Flute / Double End / HSS / Right Hand Helix



Description: For economical profiling and milling of slots and pockets where plunge cutting is not required. Multi flute mills produce a finer surface finish on work that has previously been roughed out.

Application: Profiling and slotting of copper alloys, cast irons, alloy steels and tool steel.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|-------------------|----------------|--------------|----------------|
| 603-1/8X3/8 | 3/8 | 3/8 | 3-1/16 | 603-7/16X1/2 | 1/2 | 1 | 4-1/8 |
| 603-5/32X3/8 | 3/8 | 7/16 | 3-1/8 | 603-15/32X1/2 | 1/2 | 1 | 4-1/8 |
| 603-3/16X3/8 | 3/8 | 1/2 | 3-1/4 | 603-1/2X1/2 | 1/2 | 1 | 4-1/8 |
| 603-7/32X3/8 | 3/8 | 9/16 | 3-1/4 | 603-9/16X5/8 | 5/8 | 1-3/8 | 5 |
| 603-1/4X3/8 | 3/8 | 5/8 | 3-3/8 | 603-5/8X5/8 | 5/8 | 1-3/8 | 5 |
| 603-9/32X3/8 | 3/8 | 11/16 | 3-3/8 | 603-11/16X3/4 | 3/4 | 1-5/8 | 5-5/8 |
| 603-5/16X3/8 | 3/8 | 3/4 | 3-1/2 | 603-3/4X3/4 | 3/4 | 1-5/8 | 5-5/8 |
| 603-11/32X3/8 | 3/8 | 3/4 | 3-1/2 | 603-13/16X7/8 | 7/8 | 1-7/8 | 6-1/8 |
| 603-3/8X3/8 | 3/8 | 3/4 | 3-1/2 | 603-7/8X7/8 | 7/8 | 1-7/8 | 6-1/8 |
| 603-13/32X1/2 | 1/2 | 1 | 4-1/8 | 603-1X1 | 1 | 1-7/8 | 6-3/8 |

CHAMPION

High Speed End Mills

List No. 607

4 Flute / Double End / Center Cutting / HSS / Right Hand Helix



Description: Designed for the general purpose milling of slots and pockets where plunge cutting and a fine surface finish is required.

Application: Profiling and slotting of copper alloys, cast irons, alloy steels and tool steel.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|
| 607-1/8X3/8 | 3/8 | 3/8 | 3-1/16 |
| 607-3/16X3/8 | 3/8 | 1/2 | 3-1/4 |
| 607-1/4X3/8 | 3/8 | 5/8 | 3-3/8 |
| 607-5/16X3/8 | 3/8 | 3/4 | 3-1/2 |
| 607-3/8X3/8 | 3/8 | 3/4 | 3-1/2 |

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|
| 607-1/2X1/2 | 1/2 | 1 | 4-1/8 |
| 607-5/8X5/8 | 5/8 | 1-3/8 | 5 |
| 607-3/4X3/4 | 3/4 | 1-5/8 | 5-5/8 |
| 607-7/8X7/8 | 7/8 | 1-7/8 | 6-1/8 |
| 607-1X1 | 1 | 1-7/8 | 6-3/8 |

CHAMPION

Cobalt End Mills

List No. 607CO

4 Flute / Double End / Center Cutting / M42 Cobalt Right Hand Helix



Description: For milling of keyways, slots and pockets in high tensile martensitic stainless steels and tough materials where the high "red hardness" and wear resistance of cobalt steel is needed to provide effective operation and long tool life.

Application: Plunge cutting, profiling and slotting of austenitic alloys, high tensile steels, nickel alloys, titanium alloys & stainless steel.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|
| 607CO-1/8X3/8 | 3/8 | 3/8 | 3-1/16 |
| 607CO-3/16X3/8 | 3/8 | 1/2 | 3-1/4 |
| 607CO-1/4X3/8 | 3/8 | 5/8 | 3-3/8 |
| 607CO-5/16X3/8 | 3/8 | 3/4 | 3-1/2 |
| 607CO-3/8X3/8 | 3/8 | 3/4 | 3-1/2 |
| 607CO-7/16X3/8 | 1/2 | 1 | 4-1/8 |

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|
| 607CO-1/2X1/2 | 1/2 | 1 | 4-1/8 |
| 607CO-5/8X5/8 | 5/8 | 1-3/8 | 5 |
| 607CO-3/4X3/4 | 3/4 | 1-5/8 | 5-5/8 |
| 607CO-7/8X7/8 | 7/8 | 1-7/8 | 6-1/8 |
| 607CO-1X1 | 1 | 1-7/8 | 6-3/8 |

CHAMPION

Cobalt Roughing End Mills

List No. 609

Multi Flute / Single End / M42 Cobalt / Right Hand Helix



Description: Radius form cutting edges where each flute cuts shorter and thicker chips that can be carried away from the work easily. Rapid chip removal allows these mills to make deep cuts and remove large amounts of stock with less horsepower than conventional mills.

Application: Profiling and slotting of steel alloys, stainless steel and non-ferrous materials. Good for finishing in all materials.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|-------------------|----------------|--------------|----------------|---------------|
| 609-1/2X3 | 1/2 | 1-1/4 | 3-1/4 | 4 |
| 609-5/8X3 | 5/8 | 1-5/8 | 3-3/4 | 4 |
| 609-3/4X3 | 3/4 | 1-5/8 | 3-7/8 | 4 |
| 609-3/4X5 | 3/4 | 3 | 5-1/4 | 4 |
| 609-1X4 | 1 | 2 | 4-1/2 | 5 |
| 609-1X6 | 1 | 4 | 6-1/2 | 5 |
| 609-1-1/4X4 | 1-1/4 | 2 | 4-1/2 | 5 |

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|-------------------|----------------|--------------|----------------|---------------|
| 609-1-1/4X6 | 1-1/4 | 4 | 6-1/2 | 5 |
| 609-1-1/2X4 | 1-1/4 | 2 | 4-1/2 | 6 |
| 609-1-1/2X6 | 1-1/4 | 4 | 6-1/2 | 6 |
| 609-2X7 | 2 | 4 | 7-3/4 | 8 |
| 609-2X9 | 2 | 6 | 9-3/4 | 8 |
| 609-2X11 | 2 | 8 | 11-3/4 | 8 |



Solid Carbide End Mills List No. 166

4 Flute / Single End / Center Cutting / Right Hand Helix



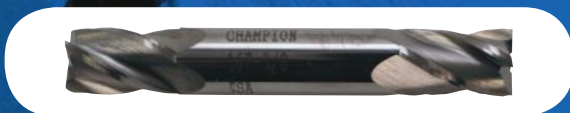
Description: A general purpose end mill commonly used on more difficult to machine materials than the 2 flute design. Rigid construction results in minimal deflection. The 4 flute design provides good wear resistance for excellent size control.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|-------------------|----------------|--------------|----------------|---------------|-------------------|----------------|--------------|----------------|---------------|
| 166-1/16 | 1/8 | 3/16 | 1-1/2 | 4 | 166-3/8 | 3/8 | 7/8 | 2-1/2 | 4 |
| 166-3/32 | 1/8 | 3/8 | 1-1/2 | 4 | 166-7/16 | 7/16 | 1 | 2-3/4 | 4 |
| 166-1/8 | 1/8 | 1/2 | 1-1/2 | 4 | 166-1/2 | 1/2 | 1 | 3 | 4 |
| 166-5/32 | 3/16 | 9/16 | 2 | 4 | 166-9/16 | 9/16 | 1-1/4 | 3-1/2 | 4 |
| 166-3/16 | 3/16 | 5/8 | 2 | 4 | 166-5/8 | 5/8 | 1-1/4 | 3-1/2 | 4 |
| 166-1/4 | 1/4 | 3/4 | 2-1/2 | 4 | 166-3/4 | 3/4 | 1-1/2 | 4 | 4 |
| 166-9/32 | 5/16 | 3/4 | 2-1/2 | 4 | 166-7/8 | 7/8 | 1-1/2 | 4 | 4 |
| 166-5/16 | 5/16 | 13/16 | 2-1/2 | 4 | 166-1 | 1 | 1-1/2 | 4 | 4 |



Solid Carbide End Mills List No. 167

4 Flute / Double End / Center Cutting / Right Hand Helix



Description: A general purpose end mill commonly used on more difficult to machine materials than the 2 flute design. Rigid construction results in minimal deflection. The 4 flute design provides good wear resistance for excellent size control.

| EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes | EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length | No. of Flutes |
|-------------------|----------------|--------------|----------------|---------------|-------------------|----------------|--------------|----------------|---------------|
| 167-1/8 | 1/8 | 1/4 | 1-1/2 | 4 | 167-9/32 | 5/16 | 1/2 | 2-1/2 | 4 |
| 167-5/32 | 3/16 | 5/16 | 2 | 4 | 167-5/16 | 5/16 | 1/2 | 2-1/2 | 4 |
| 167-3/16 | 3/16 | 3/8 | 2 | 4 | 167-3/8 | 3/8 | 9/16 | 2-1/2 | 4 |
| 167-7/32 | 1/4 | 1/2 | 2-1/2 | 4 | 167-7/16 | 7/16 | 9/16 | 2-3/4 | 4 |
| 167-1/4 | 1/4 | 1/2 | 2-1/2 | 4 | 167-1/2 | 1/2 | 5/8 | 3 | 4 |





SmartBrute Auto-Feed Magnetic Drill Press SB35

Applications

Innovative, automatic drilling, engineered for heavy duty use. Features auto power feed, cycle stop sensor and the option to switch between auto-feed and manual. Cuts holes up to 1-3/8" diameter with annular cutters or up to 1/2" diameter with twist drills using drill/chuck adaptor.

Ideal for steel fabrication and erection industry, truck/trailer frame fabrication, plant maintenance, refineries, power generation, mining, construction, bridge work and ship building.



QXSB35
Drill Chuck/Adaptor

Features

- Weighs: 36 lbs
- Magnetic strength 3,370 lbs
- Cutter capacity:
 - Auto-feed 1-3/16 diameter cutter x 1-3/4 depth of cut
 - Manual feed 1-3/8 diameter cutter x 2" depth of cut
- External fluid reservoir
- Twist drill capacity 1/2"
- Single speed motor: 550 RPM

Advantages

- Smart: Auto Power feed technology for consistent drilling and perfect holes every time
- Fast: Auto-feed optimizes feed rate for longer tool life and increased productivity
- Safe: Cycle stop sensor automatically shuts off SB35 when hole is completed
- Flexible: Can be run in auto-feed mode or manual

Included

- Carrying case
- Safety chain
- 8mm wrench
- 2.5mm and 4mm hex keys
- Safety guard
- Coolant tank
- 3/4" arbor

Arbors & Chucks

INCLUDED

- SB35-1 Complete set screw arbor

OPTIONS AVAILABLE

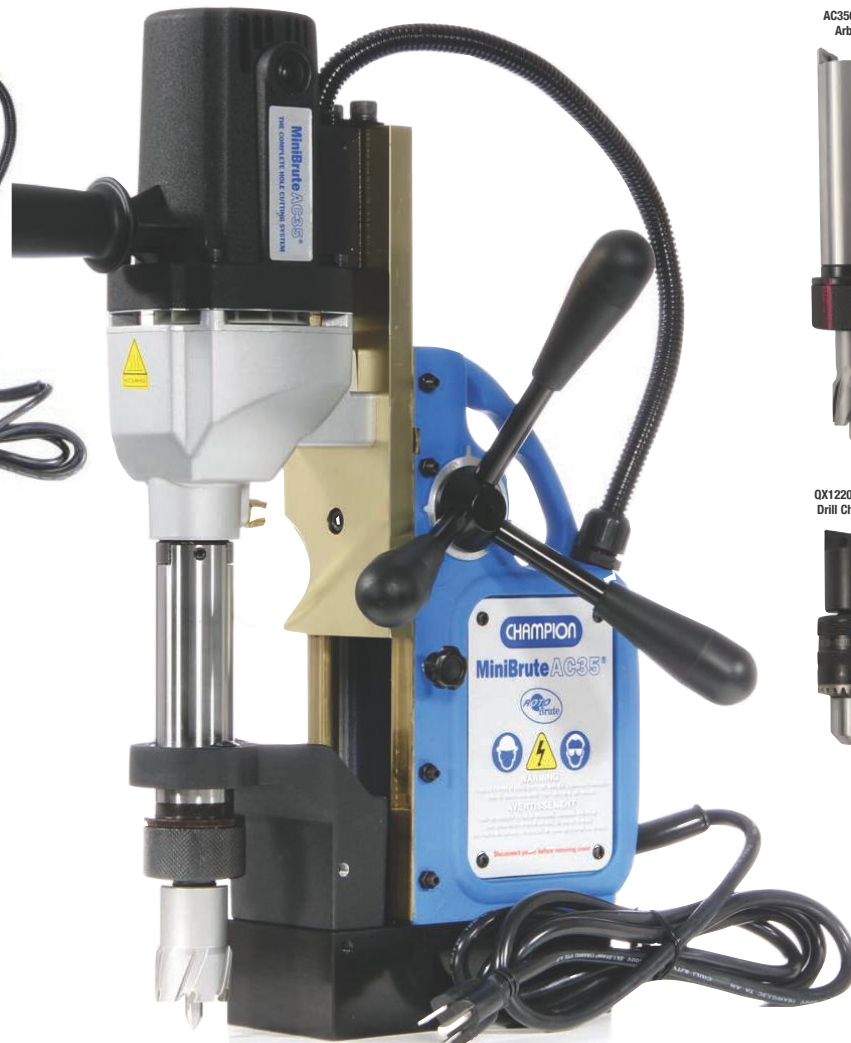
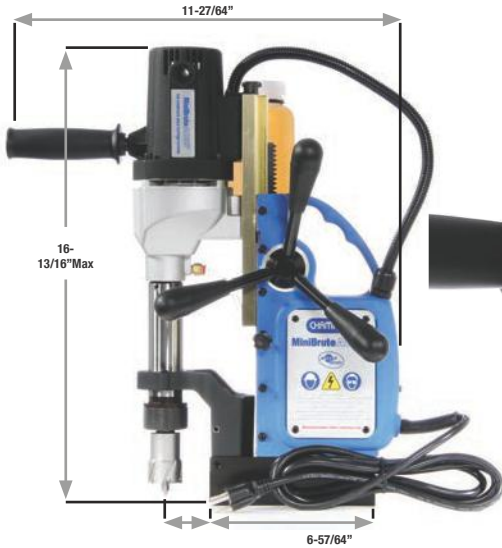
- QXSB35 Drill Chuck/Adaptor



MiniBrute Magnetic Drill Press AC35

Applications

A lightweight drill for drilling holes up to 1-3/8" diameter. Ideal for steel fabrication and erection industry, truck/trailer frame fabrication, plant maintenance, refineries, power generation, mining, construction, bridge work and ship building.



QX1220 Combination Drill Chuck/Adaptor



Features

- Weighs 23 lbs
- Magnetic Strength 2,200 lbs
- Cutter capacity: 1-3/8" diameter x 2" depth
- Utilizes S&D drills up to 3/4"
- Vertical travel - 3-1/8"
- Standard external fluid reservoir
- Quick change cutter arbor
- 1 Speed Motor: 600 RPM

Advantages

- Easy to maneuver
- Less fill ups
- Annular cutters changed quickly with no tools
- Ideal for use with carbide tipped annular cutters

Included

- Carrying case
- Hex keys
- Safety chain
- External coolant bottle
- Safety guard
- Quick release arbor enables cutter change in seconds

Arbors & Chucks

INCLUDED

- AC3502LQ quick-release 3/4" Arbor

OPTIONS AVAILABLE

- QX1220 Drill Chuck/Adaptor



MightiBrute Magnetic Drill Press AC50

Applications

A lightweight magnetic drill press for steel fabrication, welding, steel erection, construction, mining, bridge industries. Cut holes up to 2-1/8" diameter with annularcutters or up to 1" diameter with twist drills.



Features

- Weighs only 33 lbs.
- Magnetic Strength 3,370 lbs.
- Cutter capacity: 2-1/8" diameter x 2" depth
- Quick change 3/4" cutter arbor
- Vertical travel - 8"
- 1100W 2 Speed Motor: 450/300 RPM
- External cooling system

Advantages

- Lightweight and powerful.
- Cutter changes made in seconds
- Can be used with twist drills up to 1" as well as high speed or carbide tipped annular cutters.

Included

- Carrying case
- Safety guard
- Removable handle
- Safety chain

Arbors & Chucks

INCLUDED

- Built-in arbor
- QX1234 drill chuck adapter

OPTIONS AVAILABLE

- AC50-ADAPTER-NHO cutter arbor for Nitto Kohki and Hougén cutters

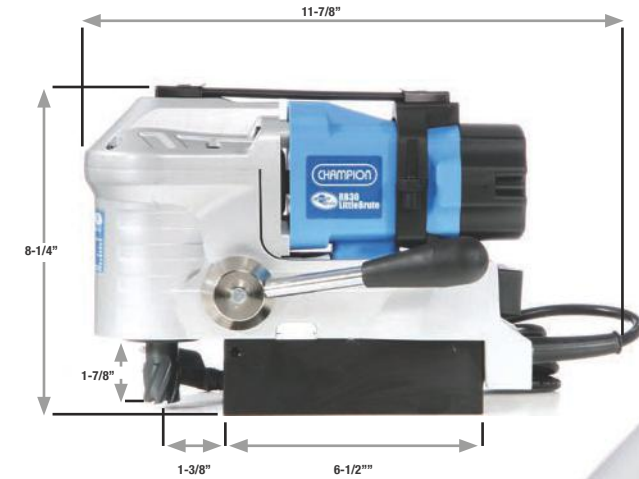


LittleBrute Magnetic Drill Press RB30

Applications

A low-profile magnetic drill ideal for tight spaces such as wheel arches and truck and trailer frame drilling.

Additional industries include utilities, steel fabrication, bridge work and ship building.



Features

- Height: 8-1/4"
- Weighs only 23 lbs
- Magnetic Strength 3,300 lbs
- Cutter capacity 1-3/8" diameter x 1-3/16" depth
- LED light for improved visibility
- No-volt release switch for motor on/off
- Gearbox housing doubles as a guard
- Removable handle for use on both sides
- 1 Speed Motor: 650 RPM

Advantages

- Ideal for use in difficult to access areas
- Ideal for truck and wheel arches, girders and machine assembly
- Light and easy to maneuver

Included

- Carrying case
- Cutting fluid
- M8 wrench
- M2.5 hex key
- M4 hex key
- Safety guard
- Removable handle
- Safety Chain

Arbors & Chucks

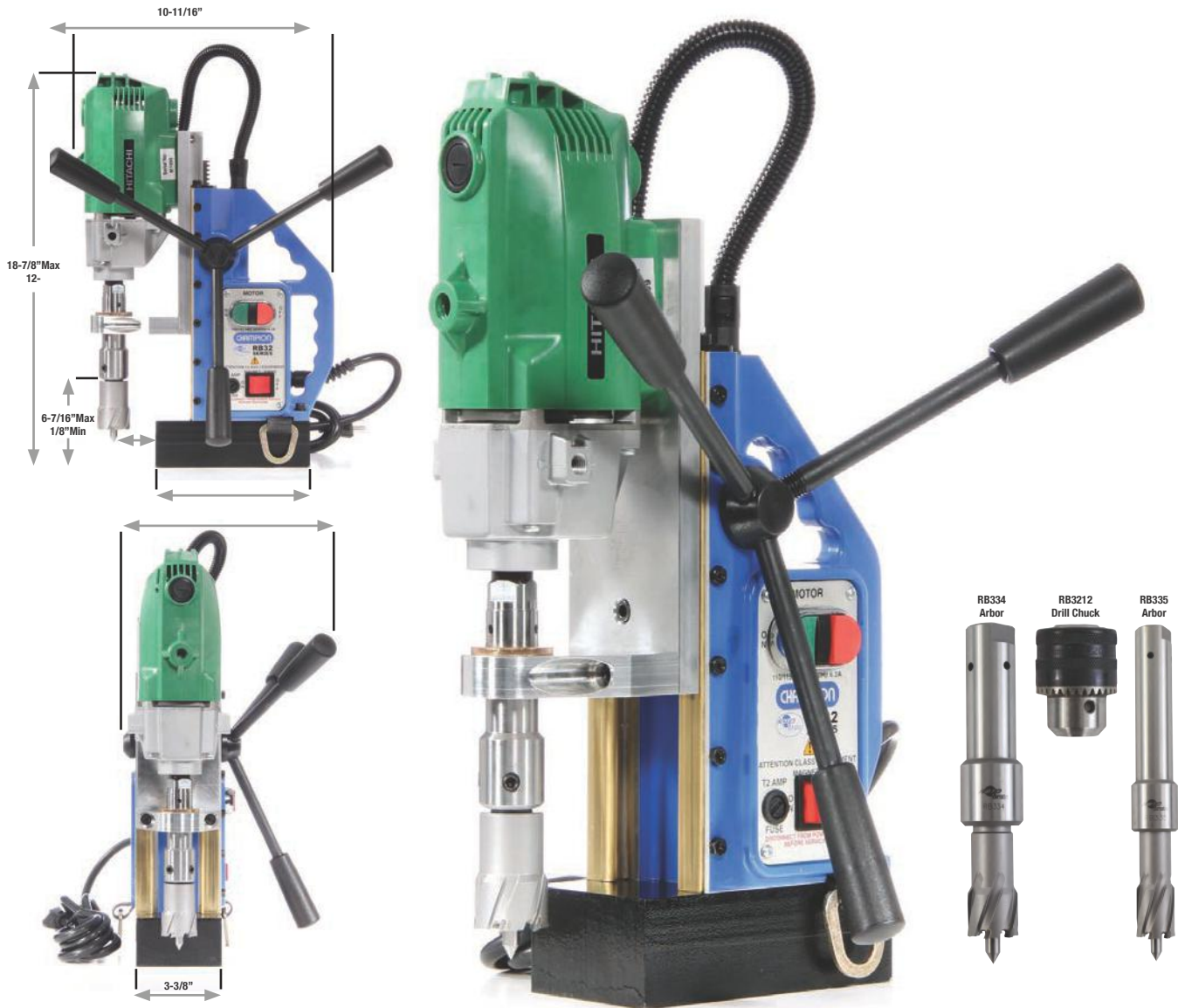
- INCLUDED
- Built in arbor



MiniBrute Magnetic Drill Press RB32

Applications

A lightweight drill for drilling holes up to 1-3/8" diameter. Ideal for steel fabrication and erection industry, truck / trailer frame fabrication, plant maintenance, refineries, power generation, mining, construction, bridge work and ship building.



Features

- Weighs only 28 lbs
- Magnetic strength 2,200 lbs
- Cutter capacity:
1-3/8" Diameter x 1-3/16" Depth
- Built-in fluid reservoir
- Reversible feed handle
- 6" vertical travel
- 1 Speed motor - 550 RPM
- 2" Depth of cut when used with RB335 arbor

Advantages

- Lighter weight makes handling and transport easier and safer
- Delivers the coolant to work place and cutter
- Left hand use and operating in restrictive areas
- Utilizes S&D drills up to 3/4"

Included

- Carrying case
- Safety strap
- D-handle
- Safety guard
- Chuck key
- Hex keys and spanner wrenches
- Arbors (see arbor section)

Arbors & Chucks

- INCLUDED**
- RB334 3/4" arbor
 - RB3212 1/2" drill chuck (and safety screw)
- OPTIONS AVAILABLE**
- RB335 3/4" arbor for drilling 2" depth

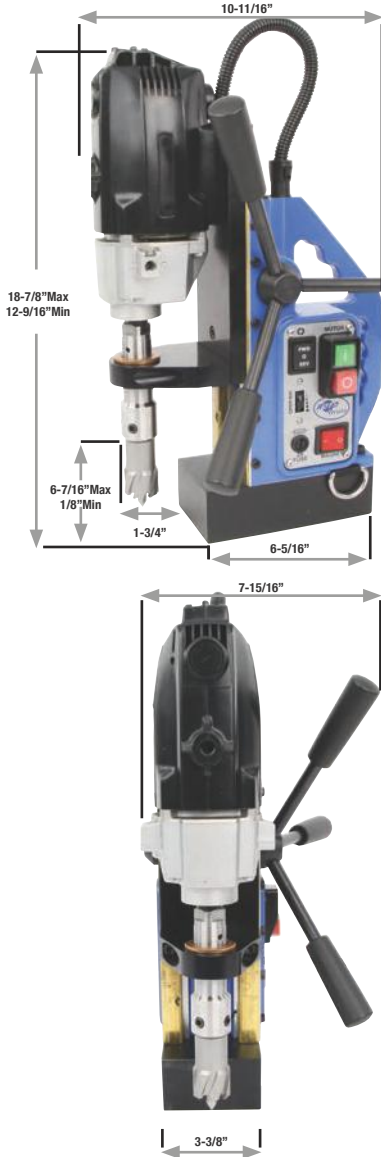


MiniBrute Magnetic Drill Press

RB32-VSR

Applications

Lightweight magnetic drill press for steel fabrication, welding, steel erection, construction, mining, bridge industries. Cut holes up to 1-3/8" diameter with annular cutters or up to 3/4" diameter with twist drills. Variable speed and reverse features make the RB32-VSR ideal for tapping holes, when used with the RB32-Tapper attachment. The RB32-VSR is designed for tapping up to 1/2" diameter (i.e. 1/2-13, 1/2-20).



RB32-VSR With Tap



RB32-VSR With Twist Drill



RB32-VSR With Combination Drill & Tap



Features

- Weighs only 28 lbs
- Magnetic strength 2,200 lbs
- Cutter capacity: 1-3/8" Diameter x 1-3/16" Depth
- Built-in fluid reservoir
- Reversible feed handle
- 6" vertical travel
- Variable Speed - 0-550 RPM
- New control panel provides easy operation of motor direction, speed and magnet on/off.
- 2" Depth of cut when used with RB335 arbor
- Designed for tapping up to 1/2" diameter (i.e. 1/2-13, 1/2-20).

Advantages

- Lighter weight makes handling and transport easier and safer
- Delivers the coolant to work place and cutter
- Left hand use and operating in restrictive areas
- Utilizes S&D drills up to 3/4"

Included

- Carrying case
- Safety strap
- D-handle
- Safety guard
- Chuck key
- Hex keys and spanner wrenches
- Arbors (see Arbor section)

Arbors & Chucks

INCLUDED

- RB334 3/4" arbor
 - RB3212 1/2" drill chuck (and safety screw)
- OPTIONS AVAILABLE
- RB335 3/4" arbor for drilling 2" depth
 - RB32-Tapper
 - RB925 to RB944 tapping collets

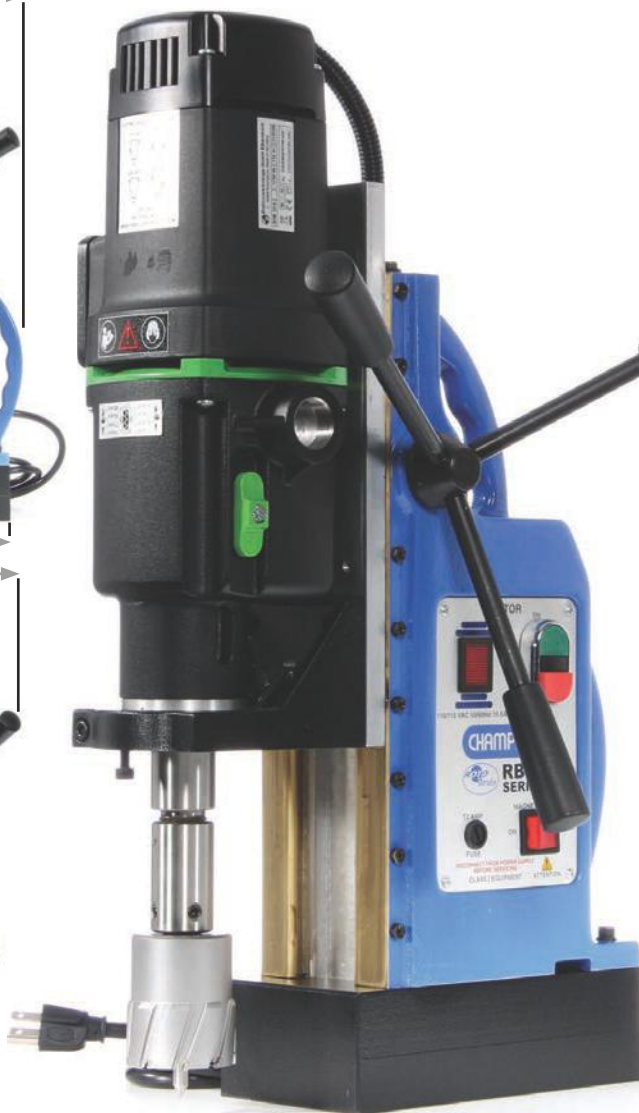
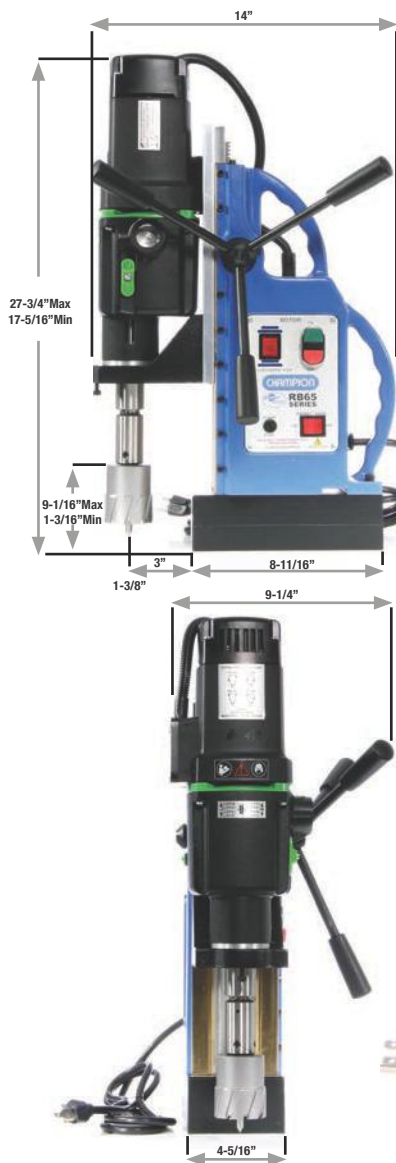


MegaBrute Magnetic Drill Press RB65E

Applications

Heavy-duty magnetic drill press for steel fabrication, welding, steel erection, construction, mining, bridge industries.

Cut holes up to 4" diameter with annular cutters or up to 1-1/4" diameter with twist drills. Utilizes a #3 Morse taper spindle which enables use with taper shank drills and bridge reamers. A variety of annular cutter arbors and drill chucks are available for use with twist drills.



Features

- Weighs 55 lbs
- Magnetic strength 4,400 lbs
- Cutter capacity: 4" Diameter x 3" Depth
- Built-in fluid reservoir
- Reversible feed handle
- 11-1/2" Vertical travel
- #3 Morse Taper Spindle
- 4 Speed Motor: 110/175/245/385

Advantages

- Excellent machine for all fabrication shops
- Enables greatest selection of cutters available
- Reversible feed handles for use in restrictive areas
- Allows the use of twist drills up to 1-1/4"

Included

- Carrying case
- Safety strap
- RB634 3/4" arbor
- D-handle
- Safety guard
- Drift key
- Hex keys and spanner wrenches

Arbors & Chucks

INCLUDED

- RB634 3/4" arbor

OPTIONS AVAILABLE

- RB635 1-1/4" arbor
- RB633 3/4" arbor
- RB632 1-1/4" arbor
- RB6512 1/2" drill chuck
- RB6534 3/4" drill chuck



Pipe Saddle

List No. RB-SADDLE

Pipe Saddle



| EDP No. | Wright | Size | Ratchet Strap | Inner Settings | Outer Settings |
|-----------|--------|-------------------|---------------|----------------|----------------|
| RB-SADDLE | 6 lbs | 8-1/2 x 5 x -1/2" | 1" x 72" | 2" - 4-1/2" | 4-1/2" - 8" |

Champion's RotoBrute pipe saddle enables Rotobruite magnetic drill presses to be used on convex surfaces, steel pipe and tubing. Providing non-slip positioning and centered hole location. Easily assembled by sliding the machine onto the saddle and tightening with adjustable ratchet straps.

- Industry Applications**
- Maintenance Facilities
 - Railroad Industry
 - Refineries
 - Steel Fabrication
 - Pipeline and Oil Fields
 - Power Utilities



Magnetic Wand

List No. RMX7



Description: Magnetic clean up tool.

Application: Quickly and easily pick up sharp metal chips, fasteners and small parts. Safely dispose of them by pulling back the handle.

| EDP No. | Description |
|---------|-----------------------|
| RMX7 | RotoMag Magnetic Wand |





Mag Drill Press Arbors and Drill Chucks

AC35 - Arbors and Drill Chuck Attachments

AC50 - Drill Chuck & Adaptor

AC3502LQ Arbor

Standard "quickchange" arbor for AC35.

3/4" arbor hole diameter.

For use with 1" and 2" depth of cut - XL100, XL200, CT150STK and CT200STK cutters.

AC3502-M Arbor

Optional traditional set screw arbor for AC35.

3/4" arbor hole diameter.

For use with 1" and 2" depth of cut - XL100, XL200, CT150STK and CT200STK cutters.

QX1234 Drill Chuck

1/2" drill chuck and adaptor for AC50 magnetic drill press.

3/4" weldon shank threaded to 1/2" drill chuck.



AC50-ADAPTOR-NHO

Optional arbor specially designed to adapt Hougén® and Nitto Kohki® brand cutters for use on the AC50.



QX1220 Combination Drill Chuck/Adaptor



RB32 - Arbors and Drill Chuck Attachments

RB334 Arbor

Standard arbor for RB32.

1/2-20 threaded hole threads on to RB32, 3/4" arbor hole diameter.

For use with XL100, CT150, CT150STK annular cutters.

Maximum depth of cut is 1-3/16".

RB3212 Drill Chuck

1/2" drill chuck for RB32.

1/2"-20 internal thread drill chuck.



RB335 Arbor

Optional arbor for RB32.

1/2-20 threaded hole threads on to RB32, 3/4" arbor hole diameter.

For use with 1" and 2" depth of cut - XL100, XL200, CT150, CT200, CT150STK, CT200STK annular cutters.





Mag Drill Press Arbors, Drill Chucks and Tapping Attachments

RB32-VSR - Arbors and Drill Chucks and Tapping Attachment



RB334 Arbor
Details as Above



RB3212 Chuck Adaptor
Details as Above



RB335 Arbor
Details as Above



Shown Assembled With Tapping Attachments

RB32-Tapper



RB32-Tapper
Optional tapping attachment for RB32-VSR.

Threads to RB32-VSR with 1/2-20 thread.

Used with #2 collet adaptors.

RB-925 to RB-941 collet adaptors are used with RB32-Tapper for holding taps from 0 through to 3/4" diameter.

Example Tapping Collet Adaptor



Example Tap



RB32-VSR Quick Change Tapping Collets

| EDP No. | Tap Sizes | EDP No. | Tap Sizes | EDP No. | Tap Sizes | EDP No. | Tap Sizes |
|---------|-----------|---------|------------|---------|-----------|---------|----------------------|
| RB-925 | 0-6 | RB-929 | #14 & 1/4" | RB-933 | 3/8" NPT | RB-937 | 3/4" |
| RB-926 | #8 | RB-930 | 5/16" | RB-934 | 1/2" NPT | RB-940 | 1/8" Small Shank NPT |
| RB-927 | #10 | RB-931 | 3/8" | RB-935 | 5/8" | RB-941 | 1/8" Large Shank NPT |
| RB-928 | #12 | RB-932 | 1/4" NPT | RB-936 | 11/16" | | |

RB65E - Arbors and Drill Chuck Attachments



RB634 Arbor



Included with RB65E.
#3 Morse taper shank, 3/4" hole diameter.
For use with all 3/4" shank annular cutters up to 2-1/4" diameter.

RB635 Arbor



Optional arbor for RB65E.
#3 Morse taper shank, 1-1/4" hole diameter.
For use with XL100, XL200, XL300, CT150, CT200, CT300, CT400, CT150STK, CT200STK from 2-5/16" to 4" diameter which have a 1-1/4" shank.

RB633 Arbor



Optional arbor for RB65E.
#3 Morse taper shank, 3/4" hole diameter.
For use with XL300, CT300, CT400, CT150STK and CT200STK up to 2-1/4" diameter which have a 3/4" shank.
For use with cutters up to 4" depth of cut..

RB632 Arbor



Optional arbor for RB65E
#3 Morse taper shank, 1-1/4" hole diameter.
For use with XL100, XL200, XL300, CT150, CT200, CT300, CT400, CT150STK and CT200STK from 2-5/16" diameter and larger, which have a 1-1/4" shank.
For use with cutters up to 4" depth of cut.

RB6512 Drill Chuck



Optional 1/2" drill chuck for RB65E.
#3 Morse taper shank arbor to Jacobs taper mounted drill chuck.

RB6534 Drill Chuck



Optional 3/4" drill chuck for RB65E.
#3 Morse taper shank arbor to Jacobs taper mounted drill chuck.



Carbide Tipped Annular Cutters

List No. CT150 / CT200 / CT300 / CT400

Description: Maximize cutting performance of any portable magnetic drill press. Their superior "Triple Edge" cutting action outperforms ordinary high speed steel annular cutters and twist drills 6:1.

Application: Cut holes in cast iron, steel and ultra hard or exotic alloys with the added ability to produce overlapping and interrupted holes easily.



Time Saving Features

- Ultra hard carbide teeth permit faster cutting even in tough materials and shapes
- Cut clean, bur free holes
- Precision pilot pins eject the center as a plug of steel
- Features Weldon style flats for fast loading and better rigidity



Triple Edge Cutting Features

The CT series features two sets of three cutting tips each with different geometries, balancing the cutting forces. This enables higher feed rates and smoother drilling, with better control in structural steel and steel plate.

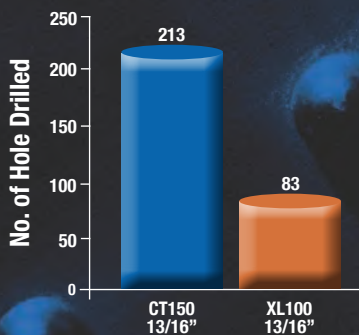


CT150 vs Standard HSS Annular Cutter Comparison

CT Advantage

256%

Material used - Construction Steel (25mm)
AC35 Magnetic drill press used - 920 watts @ 600 RPM
Comparisons stopped when no more holes could be bored at the same force



| Diameter | List CT150 1-3/8" Depth of Cut | List CT200 2" Depth of Cut | List CT300 3" Depth of Cut | List CT400 4" Depth of Cut |
|----------|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 1/2 | CT150-1/2 | CT200-1/2 | | |
| 9/16 | CT150-9/16 | CT200-9/16 | | |
| 5/8 | CT150-5/8 | CT200-5/8 | | |
| 11/16 | CT150-11/16 | CT200-11/16 | | |
| 3/4 | CT150-3/4 | CT200-3/4 | CT300-3/4 | CT400-3/4 |
| 13/16 | CT150-13/16 | CT200-13/16 | CT300-13/16 | CT400-13/16 |
| 7/8 | CT150-7/8 | CT200-7/8 | CT300-7/8 | CT400-7/8 |
| 15/16 | CT150-15/16 | CT200-15/16 | CT300-15/16 | CT400-15/16 |
| 1 | CT150-1 | CT200-1 | CT300-1 | CT400-1 |
| 1-1/16 | CT150-1-1/16 | CT200-1-1/16 | CT300-1-1/16 | CT400-1-1/16 |
| 1-1/8 | CT150-1-1/8 | CT200-1-1/8 | CT300-1-1/8 | CT400-1-1/8 |
| 1-3/16 | CT150-1-3/16 | CT200-1-3/16 | CT300-1-3/16 | CT400-1-3/16 |
| 1-1/4 | CT150-1-1/4 | CT200-1-1/4 | CT300-1-1/4 | CT400-1-1/4 |
| 1-5/16 | CT150-1-5/16 | CT200-1-5/16 | CT300-1-5/16 | CT400-1-5/16 |
| 1-3/8 | CT150-1-3/8 | CT200-1-3/8 | CT300-1-3/8 | CT400-1-3/8 |
| 1-7/16 | CT150-1-7/16 | CT200-1-7/16 | | |
| 1-1/2 | CT150-1-1/2 | CT200-1-1/2 | CT300-1-1/2 | CT400-1-1/2 |
| 1-9/16 | CT150-1-9/16 | CT200-1-9/16 | | |
| 1-5/8 | | CT200-1-5/8 | CT300-1-5/8 | CT400-1-5/8 |
| 1-11/16 | | CT200-1-11/16 | | |
| 1-3/4 | | CT200-1-3/4 | CT300-1-3/4 | CT400-1-3/4 |
| 1-13/16 | | CT200-1-13/16 | | |
| 1-7/8 | | CT200-1-7/8 | | |
| 1-15/16 | | CT200-1-15/16 | | |
| 2 | | CT200-2 | CT300-2 | CT400-2 |
| 2-1/8 | | CT200-2-1/8 | CT300-2-1/8 | |
| 2-1/4 | | CT200-2-1/4 | CT300-2-1/4 | |
| 2-3/8 | | CT200-2-3/8* | CT300-2-3/8** | |
| 2-1/2 | | CT200-2-1/2* | CT300-2-1/2** | |
| 2-5/8 | | CT200-2-5/8* | CT300-2-5/8** | |
| 2-3/4 | | CT200-2-3/4* | CT300-2-3/4** | |
| 2-7/8 | | | CT300-2-7/8** | |
| 3 | | CT200-3* | CT300-3** | |
| 3-1/8 | | | CT300-3-1/8** | |
| 3-1/4 | | CT200-3-1/4* | CT300-3-1/4** | |
| 3-3/8 | | | CT300-3-3/8** | |
| 3-1/2 | | CT200-3-1/2* | CT300-3-1/2** | |
| 3-5/8 | | | CT300-3-5/8** | |
| 3-3/4 | | | CT300-3-3/4** | |
| 3-7/8 | | | CT300-3-7/8** | |
| 4 | | CT200-4* | CT300-4** | |

Annular cutters up to 2-1/4" diameter have a 3/4" shank. Cutters 2-5/16" and larger have a 1-1/4" shank.

* CT200-PIN-1-1/4" for CT200 > 2-1/4" diameter

** CT300-PIN-1-1/4" for CT300 > 2-1/4" diameter





High Speed Annular Cutters

List No. XL100 / XL200 / XL300



Description: High speed steel annular cutters (M2) which feature Champion's exclusive PLUS20 surface treatment, providing cleaner cuts, positive slug ejection and longer tool life.

Application: Used in conjunction with Champion magnetic drill presses

PLUS20

The PLUS20 coating on XLSERIES Champion Cutters gives 20% more tool life and 20% higher performance than standard high speed annular cutters.



| Diameter | List XL100 1" Depth of Cut | List XL200 2" Depth of Cut | List XL300 3" Depth of Cut |
|----------|----------------------------------|----------------------------------|----------------------------------|
| 7/16 | XL100-7/16 | XL200-7/16 | |
| 1/2 | XL100-1/2 | XL200-1/2 | |
| 17/32 | XL100-17/32 | XL200-17/32 | |
| 9/16 | XL100-9/16 | XL200-9/16 | |
| 5/8 | XL100-5/8 | XL200-5/8 | |
| 21/32 | XL100-21/32 | | |
| 11/16 | XL100-11/16 | XL200-11/16 | |
| 23/32 | XL100-23/32 | | |
| 3/4 | XL100-3/4 | XL200-3/4 | XL300-3/4 |
| 25/32 | XL100-25/32 | | |
| 13/16 | XL100-13/16 | XL200-13/16 | XL300-13/16 |
| 7/8 | XL100-7/8 | XL200-7/8 | XL300-7/8 |
| 15/16 | XL100-15/16 | XL200-15/16 | XL300-15/16 |
| 1 | XL100-1 | XL200-1 | XL300-1 |
| 1-1/16 | XL100-1-1/16 | XL200-1-1/16 | XL300-1-1/16 |
| 1-1/8 | XL100-1-1/8 | XL200-1-1/8 | XL300-1-1/8 |
| 1-3/16 | XL100-1-3/16 | XL200-1-3/16 | XL300-1-3/16 |
| 1-1/4 | XL100-1-1/4 | XL200-1-1/4 | XL300-1-1/4 |
| 1-5/16 | XL100-1-5/16 | XL200-1-5/16 | XL300-1-5/16 |
| 1-3/8 | XL100-1-3/8 | XL200-1-3/8 | XL300-1-3/8 |
| 1-7/16 | XL100-1-7/16 | XL200-1-7/16 | XL300-1-7/16 |
| 1-1/2 | XL100-1-1/2 | XL200-1-1/2 | XL300-1-1/2 |
| 1-9/16 | XL100-1-9/16 | XL200-1-9/16 | XL300-1-9/16 |
| 1-5/8 | XL100-1-5/8 | XL200-1-5/8 | XL300-1-5/8 |
| 1-11/16 | XL100-1-11/16 | XL200-1-11/16 | XL300-1-11/16 |
| 1-3/4 | XL100-1-3/4 | XL200-1-3/4 | XL300-1-3/4 |
| 1-13/16 | XL100-1-13/16 | XL200-1-13/16 | XL300-1-13/16 |
| 1-7/8 | XL100-1-7/8 | XL200-1-7/8 | XL300-1-7/8 |
| 1-15/16 | XL100-1-15/16 | XL200-1-15/16 | XL300-1-15/16 |
| 2 | XL100-2 | XL200-2 | XL300-2 |
| 2-1/16 | XL100-2-1/16 | XL200-2-1/16 | XL300-2-1/16 |
| 2-1/8 | XL100-2-1/8 | XL200-2-1/8 | XL300-2-1/8 |
| 2-3/16 | XL100-2-3/16 | XL200-2-3/16 | XL300-2-3/16 |
| 2-1/4 | XL100-2-1/4 | XL200-2-1/4 | XL300-2-1/4 |
| 2-5/16 | XL100-2-5/16 | XL200-2-5/16 | XL300-2-5/16 |
| 2-3/8 | XL100-2-3/8 | XL200-2-3/8 | XL300-2-3/8 |
| 2-7/16 | XL100-2-7/16 | XL200-2-7/16 | XL300-2-7/16 |
| 2-1/2 | XL100-2-1/2 | XL200-2-1/2 | XL300-2-1/2 |
| 2-9/16 | XL100-2-9/16 | XL200-2-9/16 | XL300-2-9/16 |
| 2-5/8 | XL100-2-5/8 | XL200-2-5/8 | XL300-2-5/8 |
| 2-11/16 | XL100-2-11/16 | XL200-2-11/16 | XL300-2-11/16 |
| 2-3/4 | XL100-2-3/4 | XL200-2-3/4 | XL300-2-3/4 |
| 2-13/16 | XL100-2-13/16 | XL200-2-13/16 | XL300-2-13/16 |
| 2-7/8 | XL100-2-7/8 | XL200-2-7/8 | XL300-2-7/8 |
| 2-15/16 | XL100-2-15/16 | XL200-2-15/16 | XL300-2-15/16 |
| 3 | XL100-3 | XL200-3 | XL300-3 |
| 3-1/16 | XL100-3-1/16 | XL200-3-1/16 | XL300-3-1/16 |
| 3-1/8 | XL100-3-1/8 | XL200-3-1/8 | XL300-3-1/8 |
| 3-3/16 | XL100-3-3/16 | XL200-3-3/16 | XL300-3-3/16 |
| 3-1/4 | XL100-3-1/4 | XL200-3-1/4 | XL300-3-1/4 |
| 3-5/16 | XL100-3-5/16 | XL200-3-5/16 | XL300-3-5/16 |
| 3-3/8 | XL100-3-3/8 | XL200-3-3/8 | XL300-3-3/8 |
| 3-7/16 | XL100-3-7/16 | XL200-3-7/16 | XL300-3-7/16 |
| 3-1/2 | XL100-3-1/2 | XL200-3-1/2 | XL300-3-1/2 |
| 3-9/16 | XL100-3-9/16 | XL200-3-9/16 | XL300-3-9/16 |
| 3-5/8 | XL100-3-5/8 | XL200-3-5/8 | XL300-3-5/8 |
| 3-11/16 | XL100-3-11/16 | XL200-3-11/16 | XL300-3-11/16 |
| 3-3/4 | XL100-3/4 | XL200-3/4 | XL300-3/4 |
| 3-13/16 | XL100-3-13/16 | XL200-3-13/16 | XL300-3-13/16 |
| 3-7/8 | XL100-7/8 | XL200-7/8 | XL300-7/8 |
| 3-15/16 | XL100-3-15/16 | XL200-3-15/16 | XL300-3-15/16 |
| 4 | XL100-4 | XL200-4 | XL300-4 |

716 thru 2-1/4 cutters have 3/4 shank
2-3/8 thru 4" cutters have 1-1/4 shank





Carbide Tipped Stack Cut Annular Cutters

List No. CT150STK

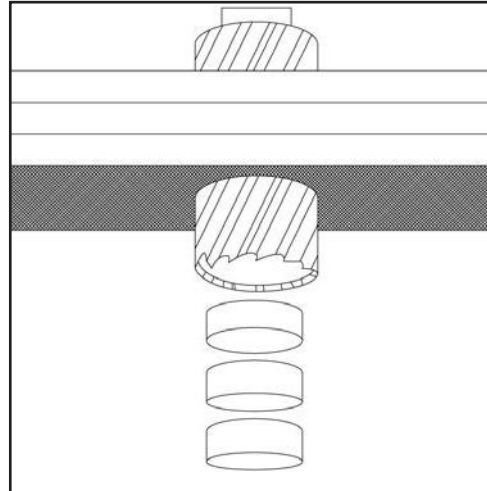


Description: Carbide tipped “stack cut” annular cutters feature a special tooth grind which enables drilling multiple plates at one time.

Application: Can be used with all magnetic drills in steel fabrication, truck and trailer frame drilling.

CT150STK Description: Engineered for drilling multiple plates at one time up to 1-3/8” depth. Stack plate (or laminate) drilling is often used when drilling multiple truck frames (truck frame extensions). CT150STK together with the RotoBrute RB30 are extremely effective to maximize cutting performance.

| Diameter | CT150STK 1-3/8” Depth of Cut |
|----------|---------------------------------|
| 5/8 | CT150STK-5/8 |
| 11/16 | CT150STK-11/16 |
| 3/4 | CT150STK-3/4 |
| 13/16 | CT150STK-13/16 |
| 7/8 | CT150STK-7/8 |
| 15/16 | CT150STK-15/16 |
| 1 | CT150STK-1 |



Carbide Tipped Stack Cut Annular Cutters

List No. CT200STK

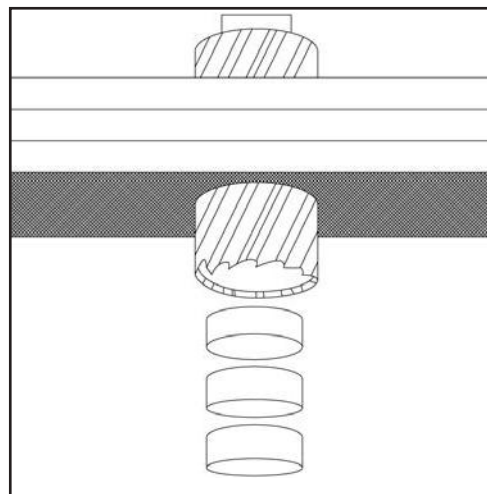


Description: Stack cutting annular cutters available for drilling multiple layers without stopping to remove center plugs. Stack cut tooth geometry cutters will smoothly penetrate multiple layers where non-modified cutters cannot.

Application: For use with the RB32, RB32-VSR, RB45, RB65E AC35 and AC50 magnetic drill presses.

CT200STK Description: CT200STK cut up to 2” depth. Extremely effective with both RotoBrute AC35 an AC50 magnetic drill presses. Manufactured with special inner diameter grind (ID) they cut cylindrical steel slugs without leaving the traditional “top hat brim”. This enables multiple slugs to build up inside the cutter, which are cleanly ejected when the final plate is drilled.

| Diameter | CT200STK 2” Depth of Cut |
|----------|-----------------------------|
| 13/16 | CT200STK-13/16 |
| 7/8 | CT200STK-7/8 |
| 15/16 | CT200STK-15/16 |
| 1 | CT200STK-1 |
| 1-1/16 | CT200STK-1-1/16 |
| 1-1/8 | CT200STK-1-1/8 |
| 1-3/16 | CT200STK-1-3/16 |
| 1-1/4 | CT200STK-1-1/4 |





Pilot Pins for High Speed Steel & Carbide Tipped Annular Cutters



Description: Rotobruite pins slide through the center of the annular cutter to:

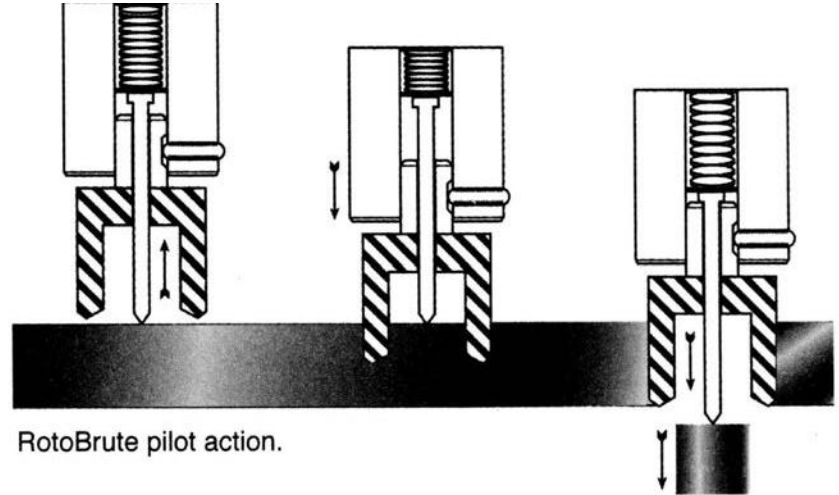
- Help the operator set the precise location to drill
- Guide a steady flow of cutting fluid to the cutting edges
- Eject the slug when the cutter has completed the hole

HSS Annular Cutter Pilot Pins

| EDP No. | Description |
|-------------|---|
| XL100P | 1/4 diameter pilot pins for XL100 cutters |
| XL100P-7/16 | Pilot pins for XL100-7/16 cutters |
| XL200P | 1/4 diameter pilot pins for XL200 cutters |
| XL200P-7/16 | Pilot pins for XL200-7/16 cutters |
| XL300P | 1/4 diameter pilot pins for XL300 cutters |

Carbide Tipped Annular Cutter Pilot Pins

| EDP No. | Description |
|-----------------|---|
| CT150P | 5/16 diameter pilot pins for CT150 cutters |
| CT150-PIN | Pilot pins for CT150 1/2, 9/16 and 5/8 cutters |
| CT200P | 5/16 diameter pilot pins for CT200 cutters |
| CT200-PIN | Pilot pins for CT200 1/2", 9/16 and 5/8 cutters |
| CT200-PIN-1-1/4 | Pilot pins for CT200 > 2-1/4" diameter |
| CT300P | 5/16 diameter pilot pins for CT300 cutters |
| CT300-PIN-1-1/4 | Pilot pins for CT300 > 2-1/4" diameter |
| CT400P | 5/16 diameter pilot pins for CT400 cutters |



RotoBrute pilot action.

PROLINE

Rotary Masonry Drills

List No. CM6

Fast Spiral / Regular Length / Carbide Tipped



Description: Use in standard rotary power tools. Performs well in masonry materials that produce a fine powder when drilled.

Application: Light to medium hard building materials, including brick and cinder block.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM6-3/16 | 5/32 | 3 | CM6-5/16 | 1/4 | 4 |
| CM6-7/32 | 5/32 | 4 | CM6-3/8 | 1/4 | 4 |
| CM6-1/4 | 1/4 | 4 | CM6-7/16 | 1/4 | 4 |
| CM6-9/32 | 1/4 | 4 | | | |

PROLINE

Rotary Masonry Drills

List No. CM66

6" Length / Fast Spiral / Carbide Tipped



Description: Use in standard rotary power tools. Performs well in materials that produce a fine powder when drilled.

Application: Light to medium hard building materials, including brick and cinder block.

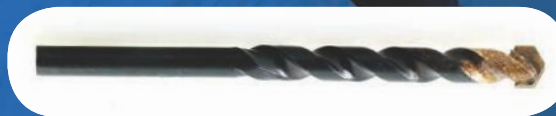
| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM66-1/4 | 1/4 | 6 | CM66-9/16 | 3/8 | 6 |
| CM66-9/32 | 1/4 | 6 | CM66-5/8 | 1/2 | 6 |
| CM66-5/16 | 1/4 | 6 | CM66-11/16 | 1/2 | 6 |
| CM66-3/8 | 1/4 | 6 | CM66-3/4 | 1/2 | 6 |
| CM66-7/16 | 1/4 | 6 | CM66-13/16 | 1/2 | 6 |
| CM66-1/2X1/4 | 1/4 | 6 | CM66-7/8 | 1/2 | 6 |
| CM66-1/2X3/8 | 3/8 | 6 | CM66-1 | 1/2 | 6 |

PROLINE

Masonry Drills

List No. CSC4

Deep Flute / Short Length / Carbide Tipped



Description: Masonry drills for rotary and percussion drilling of concrete, brick, terra cotta, sandstone, cinder block, ceramic tile and slate.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CSC4-1/8 | 1/8 | 2-1/2 | CSC4-5/16 | 1/4 | 4 |
| CSC4-3/16 | 3/16 | 3-3/8 | CSC4-3/8 | 1/4 | 4 |
| CSC4-7/32 | 7/32 | 4 | CSC4-7/16 | 1/4 | 4 |
| CSC4-1/4 | 1/4 | 4 | CSC4-1/2X1/4 | 1/4 | 4 |

PROLINE

Masonry Drills

List No. CSC6

6" Length / Carbide Tipped / Deep Flute



Description: Masonry drills for rotary and percussion drilling of concrete, brick, terra cotta, sandstone, cinderblock, ceramic tile and slate.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CSC6-1/4 | 1/4 | 6 |
| CSC6-5/16 | 1/4 | 6 |
| CSC6-3/8 | 1/4 | 6 |
| CSC6-7/16 | 1/4 | 6 |

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CSC6-1/2X1/4 | 1/4 | 6 |
| CSC6-1/2X3/8 | 3/8 | 6 |
| CSC6-5/8 | 1/4 | 6 |
| CSC6-3/4 | 1/4 | 6 |

PROLINE

Rotary Masonry Drills

List No. CM8

Deep Flute / Regular Length / Carbide Tipped



Description: Use in standard power tools. Deep flute design is most effective in materials that produce a coarse powder or gravel when drilled.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM8-1/8 | 1/8 | 2-1/2 |
| CM8-9/64 | 9/64 | 2-1/2 |
| CM8-5/32 | 5/32 | 2-3/4 |
| CM8-11/64 | 11/64 | 2-3/4 |
| CM8-3/16 | 3/16 | 3 |
| CM8-7/32 | 7/32 | 4 |

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM8-1/4 | 1/4 | 4 |
| CM8-9/32 | 1/4 | 4 |
| CM8-5/16 | 1/4 | 4 |
| CM8-3/8 | 1/4 | 4 |
| CM8-7/16 | 1/4 | 4 |

PROLINE

Rotary Masonry Drills

List No. CM86

Deep Flute / 6" Length / Carbide Tipped



Description: Use in standard power tools. The deep flute design is most effective in materials that produce a coarse powder or gravel when drilled.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM86-3/16 | 3/16 | 6 |
| CM86-1/4 | 1/4 | 6 |
| CM86-9/32 | 1/4 | 6 |
| CM86-5/16 | 1/4 | 6 |
| CM86-3/8 | 1/4 | 6 |
| CM86-7/16 | 1/4 | 6 |
| CM86-1/2X1/4 | 1/4 | 6 |
| CM86-1/2X3/8 | 3/8 | 6 |

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM86-9/16 | 3/8 | 6 |
| CM86-5/8 | 1/2 | 6 |
| CM86-11/16 | 1/2 | 6 |
| CM86-3/4 | 1/2 | 6 |
| CM86-13/16 | 1/2 | 6 |
| CM86-7/8 | 1/2 | 6 |
| CM86-1 | 1/2 | 6 |

PROLINE

List No. CM86 continued



| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM86-1-1/8 | 1/2 | 6 | CM86-1-5/16 | 1/2 | 6 |
| CM86-1-3/16 | 1/2 | 6 | CM86-1-3/8 | 1/2 | 6 |
| CM86-1-1/4 | 1/2 | 6 | CM86-1-1/2 | 1/2 | 6 |

PROLINE

12" Rotary Masonry Drills

List No. CM12

Deep Flute / 12" Length / Carbide Tipped



Description: Extra length carbide tipped rotary masonry drills are for use in standard three jaw chuck power tools.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM12-3/16 | 3/16 | 12 | CM12-3/4 | 1/2 | 12 |
| CM12-1/4 | 1/4 | 12 | CM12-7/8 | 1/2 | 12 |
| CM12-5/16 | 5/16 | 12 | CM12-1 | 1/2 | 12 |
| CM12-3/8 | 5/16 | 12 | CM12-1-1/8 | 1/2 | 12 |
| CM12-7/16 | 7/16 | 12 | CM12-1-3/16 | 1/2 | 12 |
| CM12-1/2 | 3/8 | 12 | CM12-1-1/4 | 1/2 | 12 |
| CM12-9/16 | 3/8 | 12 | CM12-1-3/8 | 1/2 | 12 |
| CM12-5/8 | 1/2 | 12 | CM12-1-1/2 | 1/2 | 12 |

PROLINE

18" Rotary Masonry Drills

List No. CM18

Deep Flute / 18" Length / Carbide Tipped



Description: Extra length carbide tipped rotary masonry drills are for use in standard three jaw chuck power tools.

Application: Light to medium hard building materials.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM18-1/4 | 1/4 | 18 | CM18-7/8 | 1/2 | 18 |
| CM18-5/16 | 5/16 | 18 | CM18-1 | 1/2 | 18 |
| CM18-3/8 | 5/16 | 18 | CM18-1-1/8 | 1/2 | 18 |
| CM18-1/2 | 3/8 | 18 | CM18-1-3/16 | 1/2 | 18 |
| CM18-9/16 | 3/8 | 18 | CM18-1-1/4 | 1/2 | 18 |
| CM18-5/8 | 1/2 | 18 | CM18-1-3/8 | 1/2 | 18 |
| CM18-3/4 | 1/2 | 18 | CM18-1-1/2 | 1/2 | 18 |

PROLINE

24" Rotary Masonry Drills

List No. CM24

Deep Flute / 24" Length / Carbide Tipped

Description: Extra length carbide tipped rotary masonry drills are for use in standard three jaw chuck power tools.

Application: Light to medium hard building materials.



| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM24-1/4 | 1/4 | 24 | CM24-7/8 | 1/2 | 24 |
| CM24-5/16 | 5/16 | 24 | CM24-1 | 1/2 | 24 |
| CM24-3/8 | 5/16 | 24 | CM24-1-1/8 | 1/2 | 24 |
| CM24-1/2 | 3/8 | 24 | CM24-1-3/16 | 1/2 | 24 |
| CM24-9/16 | 3/8 | 24 | CM24-1-1/4 | 1/2 | 24 |
| CM24-5/8 | 1/2 | 24 | CM24-1-3/8 | 1/2 | 24 |
| CM24-3/4 | 1/2 | 24 | CM24-1-1/2 | 1/2 | 24 |

PROLINE

Tapcon® Style Bits

List No. TCB

Description: For use with Tapcon style concrete anchors and screws.

Application: Light to medium hard building materials.



| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| TCB-5/32 X 3-1/2 | 5/32 | 3 1/2 | TCB-3/16 X 4-1/2 | 3/16 | 4 1/2 |
| TCB-5/32 X 4-1/2 | 5/32 | 4 1/2 | TCB-3/16 X 5-1/2 | 3/16 | 5 1/2 |
| TCB-5/32 X 5-1/2 | 5/32 | 5 1/2 | TCB-3/16 X 6-1/2 | 3/16 | 6 1/2 |
| TCB-3/16 X 3-1/2 | 3/16 | 3 1/2 | | | |

Note: TAPCON® is a registered trademark of ITW Buildex

PROLINE

Tapcon® Style SDS-Plus Drills

List No. CM95T

Description: Hex under SDS-Plus Shank fits directly into most common concrete screw anchor installation tools.

Application: Light to medium hard building materials.



| EDP No./ Diameter | Shank Diameter | Overall Length |
|--------------------|----------------|----------------|
| CM95T-5/32 X 2 X 5 | 5/32 | 5 |
| CM95T-5/32 X 4 X 7 | 5/32 | 7 |
| CM95T-3/16 X 2 X 5 | 3/16 | 5 |
| CM95T-3/16 X 4 X 7 | 3/16 | 7 |



PROLINE

Multi Purpose BluFlute Bits List No. CM-MPB

Description: Specially designed carbide tip, flute and heat treatment for penetrating a variety of materials. Ideal for cordless drills, corded drills & drill presses

Application: Variety of applications including concrete, stone, plastics, wood and metal. Unique carbide geometry for fast penetration.



| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM-MPB-1/8 | 1/8 | 2-1/2 |
| CM-MPB-5/32 | 5/32 | 2-3/4 |
| CM-MPB-3/16 | 3/16 | 3 |
| CM-MPB-3/16X6 | 3/16 | 6 |
| CM-MPB-1/4 | 1/4 | 4 |
| CM-MPB-1/4X6 | 1/4 | 6 |
| CM-MPB-5/16 | 1/4 | 4 |
| CM-MPB-3/8 | 1/4 | 4 |
| CM-MPB-1/2 | 1/4 | 6 |

APPLICATIONS

- Pipe & electrical mounts
- Machinery mounts
- Door & window frames
- Roofing & brackets



MATERIALS

- Concrete, stone & masonry
- Ceramic Tile & marble
- Brick & granite
- Plastics
- Fiberglass & plexiglass
- Glass
- Wood



CM-MPB are available in cased sets.

PROLINE

Percussion Masonry Drills List No. CM85

Heavy Duty / Straight Shank / Carbide Tipped

Description: For use in rotary percussion tools and in power drills with 3 jaw chucks. Specially heat-treated alloy steel body, combined with tough percussion tips, keep bits sharp longer.

Application: Light to medium hard building materials.



| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM85-3/16X3 | 3/16 | 3 |
| CM85-1/4X4 | 1/4 | 4 |
| CM85-1/4X6 | 1/4 | 6 |
| CM85-7/32X4 | 1/4 | 4 |
| CM85-7/32X6 | 1/4 | 6 |
| CM85-9/32X6 | 1/4 | 6 |
| CM85-5/16X4 | 1/4 | 4 |
| CM85-5/16X6 | 1/4 | 6 |
| CM85-5/16X12 | 1/4 | 12 |
| CM85-3/8X4 | 1/4 | 4 |
| CM85-3/8X6 | 1/4 | 6 |
| CM85-3/8X12 | 3/8 | 12 |
| CM85-7/16X6 | 1/4 | 6 |

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM85-1/2X1/4X6 | 1/4 | 6 |
| CM85-1/2X3/8X6 | 3/8 | 6 |
| CM85-1/2X3/8X12 | 3/8 | 12 |
| CM85-9/16X6 | 1/2 | 6 |
| CM85-5/8X6 | 1/2 | 6 |
| CM85-5/8X12 | 1/2 | 12 |
| CM85-11/16X6 | 1/2 | 6 |
| CM85-3/4X6 | 1/2 | 6 |
| CM85-3/4X12 | 1/2 | 12 |
| CM85-7/8X6 | 1/2 | 6 |
| CM85-1X6 | 1/2 | 6 |

PROLINE

Rotary Rebar Cutters

List No. CM79

1/2" Shank / Carbide Tipped



Description: For drilling through embedded rebar and surrounding concrete. Use in any 1/2" capacity or larger drill motor with a three jaw chuck.

Application: Drill first with a hammer drill bit (1) until reaching rebar. Replace bit with CM79 then penetrate rebar (2). After completion of rebar drilling, complete drilling with hammer bit (3).

| EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|
| CM79-1/2 | 1/2 | 12 |
| CM79-5/8 | 1/2 | 12 |
| CM79-3/4 | 1/2 | 12 |
| CM79-7/8 | 1/2 | 12 |
| CM79-1 | 1/2 | 12 |
| CM79-1-1/8 | 1/2 | 12 |
| CM79-1-1/4 | 1/2 | 12 |
| CM79-1-3/8* | 1/2 | 12 |
| CM79-1-1/2* | 1/2 | 12 |

*2-piece style rebar cutter that includes shank and core drill.

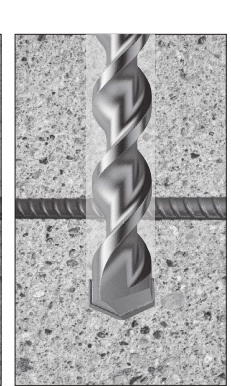
Rebar Step 1



Rebar Step 2



Rebar Step 3



PROLINE

SDS-Plus Rebar Drills

List No. CM79SDS

SDS-Plus Shank / Carbide Tipped

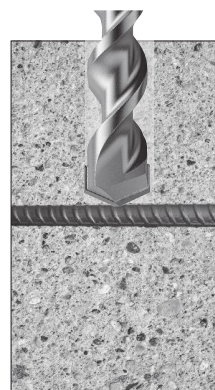


Description: For drilling through embedded rebar and surrounding concrete. Use in any SDS Plus power tool.

Application: Drill first with a hammer drill bit (1) until reaching rebar. Replace bit with CM79SDS then penetrate rebar using rotary only (2). After completion of rebar drilling, complete drilling with hammer bit (3).

| EDP No./ Diameter | Overall Length |
|-------------------|----------------|
| CM79SDS-3/8X8 | 8 |
| CM79SDS-3/8X12 | 12 |
| CM79SDS-7/16 | 12 |
| CM79SDS-1/2 | 12 |
| CM79SDS-9/16 | 12 |
| CM79SDS-5/8 | 12 |
| CM79SDS-11/16 | 12 |
| CM79SDS-3/4 | 12 |
| CM79SDS-13/16 | 12 |
| CM79SDS-7/8 | 12 |
| CM79SDS-1 | 12 |
| CM79SDS-1-1/8 | 12 |

Rebar Step 1



Rebar Step 2



Rebar Step 3



Ensure hammer action is turned off when using CM79SDS on rebar - use rotary action only.

PROLINE SDS Plus Hammer Bits

List No. CM95



List No. CM9



Description: Versatile slot drive system hammer bits fit most rotary hammers. Vacuum brazed with pure copper at 1900°F. Vacuum treated tool body to 50RC. BC20 grade carbide. CM95 has serrated tip geometry, web shaped head and performance flute. CM9 has standard tip and flute geometry.

Application: For use in concrete and hard masonry materials.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM95-5/32X2X4* | 2 | 4 | CM95-3/8X22X24 | 22 | 24 |
| CM95-5/32X4X6†* | 4 | 6 | CM95-7/16X4X6 | 4 | 6 |
| CM95-3/16X2X4†* | 2 | 4 | CM95-7/16X10X12 | 10 | 12 |
| CM95-3/16X4X6†* | 4 | 6 | CM95-1/2X4X6†* | 4 | 6 |
| CM95-3/16X6X8†* | 6 | 8 | CM95-1/2X8X10 | 8 | 10 |
| CM95-3/16X10X12 | 10 | 12 | CM95-1/2X10X12* | 10 | 12 |
| CM95-7/32X4X6† | 4 | 6 | CM95-1/2X16X18 | 16 | 18 |
| CM95-7/32X6X8† | 6 | 8 | CM95-1/2X22X24 | 22 | 24 |
| CM95-7/32X9X11† | 9 | 11 | CM95-9/16X4X6* | 4 | 6 |
| CM95-7/32X12X14 | 12 | 14 | CM95-5/8X6X8†* | 6 | 8 |
| CM95-7/32X14X16 | 14 | 16 | CM95-5/8X10X12* | 10 | 12 |
| CM95-1/4X2X4†* | 2 | 4 | CM95-5/8X16X18 | 16 | 18 |
| CM95-1/4X4X6†* | 4 | 6 | CM95-5/8X22X24 | 22 | 24 |
| CM95-1/4X6X8* | 6 | 8 | CM95-11/16X6X8 | 6 | 8 |
| CM95-1/4X9X11 | 9 | 11 | CM95-3/4X6X8* | 6 | 8 |
| CM95-1/4X12X14 | 12 | 14 | CM95-3/4X10X12* | 10 | 12 |
| CM95-1/4X14X16 | 14 | 16 | CM95-3/4X16x18 | 16 | 18 |
| CM95-5/16X4X6†* | 4 | 6 | CM95-3/4X22x24 | 22 | 24 |
| CM95-5/16X10X12 | 10 | 12 | CM95-7/8X6X8* | 6 | 8 |
| CM95-3/8X4X6†* | 4 | 6 | CM95-7/8X10X12* | 10 | 12 |
| CM95-3/8X8X10 | 8 | 10 | CM95-1X8X10* | 8 | 10 |
| CM95-3/8X10X12* | 10 | 12 | CM95-1X16X18 | 16 | 18 |
| CM95-3/8X16X18 | 16 | 18 | | | |

CM95 ATTRIBUTES

- Made in Germany - world renowned quality
- Serrated tip geometry for faster concrete removal (1)
- Web shaped head for improved dust release to flute (2)
- Performance flute - enhanced dust removal / increased speed and direct energy transfer (3)
- Wear mark indicator prompts user to change bit
- 35% increase in rebar chamfer size improves durability in the event of contact with rebar
- Balance of tip and flute geometry ensure perfectly round holes giving superior anchoring



† Available in 25 piece bulk pack. Specify CM95B.
* Available in CM9 - Please specify when ordering

MAIN USES

- Highway rails
- HVAC mounts
- Structural supports
- Machinery mounts
- Pipe mounts
- Door & window frames
- Electrical mounts
- Roofing
- Bridge construction
- Brackets

MATERIALS

- Concrete & stone
- Masonry
- Grout filled block
- Hollow block
- Solid brick
- Hollow brick
- Cement board
- Granite

PROLINE

SDS Plus Hammer Bits

List No. CM95X

Solid Tip Cross-Head



Description: Features a solid tip cross head design with centering tips for strength and easy start up.

Application: For use in concrete and hard masonry materials. Solid tipped cross head for rebar cutting.

| EDP No./ Diameter | Usable Length | Overall Length | EDP No./ Diameter | Usable Length | Overall Length |
|-------------------|---------------|----------------|---------------------|---------------|----------------|
| CM95X-5/32X2X4* | 2 | 4 | CM95X-3/8X16X18** | 16 | 18 |
| CM95X-5/32X4X6* | 4 | 6 | CM95X-7/16X4X6** | 4 | 6 |
| CM95X-3/16X2X4* | 2 | 4 | CM95X-7/16X10X12** | 10 | 12 |
| CM95X-3/16X4X6* | 4 | 6 | CM95X-7/16X16X18** | 16 | 18 |
| CM95X-3/16X6X8* | 6 | 8 | CM95X-1/2X4X6** | 4 | 6 |
| CM95X-3/16X8X10* | 8 | 10 | CM95X-1/2X10X12** | 10 | 12 |
| CM95X-3/16X10X12* | 10 | 12 | CM95X-1/2X16X18** | 16 | 18 |
| CM95X-1/4X2X4* | 2 | 4 | CM95X-9/16X4X6** | 4 | 6 |
| CM95X-1/4X4X6* | 4 | 6 | CM95X-9/16X10X12** | 10 | 12 |
| CM95X-1/4X6X8* | 19 | 21 | CM95X-9/16X16X18** | 16 | 18 |
| CM95X-1/4X8X10* | 8 | 10 | CM95X-5/8X6X8** | 6 | 8 |
| CM95X-1/4X10X12* | 10 | 12 | CM95X-5/8X10X12** | 10 | 12 |
| CM95X-5/16X4X6* | 4 | 6 | CM95X-5/8X16X18** | 16 | 18 |
| CM95X-5/16X10X12* | 10 | 12 | CM95X-3/4X8X10** | 8 | 10 |
| CM95X-5/16X16X18* | 16 | 18 | CM95X-3/4X16X18** | 16 | 18 |
| CM95X-3/8X4X6** | 4 | 6 | CM95X-7/8X16X18** | 16 | 18 |
| CM95X-3/8X10X12** | 10 | 12 | CM95X-1X16X18** | 16 | 18 |
| | | | CM95X-1-1/4X16X18** | 16 | 18 |

* Popular sizes available in bulk packs

CM95 ATTRIBUTES

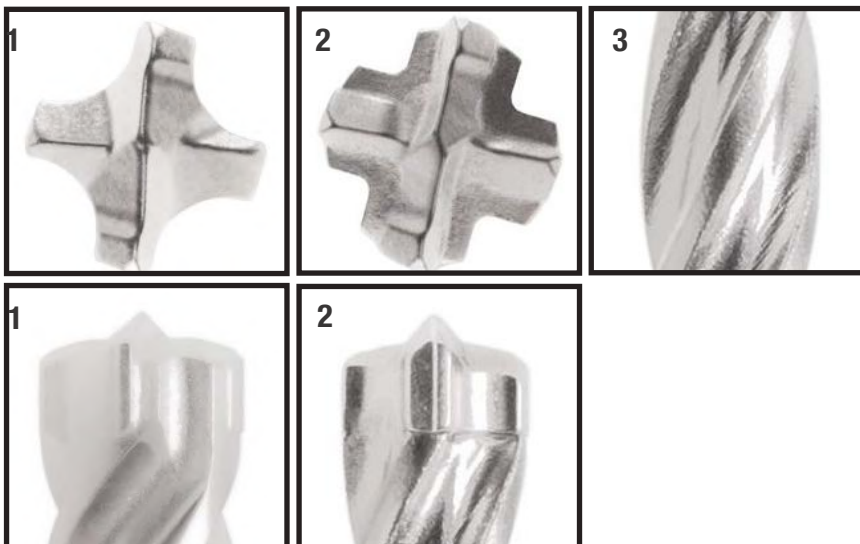
- Made in Germany - world renowned quality
- 2 high performance head styles dependent on diameter -
4 cutter welded solid tip inserts - 5/32" to 5/16" * (1)
4 cutter brazed solid tip inserts - 7/16" to 5/8" ** (2)
- Modern heat treat and brazing processes
- Serrated tip geometry for faster concrete removal and pulverisation of rebar
- Performance flute with 4 fluted high helix geometry that gives maximum durability and energy transfer (3)
- Wear mark indicator prompts user to change bit
- 35% increase in rebar chamfer size improves durability in the event of contact with rebar

MAIN USES

- Highway rails
- HVAC mounts
- Structural supports
- Machinery mounts
- Pipe mounts
- Door & window frames
- Electrical mounts
- Roofing
- Bridge construction
- Brackets

MATERIALS

- Concrete & stone
- Masonry
- Grout filled block
- Hollow block
- Solid brick
- Hollow brick
- Cement board
- Granite



PROLINE

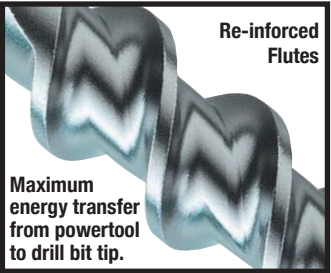
SDS-Max Hammer Bits

List No. CM96

4 Cutter Cross-Head

Description: Innovative 4-Cutter cross head design SDS Max hammer bits. Unique carbide geometry and centering tips for easy start up and drilling.

Application: For use in concrete and hard masonry materials. Ideal for pipe, electrical, cable and wiring clearances. Also ceiling & wall cavities. For use in SDS Max rotary hammers.



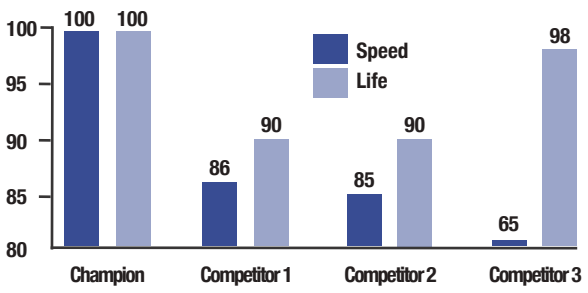
- Made in Germany - world renowned for quality of product
- Unique carbide geometry & centering tips - fast start up and drilling
- Modern heat-treat and brazing processes ensuring proper combination of product hardness, toughness and durability resulting in maximum life
- BC20 grade of carbide - designed specifically for relevant materials
- Dynamic tip geometry enhances hole roundness and rebar cutting
- 4 Cutter head from Champion cuts faster and lasts longer
- Centering point for improved positioning
- Shortened conical shaped dust tracks for fast debris removal
- Patented, reinforced core and special flute for maximum energy transfer and reduced vibrations

| EDP No./ Diameter | Usable Length | Overall Length |
|-------------------|---------------|----------------|
| CM96-3/8X8X13* | 8 | 13 |
| CM96-1/2X8X13* | 8 | 13 |
| CM96-1/2X16X21* | 16 | 21 |
| CM96-9/16X8X13* | 8 | 13 |
| CM96-9/16X16X21* | 16 | 21 |
| CM96-5/8X8X13 | 8 | 13 |
| CM96-5/8X16X21 | 16 | 21 |
| CM96-5/8X31X36 | 31 | 36 |
| CM96-11/16X16X21 | 16 | 21 |
| CM96-3/4X8X13 | 8 | 13 |
| CM96-3/4X17X21 | 17 | 21 |
| CM96-3/4X31X36 | 31 | 36 |
| CM96-7/8X8X13 | 8 | 13 |
| CM96-7/8X17X21 | 17 | 21 |
| CM96-7/8X31X36 | 31 | 36 |
| CM96-1X8X13 | 8 | 13 |
| CM96-1X17X21 | 17 | 21 |
| CM96-1X31X36 | 31 | 36 |
| CM96-1-1/8X10X15 | 10 | 15 |
| CM96-1-1/8X12X17 | 12 | 17 |
| CM96-1-1/8X17X21 | 17 | 21 |
| CM96-1-1/4X10X15 | 10 | 15 |
| CM96-1-1/4X18X23 | 18 | 23 |
| CM96-1-3/8X18X23 | 18 | 23 |
| CM96-1-1/2X18X23 | 18 | 23 |
| CM96-1-9/16X18X23 | 18 | 23 |
| CM96-1-5/8X18X23 | 18 | 23 |
| CM96-1-3/4X18X23 | 18 | 23 |
| CM96-2X18X23 | 18 | 23 |

* 2 Cutter Heads

SDS-Max Bit - 1x21 (CM96)

MACHINE - MAKITA HR4500 / MATERIAL - Concrete C45/55
RPM - 240 min-1 / PRESSURE - 200-250 N / DRILLING DEPTH - 7 inch



PROLINE

Spline Shank Hammer Bits

List No. CM97

Single Point



Description: Single point, carbide tipped, splines held to very close tolerances assure perfect fit and improve impact transmission for faster drilling. Vacuum brazed with pure copper at 1900.

Application: For use in concrete and hard masonry materials.

| EDP No./ Diameter | Usable Length | Overall Length | EDP No./ Diameter | Usable Length | Overall Length |
|-------------------|---------------|----------------|-------------------|---------------|----------------|
| CM97-3/8X3X8 | 3 | 8 | CM97-3/4X11X16 | 11 | 16 |
| CM97-3/8X5X10 | 5 | 10 | CM97-3/4X17X22 | 17 | 22 |
| CM97-3/8X8X13 | 8 | 13 | CM97-3/4X24X29 | 24 | 29 |
| CM97-3/8X11X16 | 11 | 16 | CM97-3/4X31X36 | 31 | 36 |
| CM97-7/16X8X13 | 8 | 13 | CM97-7/8X11X16 | 11 | 16 |
| CM97-1/2X5X10 | 5 | 10 | CM97-7/8X17X22 | 17 | 22 |
| CM97-1/2X8X13 | 8 | 13 | CM97-7/8X31X36 | 31 | 36 |
| CM97-1/2X11X16 | 11 | 16 | CM97-1X11X16 | 11 | 16 |
| CM97-1/2X17X22 | 17 | 22 | CM97-1X17X22 | 17 | 22 |
| CM97-1/2X24X29 | 24 | 29 | CM97-1X31X36 | 31 | 36 |
| CM97-1/2X31X36 | 31 | 36 | CM97-1-1/8X11X16 | 11 | 16 |
| CM97-9/16X5X10 | 5 | 10 | CM97-1-1/8X17X22 | 17 | 22 |
| CM97-9/16X8X13 | 8 | 13 | CM97-1-1/4X11X16 | 11 | 16 |
| CM97-5/8X5X10 | 5 | 10 | CM97-1-1/4X17X22 | 17 | 22 |
| CM97-5/8X8X13 | 8 | 13 | CM97-1-1/4X31X36 | 31 | 36 |
| CM97-5/8X11X16 | 11 | 16 | CM97-1-3/8X11X16 | 11 | 16 |
| CM97-5/8X17X22 | 17 | 22 | CM97-1-3/8X17X22 | 17 | 22 |
| CM97-5/8X24X29 | 24 | 29 | CM97-1-1/2X11X16 | 11 | 16 |
| CM97-5/8X31X36 | 31 | 36 | CM97-1-1/2X17X22 | 17 | 22 |
| CM97-11/16X8X13 | 8 | 13 | CM97-1-3/4X17X22 | 17 | 22 |
| CM97-3/4X5X10 | 5 | 10 | CM97-2X17X22 | 17 | 22 |

PROLINE

Spline Shank Hammer Bits

List No. CM98

Quad Point



Description: Spline shanks held to very close tolerances assure perfect fit and improve impact transmission for faster drilling. Vacuum brazed with pure copper at 1900°F. Vacuum heat treated tool body to 50RC. HL20 grade carbide.

Application: For use in concrete and hard masonry materials.

| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| CM98-5/8X5X10 | 5 | 10 | CM98-1-1/8X11X16 | 11 | 16 |
| CM98-5/8X11X16 | 11 | 16 | CM98-1-1/8X17X22 | 17 | 22 |
| CM98-5/8X17X22 | 17 | 22 | CM98-1-1/4X11X16 | 11 | 16 |
| CM98-5/8X24X29 | 24 | 29 | CM98-1-1/4X17X22 | 17 | 22 |
| CM98-5/8X31X36 | 31 | 36 | CM98-1-3/8X11X16 | 11 | 16 |
| CM98-3/4X5X10 | 5 | 10 | CM98-1-3/8X17X22 | 17 | 22 |
| CM98-3/4X11x16 | 11 | 16 | CM98-1-1/2X17X22 | 17 | 22 |
| CM98-3/4X17X22 | 17 | 22 | CM98-1-3/4X18X23 | 18 | 23 |
| CM98-3/4X24X29 | 24 | 29 | CM98-2X18X23 | 18 | 23 |
| CM98-3/4X31X36 | 31 | 36 | | | |
| CM98-7/8X11X16 | 11 | 16 | | | |
| CM98-7/8X17X22 | 17 | 22 | | | |
| CM98-1X11X16 | 11 | 16 | | | |
| CM98-1X18X23 | 18 | 23 | | | |
| CM98-1X31X36 | 31 | 36 | | | |

Quad Point Advantages:

- 50% improved bit life • Rounder, more accurate holes
- 60% less vibration • 30% less noise
- Resists rebar hits • Extends hammer life
- Less operator fatigueng

PROLINE

Hammer Bit Quick Change Adaptors



Description/Application: Quickly and easily adapt spline and SDS-Max drive roto-hammer power tools to use standard SDS-Plus hammer bits.

| EDP No. | Description |
|---------------|---------------------------------------|
| CM96-SDS-PLUS | SDS-Max to SDS-Plus Power Bit Adaptor |
| CM97-SDS-PLUS | Spline to SDS-Plus Power Bit Adaptor |

PROLINE

SDS-Plus Stop Bits

List No. CM95-STOP

SDS-Plus Shank / Centering Point / Collar Stop



Description: Designed to work with the most popular sizes of drop-in anchors. Provides controlled drilling depth in masonry and concrete. Flute extends all the way to collar-stop. Centering tip for easy start up.

Application: Versatile tool in masonry applications; installing cable trays and struts, suspending conduit in electrical and air systems, pipe support and suspended lighting and much more.

| EDP No./ Diameter | Anchor Specification |
|-----------------------|-----------------------------|
| CM95-STOP-3/8X1-1/16 | 1/4" Drop in Anchor |
| CM95-STOP-1/2X13/16 | 3/8" Drop in Anchor - Short |
| CM95-STOP-1/2X1-11/16 | 3/8" Drop in Anchor |
| CM95-STOP-5/8X1-1/16 | 1/2" Drop in Anchor - Short |
| CM95-STOP-5/8X2-1/16 | 1/2" Drop in Anchor |

- Large diameter stop collar / ring avoids over penetration into concrete
- Flute extends all the way to an undercut stop ring enhancing dust extraction
- Centering tip for quicker spot drilling
- Carbide tip SDS Plus Shank

PROLINE

Hammer Core Bits

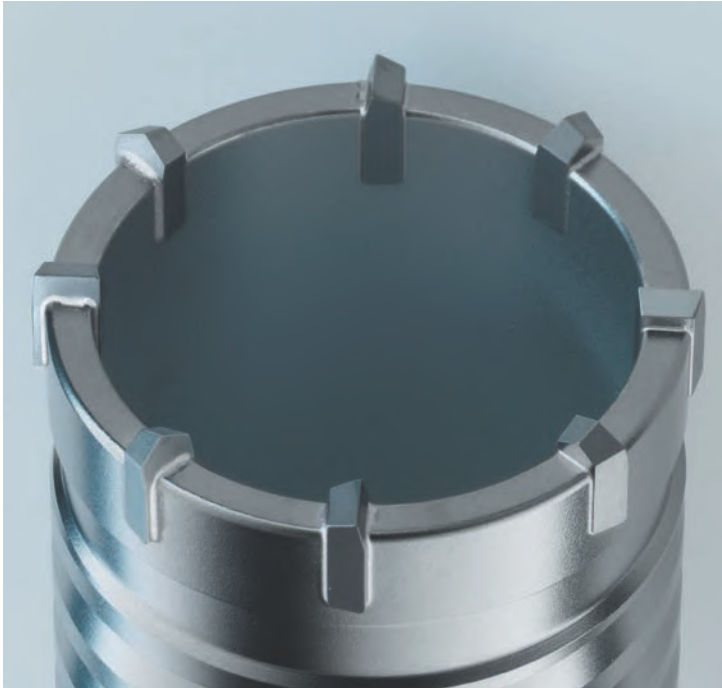
List No. CM89HC

Carbide Tipped / Heavy Wall / Heat Treated Tool Steel



Description: Produce holes significantly larger than the rated power drive. Cutting the circumference of the hole leaves the center as a solid, so concrete removal is reduced for large size holes.

Application: Light to medium hard building materials.



- Used in rotary hammers operating in the rotary hammer mode.
- Core bodies are machined from one single piece of steel.
- Cutting tips are put in at irregular intervals to avoid setting up a sympathetic vibration when producing the hole.
- Each tooth presents itself to a random & new section of concrete as opposed to the piece previously hit by another tooth.

| EDP No./ Diameter | Usable Length | Core Tolerance |
|-------------------|---------------|----------------|
| CM89HC-1-3/4 | 4 | 1.61-1.55 |
| CM89HC-2 | 4 | 2.08-2.03 |
| CM89HC-2-5/8 | 4 | 2.63-2.58 |
| CM89HC-3-1/8 | 4 | 3.19-3.13 |
| CM89HC-3-1/2 | 4 | 3.58-3.52 |
| CM89HC-4 | 4 | 4.13-4.07 |
| CM89HC-5 | 4 | 5.12-5.06 |

- Multiple teeth assure faster cutting and debris evacuation from cutting path.
- Teeth set with negative and positive rake to cut concrete and screening.
- Tooth edges faced to act as secondary cutter area to reduce snagging.
- Centering bit is recommended for best results.



Shank Adaptors & Extension for Core Drills

| EDP No. | Description | Overall Length |
|----------|-------------------------------|----------------|
| CM96-HC7 | SDS Max Adaptor | 7 |
| CM97-HC7 | Spline Adaptor | 7 |
| HC11-EXT | 4 Extension for Core Adaptors | 11 |

| Bit Size | Pipe Sizes /Types |
|----------|---|
| 1-3/4 | 1-1/4" Cu, EMT, 1" Rigid, IMC Sched. 40 |
| 2 | 1-1/2" Cu, EMT, Rigid, IMC Sched. 40 |
| 2-5/8 | 2" Cu, EMT, Rigid, IMC Sched. 40 |
| 3 | 2-1/2" Cu, EMT Rigid, IMC Sched. 40 |
| 3-1/8 | 3" Cu, EMT, Rigid, IMC Sched. 40 |
| 4 | 3-1/2" Cu, EMT Rigid, IMC Sched. 40 |
| 5 | 4" Cu, EMT, Rigid, IMC Sched. 40 |

Pilot Drills

Pilot / Center Bit for Core Drills



| EDP No. | Description | Overall Length |
|--------------|-----------------------------|----------------|
| CM89HC-DRILL | 15/32 Pilot / Centering Bit | 6 |
| CM89HC-TS | Threaded Shank Stud | |

PROLINE Hammer Chisels

Demolition tools engineered for high performance masonry removal in electric power tools. These tools are used in a broad range of applications including road construction, pavement work, bridge construction, utility installation, demolition and a variety of maintenance functions.

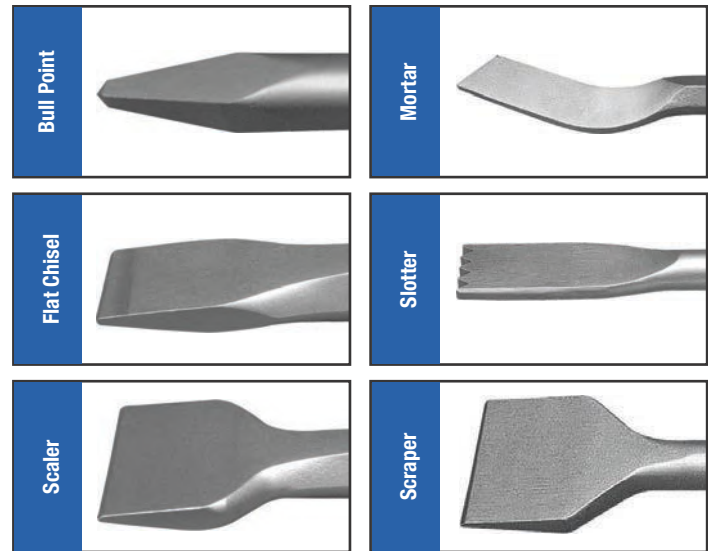


HEAD STYLES

- Bull (moil) Point:** General concrete demolition.
- Flat Chisels:** General concrete demolition. Available in narrow (1") & wide (2", 3") versions for cutting pavement overlay.
- Clay Spade:** Clay and other rock-free soil cutting.
- Asphalt Cutter:** Asphalt, hardpan and compacted soil cutting.
- Bushing Tool:** Roughing up or concrete surface removal.
- Ground Rod Driver:** Installing ground rods, parking bumper stakes, etc.,
- Scaler:** Splitting, chipping, removing accumulated material and erosion, pointing
- Slotter:** Slotting and cutting web, between drilled holes in concrete to make larger openings
- Mortar:** Removing old mortar between bricks before tuck pointing or caulking. They can also be used to cut narrow channels or to remove bricks in wall for installing insulation

SHANK TYPES

- CM96 SDS Max-Chisels:** For large rotary hammers with SDS-Max drive.
- CM97 Spline Shank Chisels:** For large rotary hammers with spline drive.
- CM90 1-1/8" Breaker Chisels:** For electric breakers requiring 1-1/8" notched shanks.
- CM95 SDS-Plus Chisels:** For SDS-Plus Hammer Drills.
- CM91 3/4" Hex Shank Chisels:** For demolition hammers which use 3/4" accessories



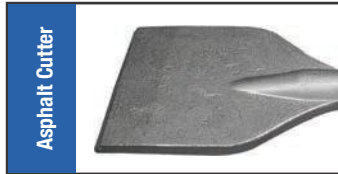
List No. CM96 SDS-Max Chisels

| EDP No. | Chisel Dimension | Qty |
|----------|------------------------------|--------|
| CM96-01 | Bull Point 11" | Each |
| CM96B-01 | Bull Point 11" | Box/20 |
| CM96-02 | Bull Point 12" | Each |
| CM96B-02 | Bull Point 12" | Box/20 |
| CM96-03 | Bull Point 16" | Each |
| CM96B-03 | Bull Point 16" | Box/20 |
| CM96-04 | Bull Point 18" | Each |
| CM96B-04 | Bull Point 18" | Box/20 |
| CM96-05 | Flat Chisel 1" x 11" | Each |
| CM96B-05 | Flat Chisel 1" x 11" | Box/20 |
| CM96-06 | Flat Chisel 1" x 12" | Each |
| CM96B-06 | Flat Chisel 1" x 12" | Box/20 |
| CM96-07 | Flat Chisel 1" x 16" | Each |
| CM96B-07 | Flat Chisel 1" x 16" | Box/20 |
| CM96-08 | Flat Chisel 1" x 18" | Each |
| CM96B-08 | Flat Chisel 1" x 18" | Box/20 |
| CM96-09 | Flat Chisel 1" x 24" | Each |
| CM96-10 | Scaler 1-5/8" x 12" | Each |
| CM96-11 | Scaler 2" x 12" | Each |
| CM96-12 | Scaler 3" x 12" | Each |
| CM96-13 | Mortar 1-1/8" x 12" | Each |
| CM96-14 | Slotter 1-1/4" x 12" | Each |
| CM96-15 | Scraper 2" x 12" | Each |
| CM96-16 | Gouge 1" x 12" | Each |
| CM96-17 | Ground Rod Driver 3/4" x 10" | Each |
| CM96-18 | Bushing Tool 1-3/4" x 10" | Each |
| CM96-19 | Bushing Shank 16** | Each |
| CM96-20 | Bushing Head 16 Teeth | Each |
| CM96-21 | Asphalt Cutter 5" x 20" | Each |
| CM96-22 | Clay Spade | Each |

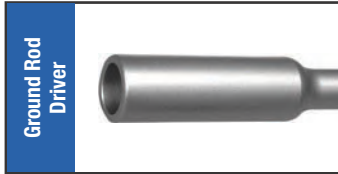
Proline™ chisels are oil quenched and shot blasted for additional stress relief and anti-rust lacquered in natural finish. Laser marked shanks ensure positive identification.



Gouge



Asphalt Cutter



Ground Rod Driver



Clay Spade



Bushing Tool



Floor Scraper

List No. CM97

Spline Shank Chisel

| EDP No. | Chisel Dimension | Qty |
|----------|------------------------------|--------|
| CM97-01 | Bull Point 12" | Each |
| CM97B-01 | Bull Point 12" | Box/20 |
| CM97-02 | Bull Point 16" | Each |
| CM97B-02 | Bull Point 16" | Box/20 |
| CM97-03 | Bull Point 18" | Each |
| CM97B-03 | Bull Point 18" | Box/20 |
| CM97-04 | Flat Chisel 1" x 12" | Each |
| CM97B-04 | Flat Chisel 1" x 12" | Box/20 |
| CM97-05 | Flat Chisel 1" x 16" | Each |
| CM97B-05 | Flat Chisel 1" x 16" | Box/20 |
| CM97-06 | Flat Chisel 1" x 18" | Each |
| CM97B-06 | Flat Chisel 1" x 18" | Box/20 |
| CM97-07 | Slotter 1-1/4" x 12" | Each |
| CM97-08 | Clay Spade 4-1/2" x 20" | Each |
| CM97-09 | Scaler 1-5/8" x 12" | Each |
| CM97-10 | Scaler 2" x 12" | Each |
| CM97-11 | Scaler 3" x 12" | Each |
| CM97-12 | Scraper 2" x 12" | Each |
| CM97-13 | Ground Rod Driver 3/4" x 10" | Each |
| CM97-14 | Bushing Tool 1-3/4" x 10" | Each |
| CM97-15* | Bushing Shank 16" | Each |
| CM97-16 | Mortar 1-1/8" x 12" | Each |

List No. CM90 1-1/8" Breaker Chisels

| EDP No. | Chisel Dimension | Qty |
|---------|--------------------------|------|
| CM90-01 | Bull Point 20" | Each |
| CM90-02 | Flat Chisel 1-3/8" x 20" | Each |
| CM90-03 | Scaler 3" x 12" | Each |
| CM90-04 | Asphalt Cutter 5" x 20" | Each |

List No. CM95

SDS-Plus Chisels

| EDP No. | Chisel Dimension | Qty |
|---------|------------------------|------|
| CM95-01 | Bull Point 10" | Each |
| CM95-02 | Flat Chisel 3/4" x 10" | Each |
| CM95-03 | Scaler 1-5/8" x 10" | Each |

List No. CM91

3/4" Hex Demolition Chisels

| EDP No. | Chisel Dimension | Qty |
|---------|------------------------------|------|
| CM91-01 | Bull Point 12" | Each |
| CM91-02 | Bull Point 16" | Each |
| CM91-03 | Bull Point 18" | Each |
| CM91-04 | Flat Chisel 1" x 12" | Each |
| CM91-05 | Flat Chisel 1" x 16" | Each |
| CM91-06 | Flat Chisel 1" x 18" | Each |
| CM91-07 | Ground Rod Driver 3/4" x 10" | Each |
| CM91-08 | Scraper 2" x 12" | Each |
| CM91-09 | Scraper 3" x 12" | Each |
| CM91-10 | Scaler 3" x 12" | Each |
| CM91-11 | Bushing Tool 1-3/4" x 10" | Each |
| CM91-12 | Asphalt Cutter 5" x 20" | Each |
| CM91-13 | Clay Spade 4-1/2" x 20" | Each |
| CM91-14 | Bushing Shank 16"* | Each |

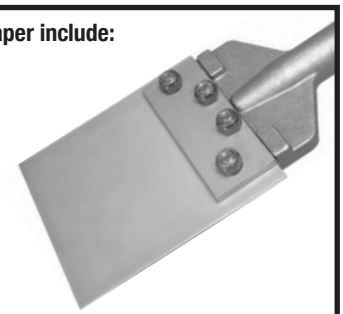
List No. CM99 Floor Scraper & Accessories

| EDP No. | Chisel Dimension | Qty |
|--------------|-----------------------------------|------|
| CM99-01* | Scraper Complete 2.0mm | Each |
| CM99-03* | Repair Kit (18Pc) Floor Scraper | Each |
| CM99-14 | Floor Scraper & 3/4 Hex Shank 16" | Each |
| CM99-15 | Floor Scraper & Spline Shank 16" | Each |
| CM99-19 | Floor Scraper & SDS-Max Shank 16" | Each |
| CM99-02-M12* | Floor Scraper Replacement Blade | Each |
| CM99-03-M12* | Repair Kit (18pc) Floor Scraper | Each |

* Shank not included

Common uses for floor scraper include:

- Ceramic tile removal
- Thinset removal
- Carpet adhesive removal
- VCT removal
- Wood floor removal
- Vinyl floor removal
- Epoxy floor removal
- Mastic removal
- Tile adhesive removal



PROLINE

Porcelain Tile Carbide Drills

List No. PTC
P100 Grade Carbide

Description: Carbide tipped, professional porcelain tile drill. Specially ground tip, enables immediate penetration and stops drill wandering on tile.

Application: For Class 5, the toughest industrial and residential wall and floor tile. Also works effectively on granite, marble and glass. A constant flow of water must be used.



| EDP No./ Diameter | Overall Length | Shank Diameter |
|-------------------|----------------|----------------|
| PTC-3/16 | 5-3/4 | 3/8 |
| PTC-1/4 | 5-3/4 | 3/8 |
| PTC-9/32 | 5-3/4 | 3/8 |
| PTC-5/16 | 5-3/4 | 3/8 |



Easy Start Up & Rapid Penetration



Accurate Holes

PROLINE

Diamond Mini Hole Cutters

List No. PTC3
Vacuum Brazed / Drill Dry or Wet / Auto Slug Ejection

Description: The ultimate range of diamond grit porcelain tile drill. Vacuum brazed for high performance. Hardened steel body gives strength. Auto slug removal with the ability to drill dry or wet.

Application: Ideal for porcelain tiles (including Grade 5+), granite, marble, slate, glass, travertine, fiber, ceramic, agglomerate/cement, quarry and terracota.



| EDP No./ Diameter | Application |
|-------------------|---------------|
| PTC3-3/16 | Wall anchors |
| PTC3-1/4 | Wall anchors |
| PTC3-5/16 | Wall anchors |
| PTC3-3/8 | Wall anchors |
| PTC3-1/2 | Through holes |
| PTC3-5/8 | Through holes |
| PTC3-3/4 | Through holes |
| PTC3-1 | Through holes |
| PTC3-1-3/8 | Through holes |

The ultimate range of diamond grit hole cutters for drilling porcelain tiles (including grade 5+), granite, marble, slate, glass, travertine, fiber, ceramic, agglomerate/cement, quarry and terracota.



- Superior grade vacuum brazed diamond - high performance wet or dry drilling
- Drill Dry after a single dip in any fluid prior to starting any hole
- Drill Wet with a constant flow of water to extend life
- Auto slug ejection - to aid repeat drilling
- Tough alloy body - Zero distortion when applying pressure
- 3 Flatted shank - for superior grip, ideal for use in cordless drills



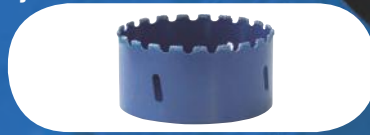
PROLINE

Diamond Multi Purpose Cutters

List No. PTC4
Vacuum Brazed Diamond Tips / Thin Walled Ejection Slots

Description: Vacuum brazed diamond tip for fast penetration and long tool life. Thin wall construction for rapid penetration and removal of chips.

Application: Non-ferrous materials including hard tile, granite, travertine, marble, plastics, cement board, fiberglass, decking, laminates, brick, paving, thin sheet metal, aluminum and more. Use wet, dry or lubricated.



| EDP No./Diameter |
|------------------|
| PTC4-3/4 |
| PTC4-7/8 |
| PTC4-1 |
| PTC4-1-1/8 |
| PTC4-1-1/4 |
| PTC4-1-3/8 |
| PTC4-1-1/2 |
| PTC4-1-3/4 |
| PTC4-2 |
| PTC4-2-1/4 |
| PTC4-2-1/2 |
| PTC4-3 |
| PTC4-3-1/4 |
| PTC4-3-11/32 |
| PTC4-3-1/2 |
| PTC4-4 |

Vacuum brazed diamond tips

- Latest brazing technology gives high strength bond between body and diamond.
- Able to resist excessive heat generated when drilling hard materials.
- Longevity of use and consistent, fast penetration.

Thin wall design and diamond tip design

- Thin walled body enables rapid penetration and reduction of heat build up during cutting action.

Ejection Slots

- Multiple ejection slots for waste material clearance ease of material slugs removal.



Drilling Wet
Porcelain and quarry tiles, ceramic tiles, class 5 tiles, granite, travertine, marble, reinforced glass and cement, stone and sheetrock.



Dry Drilling
Glass, polymers, fibreglass, decking, plywood, mdf, plastics, laminates, acrylic, brick & paving.



Drilling With Lubrication
Thin sheet metal, virton and aluminum.

PROLINE

Diamond Multi Purpose Cutter Arbors

List No. PTC4-ARBOR

Description: Arbors for use with PTC4 multi purpose cutters and holesaws.

Application: Only use pilot with woods and plastics, do not use on metals or tiles.



| EDP No./ Diameter | Overall Length |
|-------------------|--|
| PTC4-ARBOR-1 | Hex shank arbor for sizes 3/4 thru 1-1/8 |
| PTC4-ARBOR-2 | Hex shank arbor for sizes 1-1/4 thru 4 |
| PTC4-ARBOR-SDS-1 | SDS shank arbor for sizes 3/4 thru 1-1/8 |
| PTC4-ARBOR-SDS-2 | SDS shank arbor for sizes 1-1/4 thru 4 |
| PTC4-PILOT | Pilot drill for PTC4 arbors |



PROLINE

Bellhanger Drills

List No. 8048

12", 18", 24" & 30" Lengths

Description: Slow spiral wood bits with small hole near the point for attaching fishing wire to be pulled back through the hole.

Application: Used by telephone, burglar alarm and cable TV installers for the drilling of wire feed holes.



| EDP No./ Diameter | Overall Length | EDP No./ Diameter | Overall Length |
|-------------------|----------------|-------------------|----------------|
| 8048-1/4x12 | 12 | 8048-3/8x30 | 30 |
| 8048-1/4x18 | 18 | 8048-7/16x12 | 12 |
| 8048-1/4x24 | 24 | 8048-7/16x18 | 18 |
| 8048-1/4x30 | 30 | 8048-1/2x12 | 12 |
| 8048-5/16x12 | 12 | 8048-1/2x18 | 18 |
| 8048-5/16x18 | 18 | 8048-1/2x24 | 24 |
| 8048-5/16x24 | 24 | 8048-9/16x18 | 18 |
| 8048-3/8x12 | 12 | 8048-5/8x18 | 18 |
| 8048-3/8x18 | 18 | 8048-11/16x18 | 18 |
| 8048-3/8x24 | 24 | 8048-3/4x18 | 18 |

PROLINE

Auger Extensions

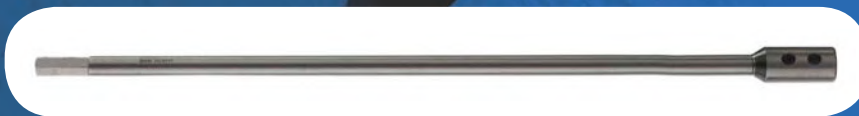
List No. 8700 1/2" Shank fits 7/16" Shank Augers

List No. 8800 3/8" Shank fits 5/16" Shank Augers

Description: Adaptor which extends the reach of auger drills.

Hex shank for use in any rotary tool with a 3-jaw chuck.

Use with 8800 extension except where noted*.



| EDP No./ Diameter | Length | Shank Diameter | EDP No./ Diameter | Length | Shank Diameter |
|-------------------|--------|----------------|-------------------|--------|----------------|
| 8700-12 | 12 | 1/2 | 8800-18 | 18 | 3/8 |
| 8700-18 | 18 | 1/2 | 8800-24 | 24 | 3/8 |
| 8700-24 | 24 | 1/2 | | | |

PROLINE

17" Auger Drills

List No. 8018

Auger / Single Flute / 5/16" & 7/16" Shank

Description: Power ship augers designed with a single cutting edge and side lip.

Application: Designed to withstand heavy duty use found in construction applications. Hex shank for use in any rotary tool with a 3-jaw chuck. Use with 8700 extension except where noted *(Use 8800 extension).



| EDP No./ Diameter | Shank Diameter | FLute Length | Overall Length | EDP No./ Diameter | Shank Diameter | Flute Length | Overall Length |
|-------------------|----------------|--------------|----------------|-------------------|----------------|--------------|----------------|
| 8018-3/8* | 12 | 11 | 17 | 8018-7/8** | 12 | 11 | 17 |
| 8018-7/16* | 12 | 11 | 17 | 8018-15/16** | 12 | 11 | 17 |
| 8018-1/2* | 12 | 11 | 17 | 8018-1** | 12 | 11 | 17 |
| 8018-9/16** | 12 | 11 | 17 | 8018-1-1/16** | 12 | 11 | 17 |
| 8018-5/8** | 12 | 11 | 17 | 8018-1-1/8** | 12 | 11 | 17 |
| 8018-11/16** | 12 | 11 | 17 | 8018-1-1/4** | 12 | 11 | 17 |
| 8018-3/4** | 12 | 11 | 17 | 8018-1-3/8** | 12 | 11 | 17 |
| 8018-13/16** | 12 | 11 | 17 | 8018-1-1/2** | 12 | 11 | 17 |

* 5/16 Shank ** 7/16 Shank

PROLINE

Auger Bits

List No. 8606

Single Flute / Heavy Duty / 1/2" Shank

Description: Single flute auger drills for general purpose boring.

Application: Most types of wood.



| EDP No./ Diameter | Flute Length | Overall Length | EDP No./ Diameter | Flute Length | Overall Length |
|-------------------|--------------|----------------|-------------------|--------------|----------------|
| 8606-1/2 | 4 | 6 | 8606-15/16 | 4 | 6 |
| 8606-9/16 | 4 | 6 | 8606-1 | 4 | 6 |
| 8606-5/8 | 4 | 6 | 8606-1-1/8 | 4 | 6 |
| 8606-11/16 | 4 | 6 | 8606-1-1/4 | 4 | 6 |
| 8606-3/4 | 4 | 6 | 8606-1-3/8 | 4 | 6 |
| 8606-13/16 | 4 | 6 | 8606-1-1/2 | 4 | 6 |
| 8606-7/8 | 4 | 6 | | | |



PROLINE

Wood Boring Bits

List No. 8001

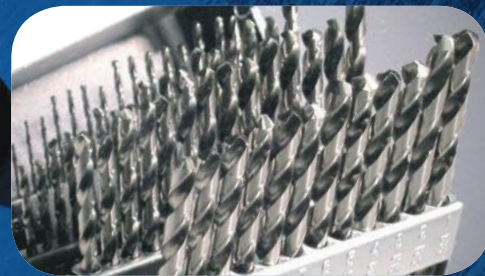
Spade Style

Description: General purpose wood boring bits.

Application: Light to medium hard building materials.



| EDP No./ Diameter | Shank Diameter | Overall Length | EDP No./ Diameter | Shank Diameter | Overall Length |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| 8001-1/4 | 7/32 | 6 | 8001-13/16 | 7/32 | 6 |
| 8001-5/16 | 7/32 | 6 | 8001-7/8 | 7/32 | 6 |
| 8001-3/8 | 7/32 | 6 | 8001-15/16 | 7/32 | 6 |
| 8001-7/16 | 7/32 | 6 | 8001-1 | 7/32 | 6 |
| 8001-1/2 | 7/32 | 6 | 8001-1-1/8 | 7/32 | 6 |
| 8001-9/16 | 7/32 | 6 | 8001-1-1/4 | 7/32 | 6 |
| 8001-5/8 | 7/32 | 6 | 8001-1-3/8 | 7/32 | 6 |
| 8001-11/16 | 7/32 | 6 | 8001-1-1/2 | 7/32 | 6 |
| 8001-3/4 | 7/32 | 6 | | | |



13 Piece Metal Cased Sets



1/16 thru 1/4 x 64ths

| EDP No. | Description |
|----------|-----------------------------|
| 13C | 405 Bright HSS Drills |
| 113CO | 705C Cobalt HSS Drills |
| 113LH | 705LH Left Hand Drills |
| 113LH | 705LH Left Hand Drills |
| 113-XGO | XGO BlackGold Drills |
| 113-XL5 | XL5 Brute Platinum Drills |
| 113-XL28 | XL28 Brute Mechanics Drills |
| 113-MT | Empty Case |

15 Piece Metal Cased Sets



1/16 thru 1/2 x 32nds

| EDP No. | Description |
|----------|-----------------------------|
| 115C | 705 Black HSS Drills |
| 115CO | 705C Cobalt HSS Drills |
| 115LH | 705LH Left Hand Drills |
| 115C-SP | 705SP Split Point Drills |
| 115T-C | 700T TiN Coated Drills |
| 115-XGO | XGO BlackGold Drills |
| 115C-XL5 | XL5 Brute Platinum Drills |
| 115-XL28 | XL28 Brute Mechanics Drills |
| P15HD | USHD Black HSS Drills |
| 115-MT | Empty Case |

21 Piece Metal Cased Sets



1/16 thru 3/8 x 64ths

| EDP No. | Description |
|----------|-----------------------------|
| 121CO | 705C Cobalt HSS Drills |
| 121LH | 705LH Left Hand Drills |
| 121C-XL5 | XL5 Brute Platinum Drills |
| 121-XL28 | XL28 Brute Mechanics Drills |
| P21HD | USHD Black HSS Drills |
| 121-MT | Empty Case |

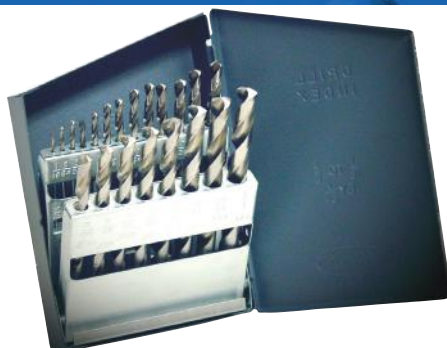
26 Piece Metal Cased Sets



A thru Z

| EDP No. | Description |
|---------|---------------------------|
| 26C | 405 Bright HSS Drills |
| 126C | 705 Black HSS Drills |
| 126-XL5 | XL5 Brute Platinum Drills |
| 126CO | 705C Cobalt HSS Drills |
| 126-MT | Empty Case |

20 Piece Metal Cased Sets



Micro Drills - Wire Gauge 61 thru 80

| EDP No. | Description |
|---------|----------------------|
| 120C | 705 Black HSS Drills |
| 120-MT | Empty Case |



29 Piece Metal Cased Sets



1/16 thru 1/2 x 64ths

| EDP No. | Description |
|----------|-----------------------------|
| 29C | 405 Bright HSS Drills |
| 129C | 705 Black HSS Drills |
| 129CO | 705C Cobalt HSS Drills |
| 129LH | 705LH Left Hand Drills |
| 129C-SP | 705SP Split Point Drills |
| 129SM | 1705 Screw Machine Drills |
| 129-XGO | XGO BlackGold Drills |
| 129C-XL5 | XL5 Brute Platinum Drills |
| 129-XL28 | XL28 Brute Mechanics Drills |
| P29C | US5 Black HSS Drills |
| P29C-3/8 | US5 & 738 3/8" Shank Drills |
| P29HD | USHD Black HSS Drills |
| 129-MT | Empty Case |

29 Piece Twister Sets



29 Piece drill sets in durable plastic cases. Includes 1/16 thru 1/2 x 64ths.

Water resistant for use in damp environments.

| EDP No. | Description |
|-----------------|---------------------------------|
| TWISTER-XL5 | XL5 Brute Platinum Drills |
| TWISTER-XL28 | XL28 Brute Mechanics Drills |
| TWISTER-XGO | XGO BlackGold Drills |
| TWISTER-705C | 705C Cobalt Drills |
| TWISTER-XG38 | XG38 BlackGold 3/8 Shank Drills |
| TWISTER-XM28-29 | XM28 Mechanics Length Drills |

60 Piece Metal Cased Sets



#1 thru #60

| EDP No. | Description |
|----------|---------------------------|
| 160C | 705 Black HSS Drills |
| 160CO | 705C Cobalt HSS Drills |
| 160C-SP | 705SP Split Point Drills |
| 160C-XL5 | XL5 Brute Platinum Drills |
| 160SM | 1705 Screw Machine Drills |
| 160-MT | Empty Case |

Metric Drill Sets



| EDP No. | Description |
|---------|-------------------|
| M25C | 708 1-13mm X .5mm |
| M25-XL8 | XL8 1-13mm X .5mm |
| M25-MT | Empty Case |

115 Piece Metal Cased Sets



1/16 thru 1/2 X 64ths, #1 thru #60, A thru Z

| EDP No. | Description |
|-----------|---------------------------|
| SS150C | 705 Black HSS Drills |
| SS150CO | 705C Cobalt HSS Drills |
| SS150-SP | 705SP Split Point Drills |
| SS150-XL5 | XL5 Brute Platinum Drills |
| SS150-MT | Empty Case |



**Silver & Deming Drill Sets
Taper Shank Drill Sets
Left Hand Drill &
Screw Extractor Set**



**8 Piece Silver & Deming
1/2" Shank Drill Sets**



9/16 thru 1 x 16ths in plastic cases

| EDP No. | Description |
|-----------|----------------------------|
| 712-8P | 712 HSS Drills |
| 712C0-8P | 712C0 Cobalt Drills |
| XL12-8P | XL12 Brute Platinum Drills |
| XG12-8P | XG12 BlackGold Drills |
| US12-8P | US12 HSS Drills |
| 712-8P-MT | Empty Case |

**8 Piece Silver & Deming
1/2" Shank Drill Sets**



9/16 thru 1 x 16ths in metal cases

| EDP No. | Description |
|----------|----------------------------|
| 712-8C | 712 HSS Drills |
| XL12-8C | XL12 Brute Platinum Drills |
| US12-8C | US12 HSS Drills |
| 712-8-MT | Empty Case |

**33 Piece Silver & Deming
1/2" Shank Drill Sets**



33/64 thru 1 x 64ths (includes 1/2" jobber drill)

| EDP No. | Description |
|-----------|----------------------------|
| 712-33 | 712 HSS Drills |
| XL12-33 | XL12 Brute Platinum Drills |
| 712-33-MT | Empty Case |

LH Drill & Screw Extractor Sets



| EDP No. | Description |
|----------|---|
| X1-XL5LH | XL5LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and screw extractors #1-5 |
| X1-705LH | 705LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and screw extractors #1-5 |



Screw Extractor Sets Tap & Drill Indexes Drill & Tap Sets



Screw Extractor Sets



| EDP No. | Description |
|---------|--------------------------------------|
| X1-1-5 | Spiral Flute Extractors #1 thru #5 |
| X1-1-6 | Spiral Flute Extractors #1 thru #6 |
| X2-1-5 | Straight Flute Extractors #1 thru #5 |
| X2-1-6 | Straight Flute Extractors #1 thru #6 |

36 Piece Tap & Drill Indexes



TD36 Series

36 Piece Combination NC/NF Sets Contain - Taps: 6-32 & 40, 8-32 & 36, 10-24, & 32, 12-24 & 28, 1/4-20 & 28, 5/16-18 & 24, 3/8-16 & 24, 7/16-14 & 20, 1/2-13 & 20. Drills: #36, #29, #25, #16, #7, F, 5/16, U, 27/64, #33, #29, #21, #15, #3, I, Q, 25/64, 29/64.

| EDP No. | Description |
|---------|--------------------------------|
| TD36-XL | XL5 Drills / XL22 NC & NF Taps |
| TD36 | 705 Drills / 308 NC & NF Taps |
| TD36-MT | 36 Piece Empty Case Only |

18 Piece Tap & Drill Indexes



TD18 Series

18 Piece NC Sets Contain - Taps: 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13. Drills: #36, #29, #25, #21, #7, F, 5/16, U, 27/64.

TD18NF Series

18 Piece NF Sets Contain - Taps: 6-40, 8-36, 10-32, 12-28, 1/4-28, 5/16-24, 3/8-24, 7/16-20, 1/2-20. Drills: #33, #29, #21, #15, #3, I, Q, 25/64, 29/64.

| EDP No. | Description |
|-----------|-----------------------------|
| TD18-XL | XL5 Drills / XL22 NC Taps |
| TD18NF-XL | XL5 Drills / XL22 NF Taps |
| TD18 | 705 Drills / 308 NC Taps |
| TD18-XG0 | XG0 Drills / 308 NC Taps |
| TD18-NF | 705 Drills / 308 NF Taps |
| TD18B-MT | 18 Piece Empty Case Only |
| TD18NF-MT | 18 Piece NF Empty Case Only |



TD18M Series

18 Piece Metric Sets Contain - Taps: 2.5x.45, 3.0x.50, 3.5x.60, 4.0x.70, 5.0x.80, 6.0x1.0, 8.0x1.25, 10x1.50, 12.0x1.75 Drills: #46, #39, #32, #30, #19, #8, H, Q, 13/32.

| EDP No. | Description |
|-------------|--------------------------------|
| TD18M | 705 Drills / 308M Metric Taps |
| TD18M-XL22M | XL8 Drills / XL22M Metric Taps |
| TD18M-MT | 18 Piece Metric Case Only |



DT22HEX Series

Hex shank, 135° split point, black & gold surface treatment - can be used in QCD (Quick change driver)

| EDP No. | Description |
|------------------|--|
| DT22HEX-SET-MET6 | 6 Piece - M4x.7, M5x.8, M6x1, M8x1.25, M10x1.5, M12x1.75 |
| DT22HEX-SET-MS5 | 5 Piece - 6-32, 8-32, 10-24, 10-32, 12-24 |
| DT22HEX-SET-NC5 | 5 Piece - 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13 |
| DT22HEX-SET10 | 10 Piece - 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13 |
| DT22HEX-SET-NF5 | 5 Piece - 1/4-28, 5/16-24, 3/8-24, 7/16-20, 1/2-20 |



Tap & Die Sets



Tap & Die Sets in Hardwood Boxes



S32 Series Tap & Die Sets 1/4 - 1"

Champion 32 piece tap & die sets contain the following:
 1/8 NPT pipe tap; plug taps / round dies: 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 5/8-11, 3/4-10, 7/8-9, 1-8.
 Accessories: 3305 1", 1-1/2 & 2 hex adaptors for round dies. 3291 1, 1-1/2 & 2 round die stocks, 3002-2 "T"-handle, 3001-7 bar handle tap wrench and screwdriver.

| EDP No. | Description |
|---------|-------------------------------|
| S32-LTD | 308 HS taps & 327 carbon dies |

S40 Series Tap & Die Sets #4 - 1/2"

Champion 40 piece tap & die sets contain the following:
 1/8 NPT pipe tap; plug taps / round dies: 4-40, 6-32, 8-32, 10-24, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, and 1/2-20.
 Accessories: 3305-1 hex adaptor for round dies, 3002-1 "T" handle, 3002-1 die stock and screwdriver.
 Weight: 13lbs.
 Dimensions: 18"L x 7-1/2" x 1-1/2"H

| EDP No. | Description |
|---------|-------------------------------|
| S40-LTD | 308 HS taps & 327 carbon dies |

S51 Series Tap & Die Sets 1/4 - 1"

Champion 51 piece tap & die sets contain the following:
 1/8 NPT pipe tap; taps/dies: 1/4-20, 1/4-28, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14.
 Accessories: 3305-1, 1-1/2 & 2 hex adaptor for round dies, 3002-2 "T" handle, 3291-1, 1-1/2 & 2 die stocks, 3001-7 bar handle tap wrench and screwdriver.
 Weight: 34lbs.
 Dimensions: 28-1/2"L x 14-1/2"D x 2-1/2"H

| EDP No. | Description |
|---------|-------------------------------|
| S51-LTD | 308 HS taps & 327 carbon dies |

S32 Series Metric Tap & Die Sets 6 - 24mm

S32M-LTD 32 piece metric tap & die sets contain the following: 324-1/8 NPT pipe tap; plug taps/round dies: 6.0x1.0, 7.0x1.0, 8.0x1.25, 10.0x1.5, 12.0x1.75, 14x2.0, 16x2.0, 20x2.5, 22x2.5, 24x3.0.
 Accessories: 3305 1, 1-1/2 & 2 hex adaptors for round dies, 3002-2 "T" handle tap wrench, 3291 1, 1-1/2 & 2 round die stocks, 3001-7 bar handle tap wrench and screwdriver.
 Weight: 13lbs.
 Dimensions: 25-1/2"L x 11-3/4" x 2"H

| EDP No. | Description |
|----------|---------------------------------|
| S32M-LTD | 308M HS taps & 327M carbon dies |

S40 Series Metric Tap & Die Sets 2.5 - 12mm

S40M-LTD 40 piece metric tap & die sets contain the following: 324-1/8 NPT pipe tap; plug taps/round dies: 2.50x.45, 3.0x.50, 3.5x.60, 4.0x.70, 5.0x.80, 5.5x.90, 6.0x.75, 6.0x1.0, 7.0x.75, 7.0x1.0, 8.0x1.0, 8.0x1.25, 10.0x1.25, 10.0x1.5, 12.0x1.25, 12.0x1.75.
 Accessories: 3305-1 hex adaptor for round dies, 3002-1 "T" handle tap wrench, 3291-1 round die stock, 3001-15 bar handle tap wrench and screwdriver.
 Weight: 23 lbs.
 Dimensions: 18"L x 7-1/2" x 1-1/2"H

| EDP No. | Description |
|----------|---------------------------------|
| S40M-LTD | 308M HS taps & 327M carbon dies |

Note: Plug style taps supplied as standard in all sets.



Tap & Die Sets Tap Kits Die Sets



Tap & Die Sets



| EDP No. | Description |
|---------|---|
| CS40P | 302 taps & CS30 dies 302 plug taps / CS30 hex dies: 4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 1/8-27 NPT pipe tap and die. Accessories: die stock, 2 tap wrenches, screw pitch gauge and screwdriver in molded plastic case. |



| EDP No. | Description |
|---------|---|
| CS40MP | 302M taps & CS30M dies Carbon taps and hex dies in metric sizes: 3x.5, 3x.6, 4x.7, 4x.75, 5x.8, 5x.9, 6x1.0, 7x1.0, 8x1.25, 9x1.0, 9x1.25, 10x1.25, 10x1.5, 11x1.5, 12x1.5, 12x1.75; 1/8-28BSP pipe tap, 1/8-28BSP pipe die. Accessories: die stocks, tap wrenches, metric screw pitch gauge and screwdriver. |



| EDP No. | Description |
|---------|---|
| CS60P | 302 taps & CS30 dies 302 plug tap / CS30 hex die: 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16; X1#1 thru #5 screw extractors; 304-1/8-27 NPT, 304-1/4-18NPT pipe taps; CS30- 1/8-27NPT, CS30-1/4-18NPT pipe die. Accessories: 2001-6 (1/2-3/4) bar tap wrenches; 3292x1, 3292x1-7/16 die stocks; 2002-1 (#4-1/4) T-handle tap wrench; screw pitch gauge; screwdriver. |



| EDP No. | Description |
|---------|--|
| CS107P | 302 taps & CS30 dies 302M taps & CS30M dies Contains all the items listed in CS60P plus 1 each: 302M plug tap / CS30M hex die: 3x.6, 4x.7, 4x.75, 5x.8, 5x.9, 6x1.0, 7x1.0, 8x1.25, 9x1.0, 9x1.25, 10x1.25, 10x1.5, 11x1.5, 12x1.5, 14x1.25, 14x2.0, 16x1.5, 16x2.0, 18x1.5, 18x2.5; 304-1/8-28BSP, 304-1/4-19BSP pipe taps; CS30-1/8-28BSP, CS30-1/4-19BSP pipe die. Accessories: metric screw pitch gauge. |

Tap Kits in Metal / Plastic Cases



Conveniently organizes the most popular high speed taps in a durable steel or plastic cases which fits any toolbox. The tap kit isolates each tap, which prevents chipping.

| EDP No. | Description |
|---------|---|
| 321-10C | 10 Piece 321 1/4 -1/2 |
| 308-19C | 19 Piece 308 #0 - #12 |
| TK10-MT | 10 Piece tap empty metal case |
| TK19-MT | 19 Piece tap empty metal case |
| XL22-5P | 5 Piece plastic Brute tap kit: 10-24, 10-32, 12-24 (2), 1/4-20 |



**Step Drill Sets
Bur Kits
Reamer Sets
Sheet Metal Cutter Sets**



Multi Step Drill Sets



| EDP No. | Description |
|---------|---|
| MSD-SET | 1 Piece each MSD - 1/2x1/8, 1/2x3/16, 3/4x1/4 |

Carbide Bur Kits



| EDP No. | Description |
|---------|---|
| BK8P | Industrial Series 8 Piece Bur Kit in Plastic Case: SA5, SC3, SC5, SD5, SF3, SF5, SG3, SL4 |
| BK8P-RE | Automotive Series 8 Piece Bur Kit in Plastic Case: SA3, SA5, SC1, SC3, SD1, SD3, SF3, SF5 |
| US-BK8P | Contractor Series 8 Piece Bur Kit in Plastic Case: USA5, USC3, USC5, USD5, USF3, USF5, USG3, USL4 |
| BK8P-1 | Industrial Series 8 Piece 1/4" Bur Kit in Plastic Case |
| BK8P-3 | Industrial Series 8 Piece 3/8" Bur Kit in Plastic Case |
| BK8P-5 | Industrial Series 8 Piece 1/2" Bur Kit in Plastic Case |

SA80 Reamer Set



| EDP No. | Description |
|------------|-----------------------------------|
| SA80-SET | 3 Piece SA80: 1/2, 5/8 & 3/4 |
| SA80P-SET4 | 4 Piece SA80: 3/8, 1/2, 5/8 & 3/4 |

Hex Shank Multi Step Drill Sets



| EDP No. | Description |
|-------------|--|
| MSD-HEX-SET | 1 Piece each MSD-HEX-1, MSD-HEX-3, MSD-HEX-4 and QCD |
| ELEC-KIT | 1 Pc. ea MSD-HEX-13, CT3-7/8, CT3-1-1/8, CT3-1-3/8 and QCD |

Sheet Metal Cutter Sets



| EDP No. | Description |
|-----------|--|
| SMC-SET-1 | 13 Piece set contains SMC sizes 1/4, 5/16, 3/8, 1/2, 9/16, 5/8 & 3/4, arbor, pilot, hex key, small & large washer and center punch |
| SMC-SET-2 | 12 Piece set contains SMC sizes 7/8, 1, 1-1/8, 1-1/4, 1-3/8 & 1-1/2, arbor, pilot, 1 hex washer, 1 center punch and 2 hex keys. |



Carbide Tipped Hole Cutter Sets



CT7 Plumbers Set



| EDP No. | Description |
|----------------|---|
| CT7P-PLUMBER-1 | 6 Piece Plumber Set: 3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4 in plastic case |
| CT7P-PLUMBER-2 | 12 Piece Plumber Set: 3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4, 2-9/16, 3, 3-1/2, 4, 4-1/4, 4-1/2 in plastic case |

CT5 Hole Cutter Set



| EDP No. | Description |
|----------------|--|
| CT5P-SET-A | 3 Piece Set: 7/8, 1-1/8, 1-3/8, pilot & spring in plastic case |
| CT5P-SET-B | 6 Piece Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, pilot & spring in plastic case |
| CT5P-SET-1 | 5 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in plastic case |
| CT5P-CONDUIT-1 | 7 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-7/32, 1-3/8, 1-3/4, 2, 2-1/2 in plastic case |

CT5 Master Electrician Set



| EDP No. | Description |
|-------------------|---|
| CT5P-ELECTRICAL-1 | 10 Piece Master Electrical Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8 and 4-1/2 in plastic case |

CT7 Master Electrical and Mechanical Sets



| EDP No. | Description |
|-------------------|---|
| CT7P-MECHANICAL-1 | 12 Piece Master Mechanical Set: 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/2 and 3 in plastic case |
| CT7P-ELECTRICAL-1 | 10 Piece Master Electrical Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8, 4-1/2 in plastic case |

CT7 Hole Cutter Set



| EDP No. | Description |
|------------|--|
| CT7P-SET-4 | 5 Piece General Maintenance Set: 5/8, 3/4, 7/8, 1 and 1-1/8 in plastic case |
| CT7P-SET-5 | 5 Piece Bolt Clearance Set: 9/16, 11/16, 13/16, 15/16 and 1-1/16 in plastic case |
| CT7P-SET-6 | 5 Piece Electrical Conduit Set: 7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in plastic case |



Countersink Sets Annular Cutter Sets SDS Plus Bit Sets



Zero Flute Countersink Sets



| EDP No. | Description |
|------------|--|
| CSK-SET-1 | 82° CSK5S, CSK6S, CSK8S, CSK10S, CSK8-1, CSK10S-1, CSK12-1, CSK14-1, CSK16-1, Pilots w/basic diameters |
| CSK-SET-5 | CSK5S, CSK6S, CSK8S, CSK10S, CSK18 |
| CSK-SH-SET | CSK-3SH, CSK-8SH, CSK-18SH |

6 Piece Annular Cutter Sets



Includes 9/16, 11/16, 13/16, 15/16, 1-1/16 & Pilot Pin

| EDP No. | Description |
|-----------|---------------------|
| XL100-SET | 1 inch depth of cut |
| XL200-SET | 2 inch depth of cut |

3 Piece Annular Cutter Sets



Includes 13/16, 15/16, 1-1/16 & CT150P Pilot Pin

| EDP No. | Description |
|-----------|---|
| CT150-SET | Carbide Tipped. 1-3/8 inch depth of cut |

Multi-Purpose Bit Sets



| EDP No. | Description |
|-------------|---|
| CM-MPB-SET5 | 5 Piece: 1/8x6, 5/32x6, 3/16x6, 1/4x6, 5/16x6 |
| CM-MPB-SET7 | 7 Piece: 1/8x6, 5/32x6, 3/16x6, 1/4x6, 5/16x6, 3/8x6, 1/2x6 |

SDS Plus Bit Sets



| EDP No. | Description |
|------------|-----------------------------------|
| CM95X-SET5 | CM95X - 3/16, 1/4, 5/16, 3/8, 1/2 |
| CM95-SET5 | CM95 - 3/16, 1/4, 5/16, 3/8, 1/2 |



Wood Boring Set Drill Displays and Dispensers



Wood Boring Bit Set



| EDP No. | Description |
|----------|---|
| 8001-SET | 3/8, 1/2, 5/8, 3/4, 7/8 and 1 flat wood bits. |

Brute Platinum Drill Dispensers



| EDP No. | Description |
|-------------|--|
| D1-XL5 | 264 Piece Fractional Drills |
| D4-XL5 | 1242 Pc. Fractional, Wire & Letter |
| D1-XL8 | 1.0 mm - 13.0 mm Metric Drills |
| D1-XL5-LTD | 125 Piece Fractional XL5 Drills |
| D1-XL28 | 264 Piece Fractional Brute Dispenser 1/16 to 1/2 Mechanics Length |
| D1-XL28-LTD | 125 Piece Fractional X28 Drills |
| D1-XL8-LTD | 106 Piece Metric XL8 Drills |

Drill Displays



One package of each size 1/16 thru 1/2 x 64ths

| EDP No. | Description |
|-----------|--------------------------------|
| DIS-705 | 705 Black HSS Drills |
| DIS-705C | 705C Cobalt HSS Drills |
| DIS-705SP | 705SP Split Point Drills |
| DIS-700T | 700T TiN Coated Drills |
| DIS-XL28 | XL28 Brute Mechanics Drills |
| DIS-XL5 | XL5 Brute Platinum Drills |
| DIS-XG0 | XG0 BlackGold Drills |
| DIS-US5 | US5 Black HSS Drills |
| DIS-MT | Countertop Empty Drill Display |

Empty Metric Drill Dispensers



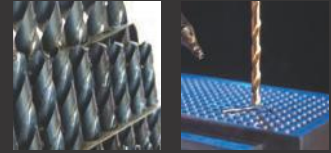
| EDP No. | Description |
|---------|---------------------------------|
| DM1 | Dispenser for 1 - 13mm x 0.5mm |
| DM2 | Dispenser for 1 - 6.9mm x 0.1mm |

Empty Drill Dispensers

| EDP No. | Description |
|---------|---|
| D1 | 3 Drawer for Fractional Drills 1/16 thru 1/2 x 64ths |
| D2 | 4 Drawer for Wire Gauge Drills #1 thru #60 |
| D3 | 3 Drawer for Letter Size Drills A thru Z |
| D4 | 4 Drawer for Fractional Wire Gauge and Letter Drills |

Empty Tap Dispensers

| EDP No. | Description |
|-----------|--|
| TDC-1 | 3 Drawer for Fractional Taps 1/4 thru 1 |
| TDC-2 | 5 Drawer for Machine Screw Taps #2 thru #12 |
| DIS-TD-MT | Tap and die dispenser |



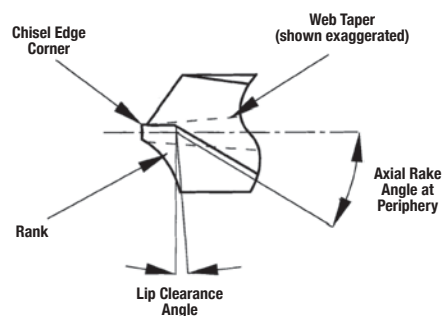
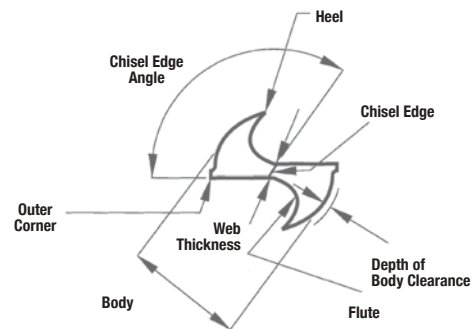
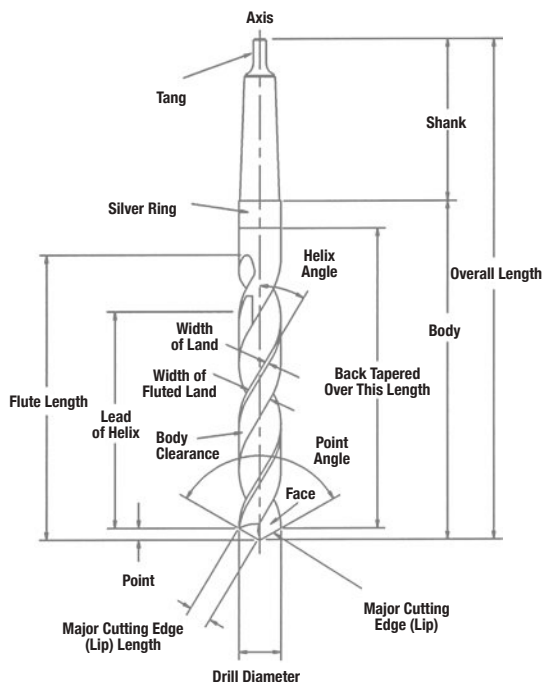
Technical Tips / Drills

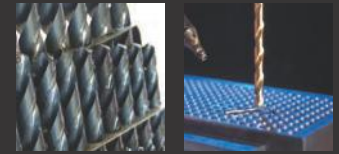
1. The most common mistake when drilling is to over-speed and under feed the tool. This will generate excess heat at the cutting edge, prematurely dulling the drill. Brute drills are designed to be fed heavily. If speed is increased an increase to feed is also appropriate. This will ensure that a "healthy" chip is being formed, and you will achieve good drilling results.
2. The workpiece must be held rigid and the machine spindle should have no play.
3. The chuck in which a straight shank drill is held must be good quality. If the drill slips in the chuck and the feed is automatic, breakage of the drill may occur.
4. Use recommended lubricants to enhance the life of the drill and ensure that the lubricant always reaches the drill point.
5. Do not allow the flutes of a drill to become choked with chips, especially in the holes. When drilling deeper than 4 x diameter, withdrawal of the drill to clear chips may be required.
6. When the drill is reground ensure that all wear is removed and check that the correct point geometry is produced. Always keep drills sharp; frequent regrinding is good economy.

When drilling a particular material at a given speed and feed, the drill's performance is governed by its quality and the following other important factors:

- MATERIAL BEING DRILLED
- DEPTH OF HOLE
- THROUGH OR BLIND HOLE
- COOLANT USED
- CONDITION OF THE MACHINE
- MACHINE POWER CAPACITY
- CHOICE OF TOOL HOLDING
- STABILITY OF WORK HOLD
- HORIZONTAL OR VERTICAL DRILLING
- STATIONARY OR REVOLVING DRILL
- CHIP CONTROL

Drill Nomenclature

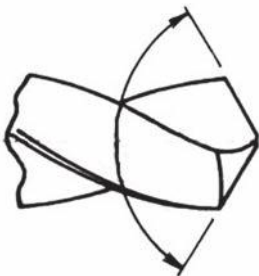




Trouble Shooting / Drills

1. **OUTER CORNERS BREAK DOWN.**
Cutting Speed too high / Hard spots in material / No cutting fluid at drill point / Flutes clogged with chips / Drill was used to enlarge an existing hole - Reamer should be used to enlarge holes.
2. **CUTTING LIPS CHIPPED**
Too much feed / Lip relief too great / Drill was used to enlarge an existing hole - Reamer should be used to enlarge holes.
3. **CHECKS OR CRACKS IN CUTTING LIPS**
Overheated or too quickly cooled while sharpening or drilling.
4. **MARGIN CHIPS**
Oversize jig bushing
5. **DRILL BREAKS**
Point improperly ground / Feed too heavy / Spring or back lash in drill press, fixture or work / Drill is dull / Flutes clogged with chips.
6. **TANG BREAKS**
Imperfect fit between taper shank and socket caused by dirt or chips, or burred or badly worn sockets.
7. **DRILL BREAKS WHEN DRILLING BRASS OR WOOD**
Flutes clogged with chips / Improper type of drill
8. **DRILL SPLITS UP CENTER**
Lip relief too small / Too much feed
9. **DRILL WILL NOT ENTER WORK**
Drill is dull / Lip relief is too small / Too heavy a web
10. **HOLE ROUGH**
Point improperly ground or dull / No cutting compound at drill point / Improper cutting fluid / Feed too great / Fixture not rigid
11. **HOLE OVERSIZE**
Unequal angle or length of the cutting edges - or both / Loose spindle
12. **CHIP SHAPE CHANGES WHEN DRILLING**
Drill becomes dull or cutting lips chipped
13. **LARGE CHIP COMING OUT OF ONE FLUTE, SMALL CHIP OUT OF THE OTHER**
Point incorrectly ground, one lip is doing all the cutting

Drill Tip Geometry



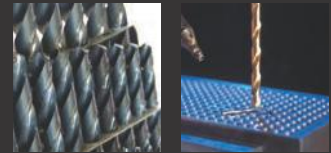
118° Conventional Point

- General use
- Not self centering
- For stationary drills
- Performs better in softer materials than hard metal

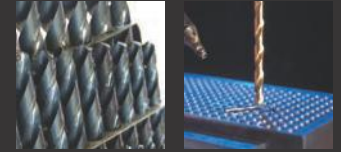


135° Conventional Point

- Self centering (won't walk)
- For portable drills
- For harder materials
- Requires less force than 118°



| Technical Tips / Drills | | | | | | | | | | | | | |
|---|--------------|---------|---------|----------------|---------|-------|-------------------------------------|---------|-------|----------------|---------|---------|-------|
| Material | Carbon Steel | | | Alloyed Steels | | | Steel Drop Forgings Heat Treated | | | Grey Cast Iron | | | |
| Level | Low | Medium | High | | | | | | | Soft | Medium | Hard | |
| Hardness Brinell | 85-125 | 125-175 | 175-225 | <200 | 200-300 | >300 | 330-370 | 200-300 | >420 | 85-125 | 125-175 | 175-225 | |
| Hardness RC | - | 1-9 | 9-22 | <16 | 16-39 | >39 | 35-40 | 40-44 | >44 | - | 1-9 | 9-22 | |
| SFM | 80-95 | 70-85 | 45-65 | 60-90 | 40-70 | 20-30 | 30-40 | 20-30 | 10-20 | 80-95 | 70-85 | 45-65 | |
| Product Categories - Best / Better / Good Suitability | | | | | | | | | | | | | |
| BRUTE | Best | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 |
| | Better | | | | | | | | | | | | |
| | Good | | | | | | | | | | | | |
| SCREW | Best | 1705 | 1705 | 1705C | 1705 | 1705C | 1705C | 1705 | 1705C | 1705C | 1705 | 1705C | 1705C |
| | Better | | | 1705 | | 1705 | | | | | | 1705 | 1705 |
| | Good | | | 2905 | | 2905 | | | | | | 2905 | 2905 |
| JOBBER | Best | 700T | 700T | 700T | 700T | 700T | 705C | 705C | 705C | 705C | 700T | 700T | 700T |
| | Better | XG0 | XG0 | 705SP | XG0 | 705SP | | | | | XG0 | 705SP | 705SP |
| | Good | US5 | US5 | 705P | US5 | 705P | | | | | US5 | 705P | 705P |
| JOBBER (METRIC) | Best | 708 | 708 | 708 | 708 | 708 | | | | | 708 | XL8 | XL8 |
| | Better | XL8 | XL8 | XL8 | XL8 | XL8 | | | | | XL8 | 708 | 708 |
| | Good | | | | | | XL8 | XL8 | XL8 | XL8 | | | |
| JOBBER (LEFTHAND) | Best | 705LH | 705LH | XL5LH | 705LH | XL5LH | | | | | 705LH | XL5LH | XL5LH |
| | Better | XL5LH | XL5LH | 705LH | XL5LH | 705LH | XL5LH | XL5LH | XL5LH | XL5LH | XL5LH | 705LH | 705LH |
| | Good | | | | | | 705LH | 705LH | 705LH | 705LH | | | |
| MECHANICS | Best | XL28 | XL28 | XM28 | XM28 | XM28 | | | | | XL28 | XM28 | XM28 |
| | Better | | | | | | XL28 | XL28 | XL28 | XL28 | | | |
| | Good | | | | | | XM28 | XM28 | XM28 | XM28 | | | |
| 3/8 SHANK | Best | XG38 | XG38 | XL38 | XG38 | XL38 | | | | | XG38 | XL38 | XL38 |
| | Better | 738 | 738 | XG38 | 738 | XG38 | 738 | XL38 | XL38 | XL38 | 738 | XG38 | XG38 |
| | Good | | | 738 | | 738 | XG38 | XG38 | XG38 | XG38 | | 738 | 738 |
| S & D | Best | XL12 | XL12 | 712C0 | XL12 | 712C0 | 712C0 | 712C0 | 712C0 | 712C0 | XL12 | 712C0 | 712C0 |
| | Better | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 |
| | Good | 712 | 712 | US12 | 712 | US12 | 712 | 712 | 712 | 712 | 712 | US12 | US12 |
| TAPER - LENGTH | Best | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 |
| | Better | | | | | | | | | | | | |
| | Good | | | | | | | | | | | | |

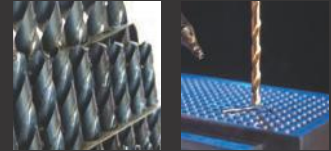


Material Application Chart

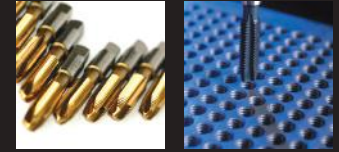
| Material Level | Titanium | | | Stainless Steel | | | Steel | | Steel | | |
|------------------|----------|--------------|--------------------------|-----------------|---------|--|----------------|----------------|-----------|---------------|-------------|
| | T175A | Ti150A-RS120 | 140A-RC-130B & Ti 6AL 4V | 300 | 400 | Matenistic 416, 420, 416 PlusK, 400F, 416SE 440F | Heat Resisting | Nimonic Alloys | Manganese | Spring Steels | Armor Plate |
| Hardness Brinell | 330-440 | 300-440 | 300-440 | 120-220 | 200-300 | 135 thru 450 | 175-225 | 200-300 | 125-220 | 402 | 200-350 |
| Hardness RC | 33-46 | 33-46 | 33-46 | 1-16 | 16-33 | 1 thru 47 | 9-21 | 16-33 | 1-21 | 43 | 16-37 |
| SFM | 50-60 | 40-50 | 30-40 | 20-40 | 40-70 | 20 thru 50 | 10-25 | 10-20 | 10-12 | 15-30 | 30-40 |

Product Categories - Best / Better / Good Suitability

| | | | | | | | | | | | | |
|-------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BRUTE | Best | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 | XL5 |
| | Better | | | | | | | | | | | |
| | Good | | | | | | | | | | | |
| SCREW MACHINE | Best | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C | 1705C |
| | Better | | | | | | | | | 1705 | | |
| | Good | | | | | | | | | 2905 | | |
| JOBBER | Best | 705C | 705C | 705C | 705C | 705C | 705C | 705C | 705C | 700T | 705C | 705C |
| | Better | | | | | | | | | 705SP | | |
| | Good | | | | | | | | | 705P | | |
| JOBBER (METRIC) | Best | | | | | | | | | XL8 | | |
| | Better | | | | | | | | | 708 | | |
| | Good | XL8 | XL8 | XL8 | XL8 | XL8 | XL8 | XL8 | XL8 | | XL8 | XL8 |
| JOBBER (LEFTHAND) | Best | | | | | | | XL5 | XL5 | XL5LH | | |
| | Better | XL5LH | XL5LH | XL5LH | XL5LH | XL5LH | XL5LH | | | 705LH | XL5LH | XL5LH |
| | Good | 705LH | 705LH | 705LH | 705LH | 705LH | 705LH | | | 705LH | 705LH | 705LH |
| MECHANICS | Best | | | | | | | | | XM28 | | |
| | Better | XL28 | XL28 | XL28 | XL28 | XL28 | XL28 | XL28 | XL28 | | XL28 | XL28 |
| | Good | XM28 | XM28 | XM28 | XM28 | XM28 | XM28 | XM28 | XM28 | | XM28 | XM28 |
| 3/8 SHANK | Best | | | | | | | | | XL38 | | |
| | Better | XL38 | XL38 | XL38 | XL38 | XL38 | XL38 | XL38 | XM38 | XG38 | XL38 | XL38 |
| | Good | XG38 | XG38 | XG38 | XG38 | XG38 | XG38 | XL38 | XM38 | 738 | XG38 | XG38 |
| S & D | Best | 712C0 | 712C0 | 712C0 | 712C0 | 712C0 | 712C0 | 712C0 | 712C0 | XL12 | 712C0 | 712C0 |
| | Better | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 | XG12 |
| | Good | 712 | 712 | 712 | 712 | 712 | 712 | 712 | 712 | 712 | 712 | 712 |
| TAPER - LENGTH | Best | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 | 704 |
| | Better | | | | | | | | | | | |
| | Good | | | | | | | | | | | |



| Decimal Equivalents / Drill Sizes | | | | | | | |
|-----------------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|
| Drill Size | Decimal Equiv. | Drill Size | Decimal Equiv. | Drill Size | Decimal Equiv. | Drill Size | Decimal Equiv. |
| 80 | .0135 | 36 | .1065 | D | .2460 | 13.5mm | .5315 |
| 79 | .0145 | 7/64" | .1094 | 1/4" E | .2500 | 35/64" | .5469 |
| 1/64" | .0156 | 35 | .1100 | 6.5mm | .2559 | 14.0mm | .5512 |
| 78 | .0160 | 34 | .1100 | F | .2570 | 9/16" | .5625 |
| 77 | .0180 | 33 | .1130 | G | .2610 | 14.5mm | .5709 |
| .5mm | .0197 | 32 | .1160 | 17/64" | .2656 | 37/64" | .5781 |
| 76 | .0200 | 3.0mm | .1181 | H | .2660 | 15.0mm | .5906 |
| 75 | .0210 | 31 | .1200 | I | .2720 | 19/32" | .5938 |
| 74 | .0225 | 1/8" | .1250 | 7.0mm | .2756 | 39/64" | .6094 |
| 73 | .2420 | 30 | .1285 | J | .2770 | 15.5mm | .6102 |
| 72 | .0250 | 29 | .1360 | K | .2810 | 5/8" | .6250 |
| 71 | .0260 | 3.5mm | .1378 | 9/32" | .2812 | 16.0mm | .6299 |
| 70 | .0280 | 28 | .1405 | L | .2900 | 41/64" | .6406 |
| 69 | .0292 | 9/64" | .1406 | M | .2950 | 16.5mm | .6496 |
| 68 | .0310 | 27 | .1440 | 7.5mm | .2953 | 21/32" | .6562 |
| 1/32" | .0312 | 26 | .1470 | 19/64" | .2969 | 17.0mm | .6693 |
| 67 | .0320 | 25 | .1495 | N | .3020 | 43/64" | .6719 |
| 66 | .0330 | 24 | .1520 | 5/16" | .3125 | 11/16" | .6875 |
| 65 | .0350 | 23 | .1540 | 8.0mm | .3150 | 17.5mm | .6890 |
| 64 | .0360 | 5/32" | .1562 | O | .3160 | 45/64" | .7031 |
| 63 | .0370 | 22 | .1570 | P | .3230 | 18.0mm | .7067 |
| 62 | .0380 | 4.0mm | .1575 | 21/64" | .3281 | 23/32" | .7188 |
| 61 | .0390 | 21 | .1590 | Q | .3320 | 18.5mm | .7283 |
| 1.0mm | .0394 | 20 | .1510 | 8.5mm | .3346 | 47/64" | .7344 |
| 60 | .0400 | 19 | .1660 | R | .3390 | 19.0mm | .7480 |
| 59 | .0410 | 18 | .1695 | 11/32" | .3438 | 3/4" | .7500 |
| 58 | .0420 | 11/64" | .1719 | S | .3480 | 49/64" | .7656 |
| 57 | .0430 | 17 | .1730 | 9.0mm | .3543 | 19.5mm | .7677 |
| 56 | .0465 | 16 | .1770 | T | .3580 | 25/32" | .7812 |
| 3/64" | .0469 | 4.5mm | .1772 | 23/64" | .3594 | 20.0mm | .7874 |
| 55 | .0520 | 15 | .1800 | U | .3680 | 51/64" | .7969 |
| 54 | .0560 | 14 | .1820 | 9.5mm | .3740 | 20.5mm | .8071 |
| 1.5mm | .0591 | 13 | .1850 | 3/8" | .3750 | 13/16" | .8125 |
| 53 | .0595 | 3/16" | .1875 | V | .3770 | 21.0mm | .8268 |
| 1/16" | .0625 | 12 | .1890 | W | .3860 | 53/64" | .8281 |
| 52 | .0635 | 11 | .1910 | 25/64" | .3906 | 27/32" | .8438 |
| 51 | .0670 | 10 | .1935 | 10.0mm | .3937 | 21.5mm | .8465 |
| 50 | .0700 | 9 | .1960 | X | .3970 | 55/64" | .8594 |
| 49 | .0730 | 5.0mm | .1969 | Y | .4040 | 22.0mm | .8661 |
| 48 | .0760 | 8 | .1990 | 13/32" | .4062 | 7/8" | .8750 |
| 5/64" | .0781 | 7 | .2010 | Z | .4130 | 22.5mm | .8858 |
| 47 | .0785 | 13/64" | .2031 | 10.5mm | .4134 | 57/64" | .8906 |
| 2.0mm | .0787 | 6 | .2040 | 27/64" | .4219 | 23.0mm | .9055 |
| 46 | .0810 | 5 | .2055 | 11.0mm | .4331 | 29/32" | .9062 |
| 45 | .0820 | 4 | .2090 | 7/16" | .4375 | 59/64" | .9219 |
| 44 | .0860 | 3 | .2130 | 11.5mm | .4528 | 23.5mm | .9252 |
| 43 | .0890 | 5.5mm | .2165 | 29/64" | .4531 | 15/16" | .9375 |
| 42 | .0935 | 7/32" | .2188 | 15/32" | .4688 | 24.0mm | .9449 |
| 3/32" | .0938 | 2 | .2210 | 12.0mm | .4724 | 61/64" | .9531 |
| 41 | .0960 | 1 | .2280 | 31/64" | .4844 | 24.5mm | .9646 |
| 40 | .9890 | A | .2340 | 12.5mm | .4921 | 31/32" | .9688 |
| 2.5mm | .0984 | 15/64" | .2344 | 1/2" | .5000 | 25.0mm | .9843 |
| 39 | .0995 | 6.0mm | .2362 | 13.0mm | .5118 | 63/64" | .9844 |
| 38 | .1015 | B | .2380 | 33/64" | .5156 | 1" | 1.000 |
| 37 | .1040 | C | .2420 | | | | |



Technical Tips / Taps

Taps are used to produce internal threads, from which two parts can then be fastened. Although this sounds simple, tapping is one of the most difficult machining operations. First, if chips clog up in the hole, the threads of both tap and work-piece can be damaged. Secondly, tapping presents lubrication problems, which can adversely affect tap life, chip removal, and hole size.

Champion Tap

Description

Brute XL22 Spiral Point Taps



Also known as “gun taps”, Brute spiral point taps have three cutting edges (and flutes) to shear and eject chips forward, ahead of the tap. They are recommended for most “thru-hole” tapping, by hand or machine tapping head, as they cut quickly and effectively dispose of chips.

Available from 4-40 through ¼-16 in both National Coarse and National Fine pitch, they are ideal for threading stainless steel, tough alloys and carbon steels.

321 Spiral Point Taps



Available from 0-80 through ¼-16 in NC and NF, most Series 321 taps have 2 flutes. A popular tap for through-hole tapping in ferrous and non-ferrous materials, including carbon steels and aluminum.

Brute XL46 Spiral Flute Taps



Designed to tap “blind holes”, these taps lift the chips from the hole in the same manner that twist drills pull chips out of the hole. Available from 6-32 through ½-20 in plug and bottom style in NC and NF pitch.

DT22Hex Drill & Taps



Create the hole and thread in a single operation. Ideal for aluminum, steel, and alloys. Available from 6-32 through ½-20, and metric sizes from M4X.7 to M12X1.75. No center punching or drilling required. With a hex shank, they are ideal for both portable (including impact drivers) and fixed power tools (ex. RB32-VSR magnetic drill press). Industry applications include MRO, mechanical and electrical contractors.

3088 8-Thread Taps



Engineered for the fluid transmission equipment found extensively in oil fields. All sizes from 1-1/8” to 4” have 8 threads per inch. Available in taper, plug and bottom chamfers.

308 Hand Taps



High-speed steel hand taps are available in taper, plug and bottom style, from 0-80 through 1-1/2-12, in both NC and NF pitch. Taper taps distribute the cutting across 7-10 threads of chamfer, and are often called “starting taps” because they are easy to start with. Bottom taps have 1-1-1/2 threads of chamfer, and are best for threading to the bottom of a blind hole. Plug taps are commonly used for both starting and finish tapping because they have 3-5 threads of chamfer.

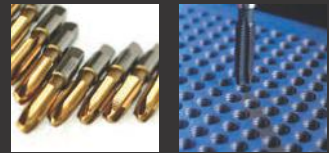
324/325 Pipe Taps



Pipe taps are used to create threads inside of pipes, pipe fittings and tubes. Taper pipe taps (i.e. 324 series) have a NPT (American Standard Pipe thread) of ¼” taper/foot. Straight thread pipe taps (NPS) are used for tapping holes for low-pressure work of pipes or fittings when a sealer is used to secure the joint.

Tap Tip

Most tapping problems are either caused by misalignment or from choosing the wrong size drill prior to tapping. Drilling a hole which is too small will generate a high percentage of thread (i.e. 75% or higher), but will force the heavily tax the tap, causing breakage or shortened tool life. To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements.



Technical Tips / Taps

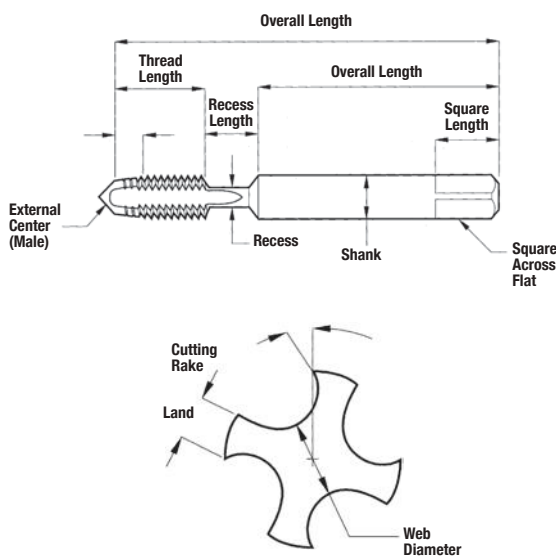
Spiral point taps

Spiral point taps have straight, shallow flutes and are often referred to as “gun” taps. The gun nose or spiral point is designed to drive the chips forward. The relatively shallow flutes ensure that the sectional strength is maximized. They also act to allow lubricant to reach the cutting edges. This type of tap is recommended for threading through holes and may be used in blind hole applications where there is sufficient space to accommodate the chips.

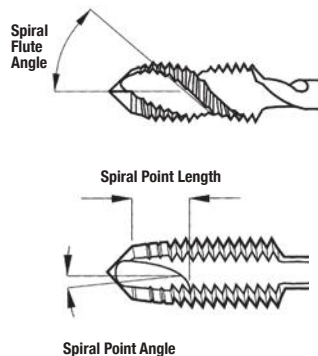
General hints on Tapping

1. Select the correct design of tap for the component material and type of hole, i.e. through or blind.
2. Ensure the component is securely clamped, lateral movement may cause tap breakage or poor quality threads.
3. Size matters. For optimal performance it is important to use the right size drill before tapping.
Please call 800-645-3957 to order a free Champion decimal equivalency card (DC-1) card.
4. Select the correct cutting speed.
5. Use appropriate cutting fluid for correct application.
6. In CNC applications ensure that the pitch value chosen for the program is correct. When using a tapping attachment, 95% to 97% of the pitch is recommended to allow the tap to generate its own pitch.
7. Where possible hold the tap in a good quality torque limiting tapping attachment, which ensures free axial movement of the tap and presents it squarely to the hole. It also protects the tap from breakage if accidentally “bottomed” in a blind hole.
8. Ensure smooth entry of the tap into the hole, as an uneven feed may cause “bell mousing”.

Tap Nomenclature



Spiral Tap Nomenclature



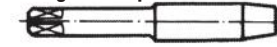
Tap Chamfers

Taper - 7 to 10 pitches



The taper chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.

Plug - 3 to 5 pitches

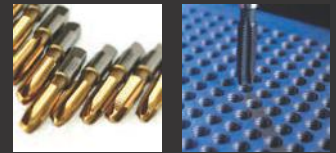


The most common chamfer for use by hand or machine in through or blind holes. This chamfer is more efficient than a bottoming chamfer.

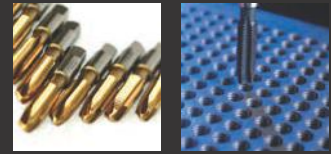
Bottom- 1 to 2 pitches



For threading close to the bottom of blind holes, the bottoming chamfer is the least efficient chamfer available.



| Technical Tips / Taps | | |
|--------------------------------------|--|---|
| TROUBLE | PROBABLE CAUSES | REMEDY |
| Breakage | <p>Hole too Small</p> <p>Tap Hitting Bottom</p> <p>Misalignment</p> <p>Tapping too deep</p> <p>Dull tap</p> <p>Cramped condition</p> | <p>Use to correct</p> <p>Consult Tap Drill Chart</p> <p>Correct adjustment</p> <p>Exercise more care</p> <p>Use positive reverse</p> <p>Drill hole taper</p> <p>Make correction</p> <p>Use spiral point or serial taps</p> <p>Sharpen tap</p> <p>Check tap holder and alignment</p> |
| Chipping | <p>Inadequate lubrication</p> <p>Hitting bottom of hole or chips packed in bottom of hole</p> <p>Hard spots in work</p> <p>Loading</p> | <p>Consult lubrication chart if lubrication engineer</p> <p>Check reversing stop</p> <p>Drill hole deeper</p> <p>Check hole for work hardening</p> <p>Check lubrication / Use surface treated taps</p> |
| Torn or Rough Threads | <p>Incorrect hook, relief, or chamfer</p> <p>Inadequate lubrication</p> <p>Dull tap</p> <p>Loading</p> | <p>Grind correctly</p> <p>Increase flow - see that it is getting into the hole</p> <p>Resharpen tap</p> <p>Use surface treated taps / check lubrication</p> |
| Tapping Oversize or Bell-Mouth Holes | <p>Loose spindle or worn holders</p> <p>Misalignment</p> <p>Excessive thrust</p> <p>Loading</p> | <p>Repair machine, tap holders or work holders</p> <p>Correct condition</p> <p>Adjust pressure if air driven / use more care if manual</p> <p>Use surface treated taps</p> |
| Excessive Wear | <p>Inadequate lubrication</p> <p>Sand in cored holes</p> <p>Abrasive material</p> | <p>Check lubrication engineer</p> <p>Clean hole before tapping</p> <p>If Bakelite, etc : use oversize tap with surface treatment</p> |



| Tap Drill Sizes | | | | | |
|-----------------|----------------|------------------|----------|----------------|------------------|
| Tap Size | Tap Drill Size | Prob % of Thread | Tap Size | Tap Drill Size | Prob % of Thread |
| 0-80 | 56 | 74 | 3/8-24 | Q | 75 |
| | 3/64 | 71 | | 8.5mm | 70 |
| 1-64 | 54 | 81 | 7/16-14 | U | 75 |
| | 53 | 59 | 7/16-20 | W | 75 |
| 1-72 | 1.50mm | 68 | | 25/64" | 68 |
| | 53 | 67 | 1/2-13 | 27/64" | 75 |
| 2-56 | 51 | 74 | | 11.0mm | 64 |
| | 50 | 62 | 1/2-20 | 11.4mm | 74 |
| 2-64 | 50 | 70 | | 29/64" | 67 |
| | 49 | 56 | 9/16-12 | 15/32 | 84 |
| 3-48 | 48 | 78 | | 31/64" | 69 |
| | 5/64" | 70 | 9/16-18 | 1/2" | 82 |
| 3-56 | 46 | 69 | | 33/64" | 60 |
| | 45 | 56 5 | /8-11 | 17/32 | 76 |
| 4-40 | 44 | 74 | | 35/64" | 63 |
| | 43 | 65 | 5/8-18 | 9/16 | 82 |
| 4-48 | 2.35mm | 72 | | 37/64 | 60 |
| | 42 | 61 | 11/16-11 | 19/32 | 75 |
| 5-40 | 39 | 71 | | 5/8" | 75 |
| | 38 | 65 | 3/4-10 | 41/64" | 81 |
| 5-44 | 38 | 72 | | 21/32" | 69 |
| | 37 | 63 | 3/4-16 | 11/16" | 72 |
| 6-32 | 36 | 72 | | 17.5mm | 70 |
| | 7/64" | 64 | 7/8-9 | 49/64" | 73 |
| 6-40 | 33 | 69 | | 25/32" | 62 |
| | 32 | 60 | 7/8-14 | 51/64" | 79 |
| 8-32 | 3.40mm | 74 | | 13/16" | 62 |
| | 29 | 62 | 1-8 | 7/8" | 74 |
| 8-36 | 29 | 70 | | 57/64" | 64 |
| | 9/64" | 60 | 1-12 | 29/32" | 82 |
| 10-24 | 3.70mm | 76 | | 59/64" | 68 |
| | 25 | 69 | 1-14 | 59/64" | 79 |
| 10-32 | 5/32" | 75 | | 15/16" | 62 |
| | 21 | 68 | 1-1/8-7 | 63/64" | 73 |
| 12-24 | 11/64" | 75 | | 1 | 65 |
| | 17 | 73 | 1-1/8-12 | 1-1/32" | 82 |
| 12-28 | 16 | 77 | | 1-3/64" | 67 |
| | 15 | 70 | 1-1/4-7 | 1-3/32" | 81 |
| 1/4-20 | 9 | 77 | | 1-7/64" | 73 |
| | 7 | 70 | | 1-1/8" | 64 |
| | 13/64" | 66 | 1-1/4-12 | 1-5/32" | 81 |
| 1/4-28 | 3 | 70 | | 1-11/64 | 67 |
| | 5.50mm | 67 | 1-3/8-6 | 1-13/64 | 81 |
| 5/16-18 | F | 72 | | 1-19/64" | 66 |
| | G | 66 | 1-3/8-12 | 1-9/32" | 81 |
| 5/16-24 | 6.80mm | 78 | | 1-19/64 | 66 |
| | I | 70 | 1-1/2-6 | 1-11/32" | 69 |
| 3/8-16 | 5/16" | 74 | | 1-23/64" | 62 |
| | O | 69 | 1-1/2-12 | 1-13/32" | 80 |
| | | | | 1-27/64" | 66 |

| Tap Drill Sizes | | | | | |
|-----------------|----------------|------------------|----------|----------------|------------------|
| Tap Size | Tap Drill Size | Prob % of Thread | Tap Size | Tap Drill Size | Prob % of Thread |
| 1.6x.35 | 1.25mm | 69 | 9.0x1.25 | 7.75mm | 73 |
| 1.8x.35 | 1.45mm | 69 | 10x1.5 | 8.50mm | 71 |
| 2.0x.4 | 1.60mm | 69 | | Q | 75 |
| | 52 | 66 | 10x1.25 | 8.70mm | 73 |
| 2.2x.45 | 1.75mm | 70 | | 11/32" | 71 |
| 2.5x.45 | 2.05mm | 69 | 11x1.5 | 9.50mm | 70 |
| | 46 | 67 | | 3/8" | 71 |
| 3.0x2.5 | 2.50mm | 68 | 12x1.75 | 10.20mm | 74 |
| | 40 | 70 | | Y | 71 |
| 3.5x6 | 2.90mm | 68 | 12x1.25 | 10.80mm | 67 |
| | 33 | 72 | | 27/64" | 72 |
| 4.0x.7 | 3.30mm | 69 | 14x2.0 | 12.00mm | 72 |
| | 30 | 73 | | 15/32" | 76 |
| 4.5x.75 | 3.70mm | 74 | 14x1.5 | 12.50mm | 71 |
| | 26 | 70 | 16x2.0 | 14.00mm | 72 |
| 5.0x.8 | 4.20mm | 69 | | 35/64" | 76 |
| | 19 | 68 | 16x1.5 | 14.50mm | 71 |
| 5.5x.9 | 4.60mm | 68 | 18x2.5 | 15.50mm | 73 |
| | 14 | 67 | | 39/64" | 74 |
| 6.0x.75 | 5.30mm | 74 | 18x1.5 | 16.50mm | 70 |
| | 4 | 73 | 20x2.5 | 17.50mm | 73 |
| 6.0x1.0 | 5.00mm | 70 | | 11/16" | 74 |
| | 9 | 71 | 22x2.5 | 19.50mm | 73 |
| 7.0x.75 | 6.30mm | 74 | | 49/64" | 75 |
| | D | 72 | 24x3.0 | 21.00mm | 73 |
| 7.0x1.0 | 6.00mm | 70 | | 53/64" | 72 |
| | 15/64" | 73 | 27x3.0 | 24.00mm | 73 |
| 8.0x1.25 | 6.70mm | 74 | | 15/16" | 78 |
| | 17/64" | 71 | 30x3.5 | 26.50mm | 74 |
| 8.0x1.0 | 7.00mm | 69 | | 1-3/64 | 73 |
| | J | 66 | 33x3.5 | 29.50mm | 74 |
| | | | | 1-11/64" | 72 |

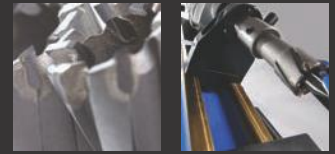
Pipe Tap Drill Sizes

| Tap Size | NPT Tap Drill | NPS Tap Drill |
|--------------|---------------|---------------|
| 1/16-27 | D | 1/4" |
| 1/8-27 | Q | 11/32" |
| 1/4-18 | 7/16" | 7/16" |
| 3/8-18 | 9/16" | 37/64" |
| 1/2-14 | 45/64" | 23/32" |
| 3/4-14 | 29/32" | 59/64" |
| 1-11-1/2 | 1-9/64" | 1-5/32" |
| 1-1/4-11-1/2 | 1-31/64" | 1-1/2 |
| 1-1/2-11-1/2 | 1-47/64" | 1-3/4 |
| 2-11-1/2 | 2-13/64" | 2-7/32 |
| 2-1/2-8 | 2-5/8" | 2-21/32" |



TECHNICAL

Annular Cutters



Annular Cutter Material and Speed Recommendations

Use the following table when using annular cutters in fixed machine tools.

| Type of Material | | Brinell Hardness | Cutting Speed (mm) |
|---|---|--------------------|--------------------|
| Aluminum | Wrought & Cast Die Cast 360.0, 380.0 383.0, 413.0 390.0, 392.0 | *30-150 | 500-1000 |
| | | *40-125 | 450-600 |
| | | *40-125 | 450-600 |
| | | *40-125 | 75-100 |
| Brass & Bronze | | - | 300-600 |
| Cast Iron | Soft Medium Chilled | 120-150 | 75-125 |
| | | 160-220 | 50-100 |
| | | 230-300 | 30-50 |
| Malleable Iron | Ferretic Pearlitic Temperature Martensite | 110-160 | 100-130 |
| | | 160-220 | 75-100 |
| | | 200-320 | 30-60 |
| Magnesium | | *50-90 | 8 |
| Nickel Alloys Monel Monel | 200-230 400-404 K500, 502 | 80-170 | 60-80 |
| | | 115-240 | 35-50 |
| | | 150-330 | 20-40 |
| Steel Resulphurized/Leaded Free Machining | | - | 105-130 |
| Carbon Steel | 10xx, 12xx, xx10, xx20 | 125-160 | 90--110 |
| Steel Alloys Soft Steel Alloys Medium Steel Alloys Hard | | 170-210 | 65-90 |
| | | 220-250 | 55-75 |
| | | 260-300 | 35-50 |
| | | 325-400 | 30-40 |
| Tool Steel | | 210-2150 | 35-60 |
| Forgings | | - | 40-50 |
| Armor Plate | | 200-250 250-300 | 40-55 30-45 |
| Stainless Steel Ferritic | 430,405 430F | 135-185 | 90-125 |
| | | | |
| Stainless Steel Austenitic | Lower BHN Higher BHN | 135-185 | 55-75 |
| | | 225-275 | 40-70 |
| Stainless Steel Nitomic (Low Alloy) | | 275-325 | 25-35 |
| Stainless Steel Martensitic | By Hardness Range 501 416/440F | 135-185 | 70-125 |
| | | 185-240 | 45-110 |
| | | 275-325 | 35-55 |
| | | 375-425 | 30-55 |
| Stainless Steel Precipitation Hardening | By Hardness Range 17-4 PH | 150-200 | 45-55 |
| | | 275-325 | 40-50 |
| | | 325-375 | 35-45 |

| Cutting Dia. Inches. | Surface Feet Per Minute | | | | | | | | | |
|----------------------|------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 51 | 102 | 153 | 204 | 255 | 306 | 357 | 407 | 458 | 509 |
| | Revolutions per minute (RPM) | | | | | | | | | |
| .7500 | 51 | 102 | 153 | 204 | 255 | 306 | 357 | 407 | 458 | 509 |
| .8750 | 44 | 87 | 131 | 175 | 218 | 262 | 306 | 349 | 393 | 437 |
| 1.0000 | 38 | 76 | 115 | 153 | 191 | 229 | 267 | 306 | 344 | 382 |
| 1.1250 | 34 | 68 | 102 | 136 | 170 | 204 | 238 | 272 | 306 | 340 |
| 1.2500 | 31 | 61 | 92 | 122 | 153 | 183 | 214 | 244 | 275 | 306 |
| 1.3750 | 28 | 56 | 83 | 111 | 139 | 167 | 194 | 222 | 250 | 278 |
| 1.5000 | 25 | 51 | 76 | 102 | 127 | 153 | 178 | 204 | 229 | 255 |
| 1.6250 | 24 | 47 | 71 | 94 | 118 | 141 | 165 | 188 | 212 | 235 |
| 1.7500 | 22 | 44 | 65 | 87 | 109 | 131 | 153 | 175 | 196 | 218 |
| 1.8750 | 20 | 41 | 61 | 81 | 102 | 122 | 143 | 163 | 183 | 204 |
| 2.0000 | 19 | 38 | 57 | 76 | 95 | 115 | 134 | 153 | 172 | 191 |
| 2.1250 | 18 | 36 | 54 | 72 | 90 | 108 | 126 | 144 | 162 | 180 |
| 2.2500 | 17 | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 | 170 |
| 2.3750 | 16 | 32 | 48 | 64 | 80 | 96 | 113 | 129 | 145 | 161 |
| 2.5000 | 15 | 31 | 46 | 61 | 76 | 92 | 107 | 122 | 138 | 153 |
| 2.6250 | 15 | 29 | 44 | 58 | 73 | 87 | 102 | 116 | 131 | 146 |
| 2.7500 | 14 | 28 | 42 | 56 | 69 | 83 | 97 | 111 | 125 | 139 |
| 2.8750 | 13 | 27 | 40 | 53 | 66 | 80 | 93 | 106 | 120 | 133 |
| 3.0000 | 13 | 25 | 38 | 51 | 64 | 76 | 89 | 102 | 115 | 127 |
| 3.1250 | 12 | 24 | 37 | 49 | 61 | 73 | 86 | 98 | 110 | 122 |
| 3.2500 | 12 | 24 | 35 | 47 | 59 | 71 | 82 | 94 | 106 | 118 |
| 3.3750 | 11 | 23 | 34 | 45 | 57 | 68 | 79 | 91 | 102 | 113 |
| 3.5000 | 11 | 22 | 33 | 44 | 55 | 64 | 76 | 87 | 98 | 109 |
| 3.6250 | 11 | 21 | 32 | 42 | 53 | 63 | 74 | 84 | 95 | 105 |
| 3.7500 | 10 | 20 | 31 | 41 | 51 | 61 | 71 | 81 | 92 | 102 |
| 3.8750 | 10 | 20 | 30 | 39 | 49 | 59 | 69 | 79 | 89 | 99 |
| 4.0000 | 10 | 19 | 29 | 38 | 48 | 57 | 67 | 76 | 86 | 95 |

Arbor Preparation

When using a drill press, ensure that a support system is in place for the arbor and that it is not worn out.

Surface Preparation

The material must be at least 3/8" thick. The machine's magnetic base must be clear of chips and debris and must be securely attached to a clean workpiece.

The magnet will be prevented from obtaining optimal holding power if it is used on an uneven surface or there is a large debris buildup. This may cause the drill to shift or lift during operation.

Pipe / Convex Surface Drilling

Champion magnetic drill presses can be used to drill such surfaces, but you need a support system. Champion stocks the RB-Saddle for such circumstances.

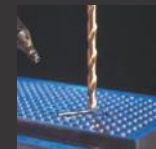
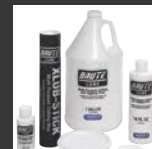
Machine Maintenance

For the best performance, always maintain your drill as instructed in your Champion machine operator's manual. Champion magnetic drill presses feature a slide/gibway system that requires periodic adjustments to maintain rigidity and optimal performance. Worn or damaged parts should be replaced to reduce the possibility of injury. Champion stocks a full range of replacement parts.



TECHNICAL

BruteLube Wax



BruteLube Wax Material Data Sheet

I. PRODUCT AND MANUFACTURER INFORMATION

Product name **BruteLube Multi-Purpose Cutting Wax**
 Chemical name
 Synonyms
 CAS number **NE**
 Manufacturer **Champion Cutting Tool Corp.**
10 Madison Avenue, Rockville Centre, NY 11570
 Emergency phone number **516-536-8200**
 Date of last revision **7/9/03**

II. HAZARDOUS INGREDIENTS

| HAZARDOUS COMPONENT | CAS NUMBER | % OPTIONAL | OSHA PEL | ACGIH TLV | CHEMICAL AND/OR COMMON NAME(S) |
|---------------------|------------------|------------|----------|-----------|--------------------------------|
| MINERAL OIL | (CAS 64742-52-5) | | 350 PPM | 350 PPM | |

III. PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling point @ 760mm Hg **>700 F**
 Vapor pressure at 20°C **<1**
 Vapor density (air = 1) **ND**
 Solubility in water **NOT SOLUBLE**
 Appearance and odor **YELLOW OPAQUE SOLID**
 Specific gravity (H2O = 1.0) **0.85**
 Melting point **172 F**
 Evaporation rate (butyl acetate = 1) **<1**

IV. FIRE AND EXPLOSION HAZARD DATA

Combustible/Not combustible **NOT COMBUSTIBLE**
 Flammable/Not flammable **NOT FLAMMABLE**
 Pyrophoric/Not pyrophoric **NOT PYROPHORIC**
 Explosive/Not explosive **NOT EXPLOSIVE**
 Flash point (test method) **>450 F**
 Flammable limits (in Air % by volume) **NA NA NA**
 Extinguishing media **FOAM OR DRY CHEMICAL**
 Special fire-fighting procedures or equipment **SAME AS FOR PETROLEUM PRODUCTS**
 Unusual fire and explosion hazards **NONE**

V. REACTIVITY DATA

Material is stable/unstable **STABLE**
 Conditions to avoid **AVOID STRONG ACIDS OR BASES**
 Incompatibility (materials to avoid) **AVOID STRONG ACIDS OR BASES**
 Hazardous decomposition or by-products **NONE KNOWN**
 Hazardous polymerization will/will not occur **WILL NOT OCCUR**

VI. HEALTH HAZARD DATA

Threshold limit value **NE**
 Primary route(s) of entry
 Known Hazards Under 29 CFR 1910.1200
 Mutagenic (genetic defects) **NONE**
 Reproductive **NONE**
 Systemic **NONE**
 Teratogenic (birth defects) **NONE**



TECHNICAL

BruteLube Fluid



BruteLube Fluid Material Sheet

IDENTIFICATION

Product Name: BruteLube
Chemical Family: Hydrocarbon Mixture CAS#: Not Applicable to this mixture
Manufacturer: Champion Cutting Tool Corp, 10 Madison Avenue, Rockville Centre, NY 11570 Tel: (516) 536-8200
Emergency Phone Number: (800) 424-9300 CHEMTREC (Transportation Emergencies)

COMPOSITIONAL INFORMATION

Ingredients Exposure Limit
Severely Hydrotreated Naphthenic Distillate. 5 mg/cubic meter (OSHA PEL 8 hour work day)
Paraffinic Distillate 5 mg/cubic meter (OSHA PEL 8 hour work day)
10 mg/cubic meter (ACGIH TLV/STEL)
Chlorinated Paraffin* Not established
Chlorinated Fatty Acid* Not established
*contains corrosion and stain inhibitor

PHYSICAL DATA

Flash Point (PM CC)Over 300 degrees Fahrenheit
Density (20 degrees C.) 7.7 pounds per gallon
Vapor Pressure (60 degrees F) Less than Ether

ROUTE(S) OF EXPOSURE AND EFFECTS

Eye Contact: Contact with the eye may cause moderate irritation.
Skin Contact: Prolonged or repeated exposure may cause defatting of the skin resulting in moderate irritation.
Inhalation: Excessive exposures at elevated temperatures may cause irritation to eyes, nose, mucous membranes and the respiratory system. Excessive exposures may also cause dizziness and other central nervous system effects.
Ingestion: This product has a low order of acute toxicity.
Pulmonary aspiration hazard if swallowed and vomiting occurs.

REACTIVITY

Reaction with water Non-reactive
Hazardous Polymerization Non-reactive
Stability Stable
Incompatible Materials Strong oxidizing and reducing agents.
Hazardous Decomposition Products Carbon dioxide, carbon monoxide, hydrogen chloride and oxides of sulfur.

PROTECTION INFORMATION

Respiratory: Use with adequate ventilation. Ventilate as needed to comply with exposure limit. In event of vapor concentrations exceeding the time weighted exposure limit use a NIOSH approved cartridge respirator or gas mask.
Skin: Impervious gloves are optional.
Eyes: Splash proof chemical goggles or face shield is optional.

SPILL OR LEAK PROCEDURES

Prevent ignition, stop leak, ventilate area, contain spill by diking or impounding. Add sand, earth, or other suitable absorbent to spill area. Keep product out of sewers and waterways. Wear respiratory protection for large spill, leak or release. Dispose of according to local, state and federal regulations.

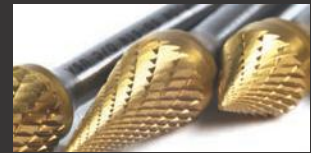
FIRST AID PROCEDURES

Eye Contact: Flush with water for 15 minutes. Obtain medical assistance if irritation persists.
Skin Contact: Wash with soap and water until no odor remains.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration and obtain medical assistance.
Ingestion: Do not induce vomiting. Do not give liquids. Obtain medical assistance. Small amounts entering the mouth should be rinsed out until no taste remains.

FIRE FIGHTING PROCEDURES & EXTINGUISHING MEDIA

Use foam, water spray (fog), dry chemical carbon dioxide or vaporizing liquid for this type of product depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists. Wear self contained breathing apparatus to protect against decomposition products.

The information and recommendations contained herein are, to the best of our knowledge and belief, accurate and reliable as of the date issued. We do not warrant or guarantee their accuracy or reliability, and shall not be liable for any loss or damage arising out of the use there of. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use.



Carbide Bur Application & Speed Recommendations

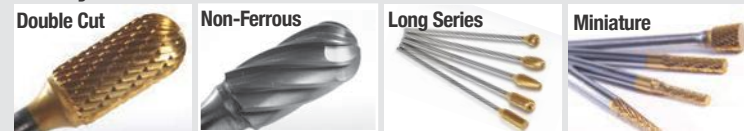
A bur is a rotary cutting tool with a tungsten carbide head of various shapes to form, reduce, shape, smooth or clean pieces of metal. Burs are used in virtually every industry for mold and pattern making, die sinking, tool making, maintenance, weld removal & casting flash removal. They are used in automotive, aerospace, foundry, power station, ship building and engineering industries. Champion carries dozens of styles of burs.

Selecting the Right Bur

Three factors to consider

1. Shape of work piece being de-burred determines shape of bur chosen
2. Area being de-burred determines size of bur needed
3. Material being de-burred determines double-cut or non-ferrous flute style.

Bur Styles



Best Style of Bur for Non-Ferrous Materials

Non-ferrous burs feature deeper single-cut flutes which shear non-ferrous materials (e.g. aluminum) into chips which are easily disposed of.

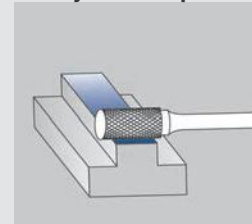
When to Use a Double Cut Bur

These burs have chisel type cutting edges with left and right hand spirals, providing excellent stock removal, fine surface finish, and excellent operator control.

Most Popular Shapes of Bur Heads

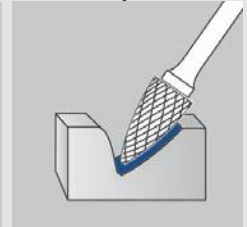
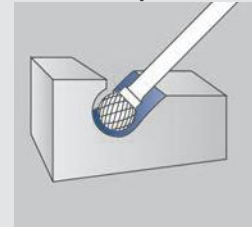
SA - Cylinder Shape

SC - Cylinder Radius Shape



SD - Ball Shape

SF - Tree Shape Radius End



SOLID CARBIDE BUR APPLICATION INFORMATION

| Material Check List | Suitability | |
|------------------------|-------------|-------------|
| | Double Cut | Non Ferrous |
| Aluminum | YES | YES |
| Brass | YES | YES |
| Bronze | YES | |
| Cast Iron | YES | |
| Copper | | YES |
| Carbon Fiber | | YES |
| Fiberglass | YES | |
| Inconel | YES | |
| Magnesium | | YES |
| Plastics | YES | |
| Hard Rubber | YES | |
| Steel - 45-55Rc | YES | |
| Steel - 55-60Rc | YES | |
| Steel - Carbon | YES | |
| Steel - Nickel Chrome | YES | |
| Steel - Stainless | YES | |
| Steel - Weldments | YES | |
| Titanium | YES | |
| Zinc | | YES |

SOLID CARBIDE BUR SPEED RECOMMENDATIONS

| Bur Diameter | Recommended Cutting Speed (RPM) | Maximum Cutting Speed (RPM) |
|--------------|---------------------------------|-----------------------------|
| 1/16 | 60,000 - 90,000 | 100,000 |
| 1/8 | 40,000 - 70,000 | 90,000 |
| 3/16 | 35,000 - 60,000 | 80,000 |
| 1/4 | 30,000 - 50,000 | 70,000 |
| 5/16 | 20,000 - 40,000 | 68,000 |
| 3/8 | 20,000 - 40,000 | 66,000 |
| 7/16 | 15,000 - 40,000 | 58,000 |
| 1/2 | 15,000 - 40,000 | 50,000 |
| 5/8 | 12,000 - 25,000 | 40,000 |
| 3/4 | 10,000 - 20,000 | 33,000 |
| 1 | 7,500 - 20,000 | 25,000 |
| 1-1/8 | 7,000 - 13,000 | 20,000 |
| 1-1/2 | 5,000 - 10,000 | 17,000 |
| 1-3/4 | 4,500 - 9,000 | 14,000 |
| 2 | 4,000 - 8,000 | 12,500 |

General Information on Bur Use

1. Do not use carbide burs in a portable drill motors. Portable Drill motors run at much lower speeds.
2. It may be recommended to adjust the bur speed as shown under maximum recommended operating speeds for optimum performance. Use slower speeds for harder materials.
Use higher speeds when using small burs. Use slower speeds when using long series burs.
3. Running burs below recommended speeds may cause chipping.
4. Do not use worn out tools and collets as they will also cause chipping.
5. Running burs too fast will cause teeth to wear prematurely.
6. Apply constant pressure and movements when in use.



PTC3 Porcelain Tile Diamond Drills

BASIC TECHNIQUES

1. Drill Dry Or Use Water Coolant

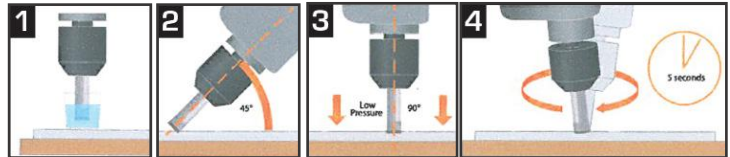
- This drill can be used dry by simply dipping it into a suitable liquid before drilling each hole
- Using this drill with a constant flow of water will extend its life dramatically - follow guidelines below:
 - Use spray bottle to apply water on vertical surfaces
 - On horizontal surfaces start with a small pool of water prior to drilling - then ensure water is constantly present

2. Drilling Technique

- Rotary mode cordless power tool recommended (900-1000 rpm)
- If drilling dry then dip into fluid before every hole (1)
- If drilling wet follow guidelines above
- Drill at 45° angle to initially create a 'smile' in tile surface (2)
- Then tilt the drill up to 90° to tile surface (3)
- Use regular 5 second bursts during drilling
- Maintain speed and pressure until hole is completed
- Do not use this drill to penetrate supporting material

3. Drilling Tips

- Slight rotating motion will increase penetration speed (4)
- Practice your technique on an old tile first



GENERAL USAGE TIPS

PRACTICE DRILLING LOOSE TILES

Drilling hard tile is a difficult application made easy by using PTC3 diamond drills. However, there are certain techniques that will help you to achieve continued efficient drilling. Use spare tiles to practice your technique.

PTC4 Diamond Multi Purpose Cutters

USAGE / HINTS / TIPS

PRACTICE DRILLING LOOSE MATERIAL

Drilling hard materials is a difficult application made easy by using PTC4 multi purpose hole cutters. However, there are certain techniques that will help you to achieve continued efficient drilling. If you are regularly drilling the same materials then you will have odd sections available to you. Use these to practice your technique. As with new materials, maybe practice on loose sections.

BASIC TECHNIQUES

1. Always ensure that the material is on a flat bed / supporting material if drilling loose materials.
2. Always ensure that a constant supply of coolant is present at the cutting edge if the material requires it.
3. A cordless power tool is the ideal type of drill to use. If using a corded drill, always use a ground fault circuit interrupter (GFCI).
4. The optimum running speed for the drill for PTC4 multi purpose hole cutters is 900-1000rpm.
5. Do NOT use hammer action when using diamond holesaws.

WET DRILLING - (porcelain and quarry tiles, Class 5, granite, travertine, marble, reinforced glass and cement, stone)

1. IF drilling WET - remove the pilot drill from the adaptor - the material does not suit its use.
2. To start, present the diamond holesaw at a 45° angle to the material. Run the power tool at the recommended speed before contact and ensure water is present.
3. Ensure a good amount of pressure is applied upon contact to stop the diamond drill 'walking'.
4. After initially creating a 'half moon' shaped cut in the tile bring the drill up to the vertical position.
5. Ensure a constant flow of water at the cutting edge.
6. Rotate the drill slightly as it cuts to create relief around the hole and ease the exit of the slug.
7. If drilling into a tile or similar material already fixed to a vertical support then ensure that a constant flow of water is present as gravity will draw the water away. You may need additional help to achieve this.

DRY DRILLING - (glass, polymers, fibreglass, decking, plywood, mdf, plastics, laminates, perspex, brick, paving)

1. Use the holesaw with the pilot drill attached as you would a standard bi-metal holesaw.

LUBRICATED DRILLING - (cast iron, virton, aluminum - we recommend the use of BruteLube or BruteLube Wax)

1. Use the holesaw with the pilot drill attached as you would a standard bi-metal holesaw.
2. Ensure first, that the full diameter of the area to be drilled is covered in a suitable lubricant for the material being drilled. Also place the same lubricant onto the cutting edges of the holesaw.
3. Failure to lubricate the holesaw and material will result in accelerated heat generation, loss of tool life and potential tool failure.

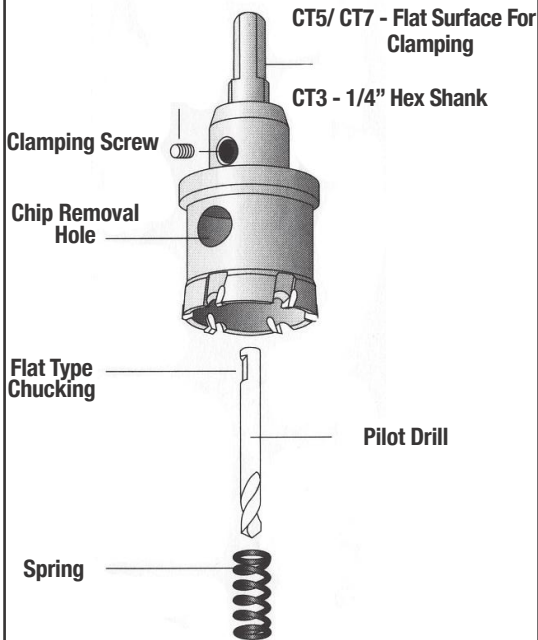


Technical Tips - CT Cutters

CT3 / CT5 / CT7 Carbide Tipped Hole Cutters

SPEED RECOMMENDATIONS

| Diameter | Steel | Stainless Steel |
|-----------------|------------|-----------------|
| 9/16 to 13/16 | 700 - 1000 | 300 - 700 |
| 7/8 to 1-3/16 | 500 - 800 | 200 - 450 |
| 1-1/4 to 1-9/16 | 300 - 600 | 175 - 315 |
| 1-5/8 to 2 | 200 - 500 | 120 - 225 |
| 2-1/16 to 2-3/8 | 200 - 400 | 95 - 195 |
| 2-7/16 to 3 | 150 - 300 | 80 - 150 |
| 3-1/16 to 6 | 100 - 200 | 60 - 120 |

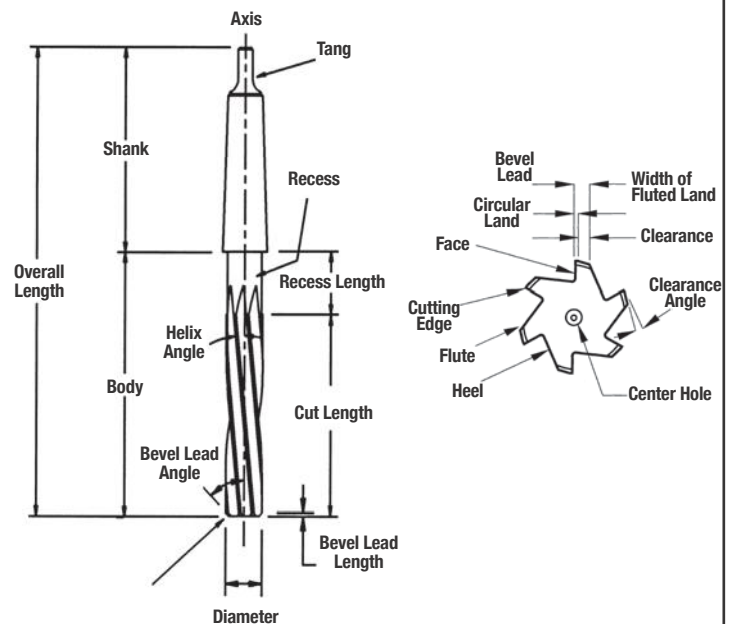


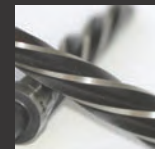
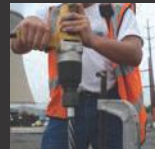
Technical Tips - Reamers

General Hints on Reaming

To obtain the best results when using reamers it is essential to make them "work". It is a common fault to prepare holes for reaming with too little stock left in. If insufficient stock is left in the hole before reaming then the reamer will rub, quickly show wear and will result in loss of diameter. It is equally important for performance not to leave too much stock in the hole.

1. Select the optimum type of reamer and the optimum speeds and feeds for the application. Ensure that pre-drilled holes are the correct diameter.
2. The workpiece must be held rigid and the machine spindle should have no play.
3. The chuck in which a straight shank reamer is held must be good quality. If the reamer slips in the chuck and the feed is automatic, breakage of the reamer may occur.
4. Keep tool overhang from machine spindle to a minimum.
5. Use recommended lubricants to enhance the life of the reamer and ensure the fluid reaches the cutting edges.
6. Do not allow the flutes of a reamer to become blocked with chips.
7. Keep reamers sharp. Frequent regrinding is good economy, but it is important to understand that reamers cut only on the bevel and taper leads and not on the lands. Consequently only these leads need regrinding. Accuracy of regrinding is important to hole quality and tool life.





Technical Tips - Reamers

Reamers are designed to de-bur, enlarge or align holes. Machine shops and production manufacturers primarily use “chucking reamers” which are engineered for extremely close tolerance work and precision hole sizing, generally within a few ten thousandths of an inch. Chucking reamers come in a wide variety of diameters, styles, and straight, square and taper shank, with the most commonly used sizes between 1/16 to 1/2”. On the other hand “Construction reamers” which include bridge and car reamers are most often used for hole-alignment and enlargement in structural steel, where a structural bolt will subsequently be used to fasten structures. For example, one of the most common bridge reamer diameters is 1-1/16”, which is often used to create bolt clearance for 1” structural bolts.

Champion Reamer

Description

SA80 Car Reamers



Also referred to as chassis and maintenance reamers, these are frequently used for enlarging and aligning holes in truck and trailer frames. Straight shank fits portable drills with 3-jaw chucks. Most popular sizes are 1/2, 5/8, 3/4”. Available from 5/16 to 1-1/2” diameter. Ideal for maintenance and repair.



980/982 Taper Shank Bridge Reamers



Used by steel erectors in taper shank spindle power tools for aligning structural steel. Series 982 has left hand flutes cut with a shearing action which safely projects chips forward. Series 980 have straight flutes which are easily sharpened. Available from 7/16 to 1-5/16”; 982 available from 9/16” - 1-5/8”.

Brute XL86 Hex Shank Bridge Reamers



Used by steel erectors in electric and pneumatic impact wrenches for aligning thick structural steel. Left hand flutes cut with a shearing action which safely projects chips forward.

Shank diameter for each reamer matches socket size for bolt which will be driven through the newly reamed holes.

Available from 11/16 to 1-5/8”.

Brute XL86M Magnetic Hex Shank Bridge Reamers



Same quality and features as XL86 with the addition of 2 embedded magnets to secure reamer in socket for added safety.

Available from 11/16” to 1-5/8”.



Brute HX82 Hex Shank Car Reamers



Used by steel erectors in electric and pneumatic impact wrenches for aligning structural steel. Left hand flutes cut with a shearing action which safely projects chips forward. Short length for use in tight areas. Available from 11/16 to 1-3/16”. HX80 style has straight flutes.

Brute HX82M Magnetic Hex Shank Car Reamers



Same quality and features as HX82, but with the addition of 2 embedded magnets to secure reamer in socket for added safety. of pipes or fittings when a sealer is used to secure the joint.



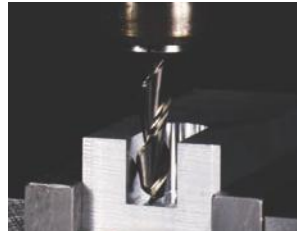


Technical Tips - End Mills

An end mill is a “shaping tool”, a rotary cutting tool having cutting edges, helical or straight flutes for the passage of chips and the admission of cutting fluid. Common types of milling include: Slotting, pocketing, profiling, and contouring.



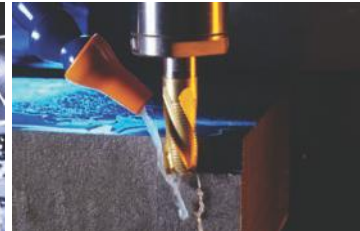
Slotting



Deep Slotting Of Aluminum



Profiling Involves Cutting Along The Edge Of The Material



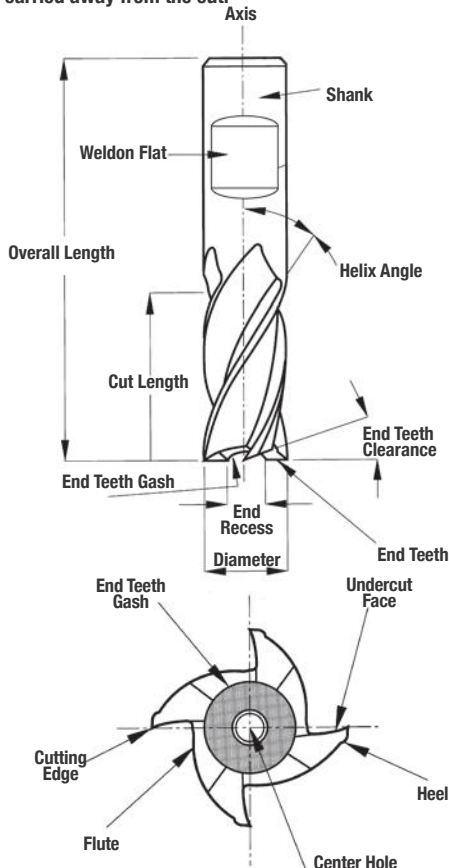
End Mill Anatomy

Weldon Shanks: Most end mills have Weldon flat shanks which are flats ground onto the shanks for securing in the end mill holder (collet).

Flutes: Flutes are the grooves that run along the body of an end mill, providing a pathway for the removal of chips and allow coolant to reach the cutting edges. Two flute end mills can all plunge-cut and are often used for slotting applications. Four flute (multi-flute) end mills are often chosen for profiling.

Length of Cut (LOC): Defines the maximum usable cutting depth of the end mill

Helix Angle: The helix angle helps determine the rate at which chips are carried away from the cut.



Types Of End Cut

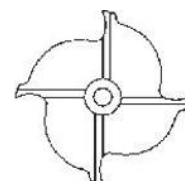
- Center Cutting (CC)-Able to “plunge-cut” or drill into material
- Non Center Cutting (NCC)-End cutting edges do not meet in center, hence tool cannot plunge-cut.
- Ball Nose-Used to create compound curved shapes (i.e. molds)



Two Flute Center Cut



Four Flute Center Cut



Four Flute Non-Center Cut

General Hints on Milling

A liberal supply of cutting liquid (emulsion) should be used.

Adaptation to the machine tool

Conventional milling machines usually have a limited number of selectable speed and feed rates.

The recommendations made must therefore be adapted to the values applicable to the machine being used. Adaptation should be done so that the recommended rate of feed per tooth is changed as little as possible.

It is particularly important that the rate of feed per tooth does not increase for diameters < 3/8”.

End Mill Materials & Coatings

- End mills are made from High-speed steel (HSS), cobalt steel, or carbide.
- High-speed steel (i.e. M2) is the least expensive material, and applicable for milling carbon steel, cast iron and non-ferrous materials, while cobalt (i.e. M42) offers greater wear resistance to abrasion and heat.
- Solid carbide is significantly harder than both HSS and cobalt, and provides the greatest wear resistance and longest tool life.
- Significant productivity gains are realized with carbide end mills, as they can be run at higher speeds and feeds.
- End mills are often coated with Titanium Nitride (TiN), Titanium Carbo-Nitride (TiCN), or TiAlN for further enhanced performance.

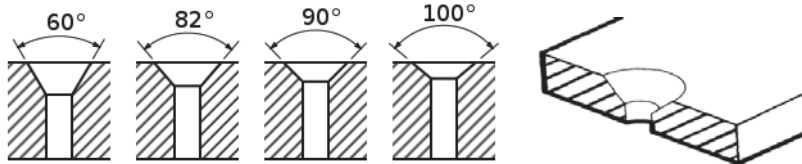
Popular Champion End Mills Include:

- 600 HSS, Single End, Two Flute
- 601 HSS, Single End, Four Flute
- 602 HSS, Double End, Two Flute
- 603 HSS, Double End, Four Flute
- 604 HSS, Single End, Ball Nose
- 600CO Cobalt, Single End, Two Flute
- 601CO Cobalt, Single End, Multi-flute, Center Cutting
- XL600 TiN Coated Cobalt, Single End, Two Flute
- XL606 Cobalt, TiN Coated, Single End, Multi-flute, Center Cut
- XLVC Carbide, TiAlN Coated, Single End, Four Flute, 45 degree corner chamfer
- XLVR Carbide, TiAlN Coated, Single End, Four Flute, Corner radius



Technical Tips - Countersinks

A countersink is a cutting tool which puts a conical hole into an object. A common use is to allow the head of a countersunk bolt or screw, when placed in the hole, to sit flush with or below the surface. Countersinks may also be used to remove burrs left from drilling or tapping operations. The practice of countersinking has been around for centuries, from early jewelry making to countersinking hand grenade detonator holes during WWI.



Champion offers a variety of high speed steel countersinks for chatter free performance, with smooth and fast chip removal. Countersinks can be used in many tools such as hand held drills or drill presses, milling machines and lathes. They are effective cutting many materials including metal, plastic and wood and are ideal for the glass and window industry.

Most Popular Countersink Types

ZERO FLUTE COUNTERSINKS

Champion's zero-flute countersink is a cross-hole countersink, commonly referred to as a Weldon Style countersink. This is a cone shaped tool with a cutting edge provided by a hole that goes through the side of the cone. The intersection of the hole and cone form the cutting edge of the tool.

Zero-flute countersinks are best used as deburring tools and for countersinking softer materials such as aluminum, wood or plastic to create a countersunk hole for a screw.

Zero countersinks come in 2 styles: Piloted and Pilotless.

Piloted HSS

- Piloted countersinks are recommended for screws from 1/4" to 1/2" diameter. (Round shank - CSK 82°)



Pilotless HSS

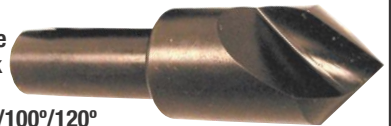
- Pilotless countersinks are recommended for bolt sizes from .073 to 1-15/32 and screw sizes #4 through #10. (Round shank - DCB 60°, CSK 82°, DBK90°, CSKA100°) (1/4" Hex Shank - CSK-SH)



SINGLE FLUTE COUNTERSINKS

Use: For use in a portable drill, drill press, or Bridgeport type machine. Features: Self centering, good for non-rigid machining setup. Also able to countersink a wide range of hole sizes with one tool size.

- XL801 - Single flute countersink High hook 60°/82°/90°/100°/120°



THREE FLUTE COUNTERSINKS

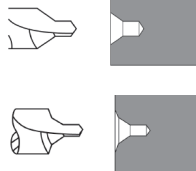
As with the single flute countersinks they are designed for use with chatter free performance and are used mostly in portable applications

- 799 - Three flute countersink 60°/82°/90°/100°/120°



COMBINED DRILL & COUNTERSINKS

Combined drill and countersinks (Champion #798, #796) are designed to produce accurate conical holes in components which require machining between centers.



- 798 - Plain style drill & countersink HSS / 60° angle

- 796 - Bell style drill & countersink HSS / 60° & 90° angles



HOW TO CHOOSE THE RIGHT SIZE COUNTERSINK (DIAMETER)

A simple rule of thumb is to choose a countersink which is 50% larger than the diameter of the hole. Countersink diameter = 1.5 x Bolt Size (hole) diameter. Example: For a 1/4-20 bolt, multiply the diameter (.250) x 1.5 = .375. This equates to a 3/8" countersink.

HOW TO CALCULATE COUNTERSINK SPEEDS

Countersinking is usually performed at 1/3 the RPM of drilling. First calculate drilling speed by using the formula below. Then simply divide by 3.

Formula: SFM (surface feet/minute) x 3.82 / Countersink Diameter (decimal equivalent) / 3

| Material | Surface Feet / Minute (SFM) | Sample Calculations for 1/4" Countersink Speed (RPM) |
|-----------------|-----------------------------|--|
| Aluminum | 200 - 250 | (225 (SFM) x 3.82 / .2500) / 3 = 1,146 RPM |
| Mild Steel | 100 - 110 | (115 (SFM) x 3.82 / .2500) / 3 = 586 RPM |
| Stainless Steel | 30 - 100 | (65 (SFM) x 3.82 / .2500) / 3 = 381 RPM |



RZR CERMET

Circular Saw Blades

Cut Steel, Stainless and Aluminum

Description: The newest technology in high performance metal cutting. Featuring sharp cermet (ceramic metal compound) teeth for increased productivity when cutting steel and stainless steel.

Application: • High performance circular saw blades for productive metal cutting. Ideal for steel fabricators, electricians, general contractors, maintenance and more.

Steel Cutting Blades

Ideal for cutting steel plate, angle iron, pipe, all thread, and more
Longer tool life and smoother, bur-free cutting than carbide

- Razor sharp cermet teeth resist heat and friction
- Hardened steel body increases tool life

Faster cutting

- Thin kerf design reduces cutting resistance

Improved blade stability in straight running cuts

- Unique cermet tooth geometry engineered specifically for steel cutting

Noise reduction due to laser slits

| Thin Kerf Design | Laser Slits | Unique Tooth Geometry |
|------------------------|-------------|-------------------------|
| <p>SUPER THIN KERF</p> | | <p>WIDE SHALLOW</p> |



Stainless Steel Cutting Blades

Blades engineered specifically for tough stainless steel cutting

- Ideal for cutting 304 stainless

Feature razor sharp cermet teeth for faster, bur-free cutting and laser slits for noise reduction

Enhanced features for stainless steel cutting

- About 2X more teeth than steel cutting blades (ex: 7" steel blade = 36 teeth, 7" stainless steel blade = 64 teeth)
- Special tooth geometry for cutting stainless
- 2-step saw body reduces vibration and prevents chipping of cermet teeth

| 2-Step Saw Body | Laser Slits |
|--|-------------|
| <p>2STEP SAWBODY NORMAL SAW BODY</p> | |



Aluminum Cutting Blades

Ideal for cutting aluminum plate, extrusion, angle, tubing, and other non-ferrous materials

Produce clean, accurate, bur-free cuts

Feature ultra-sharp titanium carbide teeth (not cermet)

- Carbide is the preferred material for aluminum and non-ferrous cutting

Power Tool Guidelines for Saw Blades

- Cordless saws (5-3/8" & 6-12" blade)
- Metal cutting circular saws (7", 8", 9" blades)
- Low speed chop saws (12", 14" blades)





RZR CERMET

Circular Saw Blades

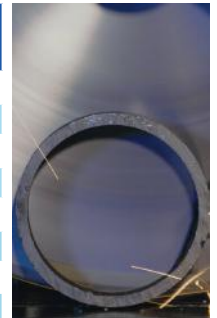
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Steel Cutting Blades

| EDP No./ Diameter | Diameter | No of Teeth | Kerf | Arbor | Max RPM | Max Thickness of Cut |
|-------------------|----------|-------------|------|-------|---------|----------------------|
| RZR-538-26-S | 5-3/8" | 26 | 1.2 | 20mm | 6000 | 3/16" |
| RZR-612-32-S* | 6-1/2" | 32 | 1.4 | 5/8" | 6000 | 3/16" |
| RZR-7-36-S | 7" | 36 | 1.4 | 20mm | 5800 | 1/4" |
| RZR-714-36-KO-S* | 7-1/4" | 36 | 1.4 | 5/8" | 5800 | 5/16" |
| RZR-714-36-S | 7-1/4" | 36 | 1.4 | 20mm | 5800 | 5/16" |
| RZR-8-40-S | 8" | 40 | 1.8 | 5/8" | 4500 | 1/2" |
| RZR-9-44-S | 9" | 44 | 2.0 | 1" | 3500 | 1/2" |
| RZR-12-54-S | 12" | 54 | 2.2 | 1" | 1700 | 1" |
| RZR-14-64-S | 14" | 64 | 2.4 | 1" | 1500 | 1" |



Materials

Steel Pipe Gas Pipe Steel Plate Angle Iron Rebar Square Pipe C-channel Channel Stud Cast Iron

Stainless Steel Cutting Blades

| EDP No./ Diameter | Diameter | No of Teeth | Kerf | Arbor | Max RPM | Max Thickness of Cut |
|-------------------|----------|-------------|------|---------|---------|----------------------|
| RZR-538-50-ST | 5-3/8" | 50 | 1.5 | 20mm | 6000 | 1/8" |
| RZR-612-56-ST* | 6-1/2" | 56 | 1.5 | 5/8" | 6000 | 1/8" |
| RZR-7-64-ST | 7" | 64 | 1.5 | 20mm | 5800 | 1/8" |
| RZR-714-64-KO-ST* | 7-1/4" | 64 | 1.5 | 5/8" KO | 5800 | 1/8" |
| RZR-714-64-ST | 7-1/4" | 64 | 1.5 | 20mm | 5800 | 1/8" |
| RZR-8-70-ST | 8" | 70 | 1.8 | 5/8" | 4500 | 1/8" |
| RZR-9-76-ST | 9" | 76 | 2.0 | 1" | 3500 | 1/8" |
| RZR-12-96-ST* | 12" | 96 | 2.0 | 1" | 1700 | 1/4" |
| RZR-14-110-ST | 14" | 110 | 2.1 | 1" | 1500 | 1/4" |



Materials (in addition to those for steel cutting)

Stainless Pipe Stainless Rebar Stainless Plate Stainless Square Tubing

Aluminum Cutting Blades

| EDP No./ Diameter | Diameter | No of Teeth | Kerf | Arbor | Max RPM | Max Thickness of Cut |
|-------------------|----------|-------------|------|---------|---------|----------------------|
| RZR-612-50-NF* | 6-1/2" | 50 | 2.0 | 5/8" | 6000 | 1/4" |
| RZR-7-54-NF | 7" | 54 | 2.0 | 20mm | 5800 | 3/8" |
| RZR-714-54-KO-NF* | 7-1/4" | 54 | 2.0 | 5/8" KO | 5800 | 5/16" |
| RZR-8-80-NF* | 8" | 80 | 2.2 | 5/8" | 5500 | 3/8" |
| RZR-9-80-NF* | 9" | 80 | 2.2 | 1" | 5500 | 3/8" |
| RZR-10-80-NF | 10" | 80 | 2.4 | 5/8" | 5300 | 3/8" |
| RZR-12-100-NF | 12" | 100 | 2.8 | 1" | 4300 | 3/8" |
| RZR-14-100-NF | 14" | 100 | 2.8 | 1" | 3800 | 3/8" |



Materials

Aluminum Extrusion Aluminum Bar Aluminum Angle Aluminum Tubing Aluminum C-Channel Aluminum Plate Aluminum Sash

* Coming early 2019



Hex Shank Twist Drills

List No. HEX28

135° Split Point / 1/4" Hex Shank / HSS

Description: Professional grade 135° split point twist drills - self centering for quick penetration and accurate drilling every time. One piece heavy duty steel construction and shorter mechanics length body for increased rigidity

Application: Engineered for use in impact drivers and cordless drills with hex shank capacity. Ideal for wood, aluminum and low to medium steel.



| EDP No./ Diameter | Decimal Equivalent | Flute Length | Drill Length | Overall Length |
|-------------------|--------------------|--------------|--------------|----------------|
| HEX28-1/16 | .0625 | 3/8 | 7/8 | 1-7/8 |
| HEX28-3/32 | .0938 | 3/4 | 1-3/16 | 2-1/4 |
| HEX28-1/8 | .1250 | 7/8 | 1-1/2 | 2-5/8 |
| HEX28-5/32 | .1562 | 1 | 1-5/8 | 2-3/4 |
| HEX28-3/16 | .1875 | 1-1/8 | 1-7/8 | 3 |
| HEX28-7/32 | .2188 | 1-3/8 | 2-1/8 | 3-1/4 |
| HEX28-1/4 | .2500 | 1-1/2 | 2-3/8 | 3-1/2 |
| HEX28-9/32 | .2812 | 1-3/4 | 2-3/4 | 3-3/4 |
| HEX28-5/16 | .3125 | 2 | 2-7/8 | 4 |
| HEX28-3/8 | .3750 | 2-1/4 | 3-1/4 | 4-1/4 |
| HEX28-7/16 | .4375 | 2-3/8 | 3-3/8 | 4-1/2 |
| HEX28-1/2 | .5000 | 2-3/4 | 4 | 5 |

Note: Available in bulk packs and individual iPAC

- Drill wood, aluminum, and low to medium steel





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