

**CHAMPION**  
CUTTING TOOL CORP

**2017**

**1897**

**Innovative Cutting Tool Solutions**

**BRUTE**  
PLATINUM

**CHAMPION**

**ROTO**  
Brute

**PROLINE**

**CHAMPION**  
CUTTING TOOL CORP

# 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**

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.



**BRUTE**  
PLATINUM

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.



**ROTO**  
Brute

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.



**PROLINE**

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.

## 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.

## DEDICATED CUSTOMER SERVICE

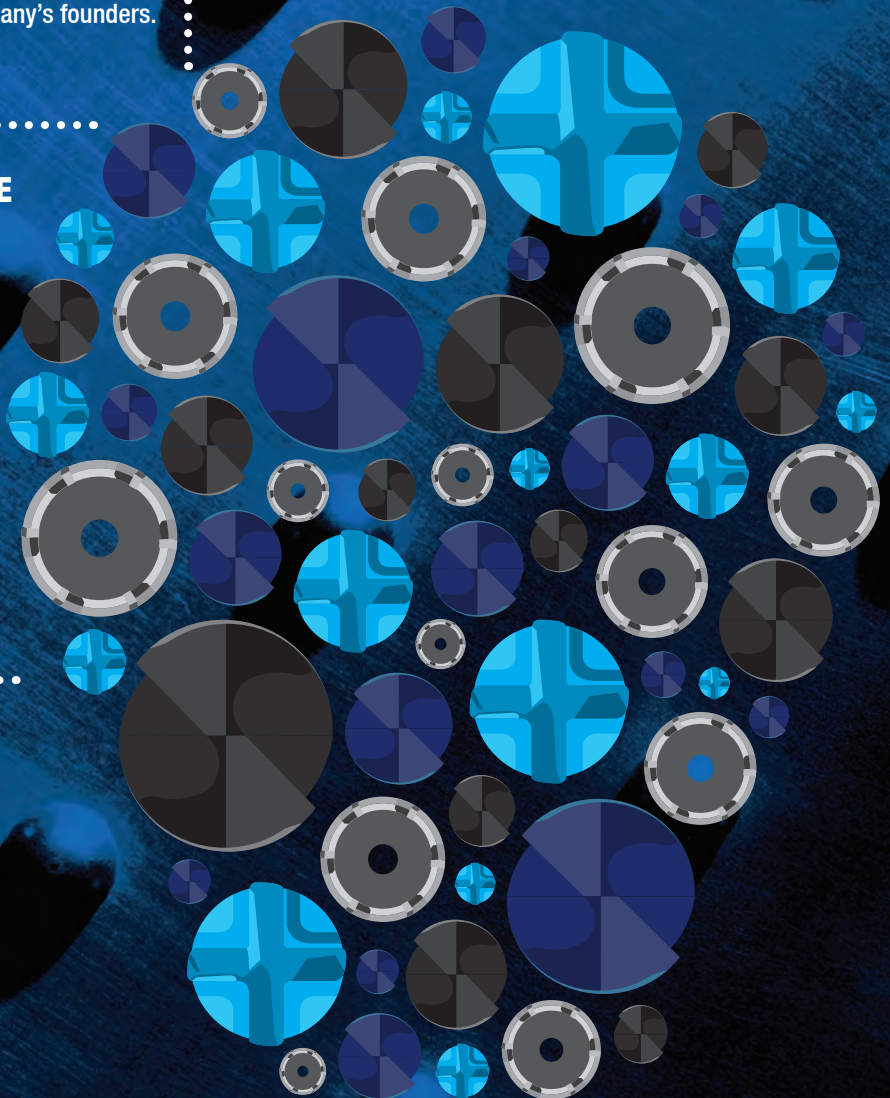
Our passionate team goes the extra mile to provide outstanding customer service. Knowledgeable cutting tool experts trained to answer product and application questions ensures our customers select the proper tool to meet their needs. Historical order fill-rates of 99% coupled with the same-day shipping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

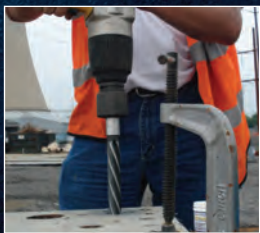


**DRILLS**

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**

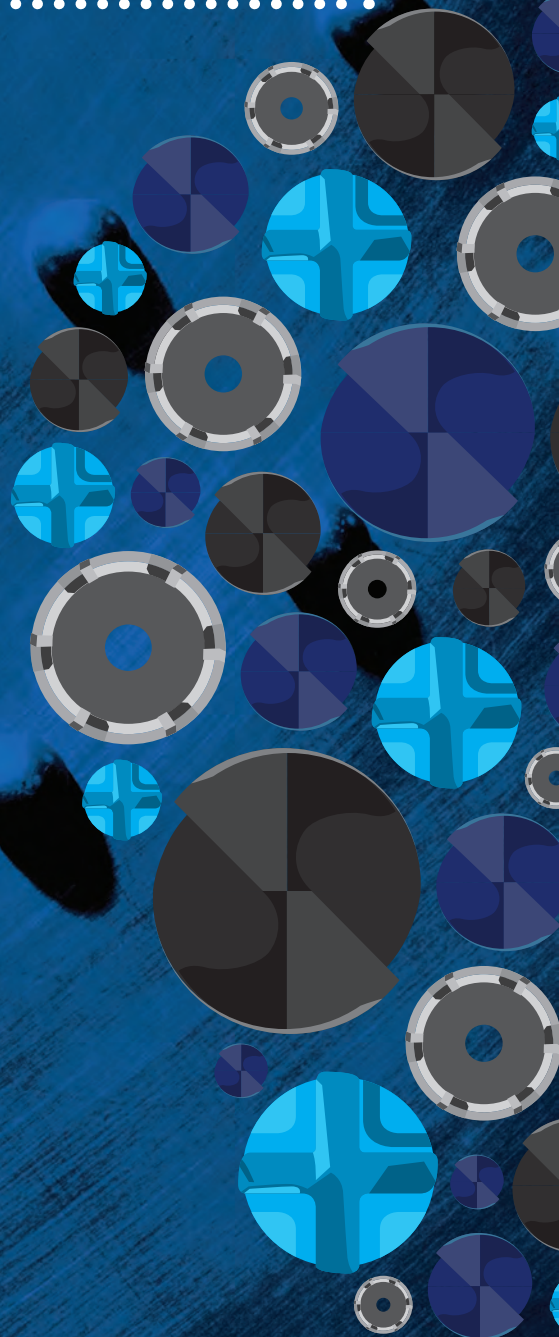
The best method for drilling holes in 1/8" sheet metal or steel plate up to 1" thick. CT3, CT5 and CT7 hole cutters give you quick, clean, bur-free holes in seconds.

**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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## RotoBrute Magnetic Drill Presses

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## RotoBrute Pilot Pins For Annular Cutters

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## Proline Masonry Drills and Hammer Chisels

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## Cutter Tool Sets / Technical Support

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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)

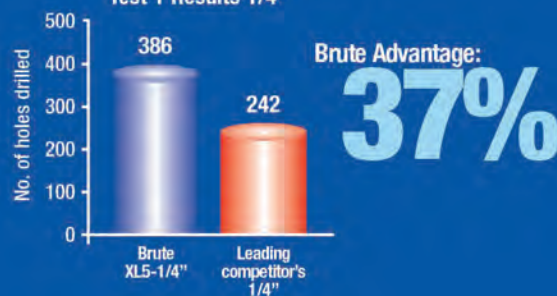
### Brute Drill Performance Analysis

#### XL5 Jobber Drill

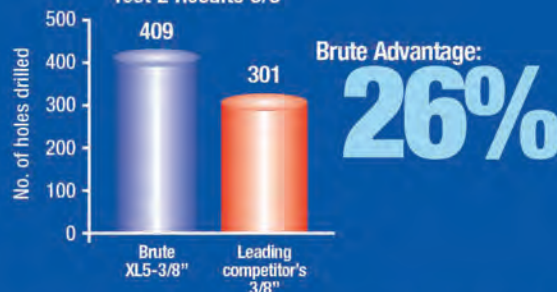
##### Test parameters

- 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

##### Test 1 Results 1/4"



##### Test 2 Results 3/8"



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

# CHAMPION

## 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-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

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



\*\* 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	3-5/16	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.

**CHAMPION**  
CUTTING TOOL GROUP

# CHAMPION

## 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.

# CHAMPION

## 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

# CHAMPION

## 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

CHAMPION  
CUTTING TOOL GROUP



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

# CHAMPION

## List No. 705C continued



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



# CHAMPION

## 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.



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.

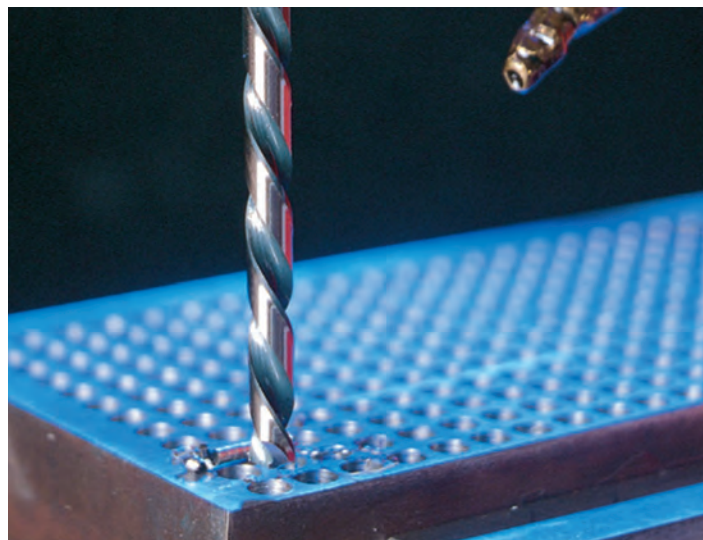
EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
XL5LH-5/64	.0781	1	2
XL5LH-7/64	.1094	1-1/2	2-5/8
XL5LH-5/32	.1562	2	3-1/8
XL5LH-1/4	.2500	2-3/4	4
XL5LH-19/64	.2969	3-1/16	4-3/8

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
705LH-1/16	.0625	7/8	1-7/8
705LH-5/64	.0781	1	2
705LH-3/32	.0938	1-1/4	2-1/4
705LH-7/64	.1094	1-1/2	2-5/8
705LH-1/8	.1250	1-5/8	2-3/4
705LH-9/64	.1406	1-3/4	2-7/8
705LH-5/32	.1562	2	3-1/8
705LH-11/64	.1719	2-1/8	3-1/4
705LH-3/16	.1875	2-5/16	3-1/2
705LH-13/64	.2031	2-7/16	3-5/8
705LH-7/32	.2188	2-1/2	3-3/4
705LH-15/64	.2344	2-5/8	3-7/8
705LH-1/4	.2500	2-3/4	4
705LH-17/64	.2656	2-7/8	4-1/8
705LH-9/32	.2812	2-15/16	4-1/4

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
705LH-19/64	.2969	3-1/16	4-3/8
705LH-5/16	.3125	3-3/16	4-1/2
705LH-21/64	.3281	3-5/16	4-5/8
705LH-11/32	.3438	3-7/16	4-3/4
705LH-23/64	.3594	3-1/2	4-7/8
705LH-3/8	.3750	3-5/8	5
705LH-25/64	.3906	3-3/4	5-1/8
705LH-13/32	.4062	3-7/8	5-1/4
705LH-27/64	.4219	3-15/16	5-3/8
705LH-7/16	.4375	4-1/16	5-1/2
705LH-29/64	.4531	4-3/16	5-5/8
705LH-15/32	.4688	4-5/16	5-3/4
705LH-31/64	.4844	4-3/8	5-7/8
705LH-1/2	.5000	4-1/2	6



## 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

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

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



\*\* 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 specifications.

**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".



# CHAMPION

## 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	3-1/8	6
738-27/64	.4219	3-15/16	5-3/8	738-9/16	.5625	3-1/8	6
738-7/16	.4375	4-1/16	5-1/2	738-19/32	.5938	3-1/8	6
738-29/64	.4531	4-3/16	5-5/8	738-5/8	.6250	3-1/8	6
738-15/32	.4687	4-5/16	5-3/4	738-21/32	.6562	3-1/8	6
738-31/64	.4844	4-3/8	5-7/8	738-11/16	.6875	3-1/8	6

# CHAMPION

## 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 and garages.

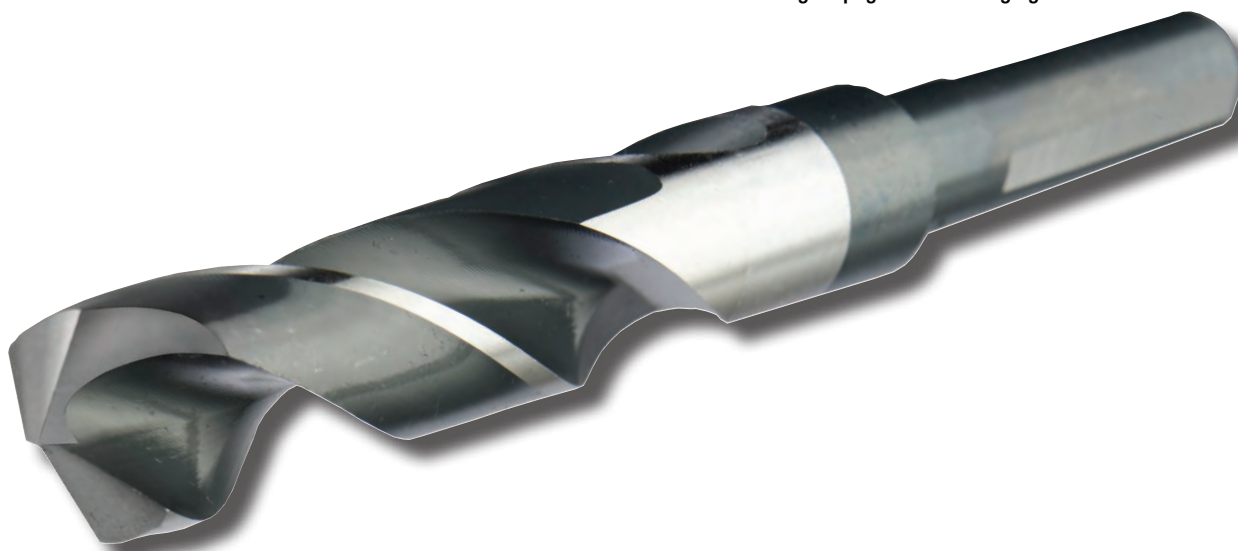
EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
XL12-33/64	.5156	3-1/8	6
XL12-17/32	.5312	3-1/8	6
XL12-35/64	.5469	3-1/8	6
XL12-9/16	.5625	3-1/8	6
XL12-37/64	.5781	3-1/8	6
XL12-19/32	.5938	3-1/8	6
XL12-39/64	.6094	3-1/8	6
XL12-5/8	.6250	3-1/8	6
XL12-41/64	.6406	3-1/8	6
XL12-21/32	.6562	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. See SA80 reamer listing on page 54 for enlarging holes.



# CHAMPION

## 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

# CHAMPION

## 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

**CHAMPION****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

**CHAMPION****Cobalt Heavy Duty Silver & Deming Drills****List No. 712CO**1/2" Shank / Heavy Duty / 118° Split Point /  
Cobalt Steel / Gold Oxide FinishDescription: 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

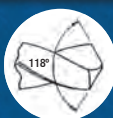
Note: "S&D" drills should not be used to enlarge holes.  
See SA80 reamer listing on page 54 for enlarging larger holes.

# CHAMPION

## 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 listing

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

# CHAMPION

## Cobalt Screw Machine Drills

List No. 1705C

Heavy Duty / 135° Split Point / Gold Oxide Finish



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 and inconel.

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



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

# CHAMPION

## Screw Machine Drills

List No. 1705

NAS 907-C / Heavy Duty / 135° Split Point/  
HSS / Black Oxide Treated



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

**Application:** Recommended for the drilling of sheet metal, stainless steel, truck and mobile home bodies.

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

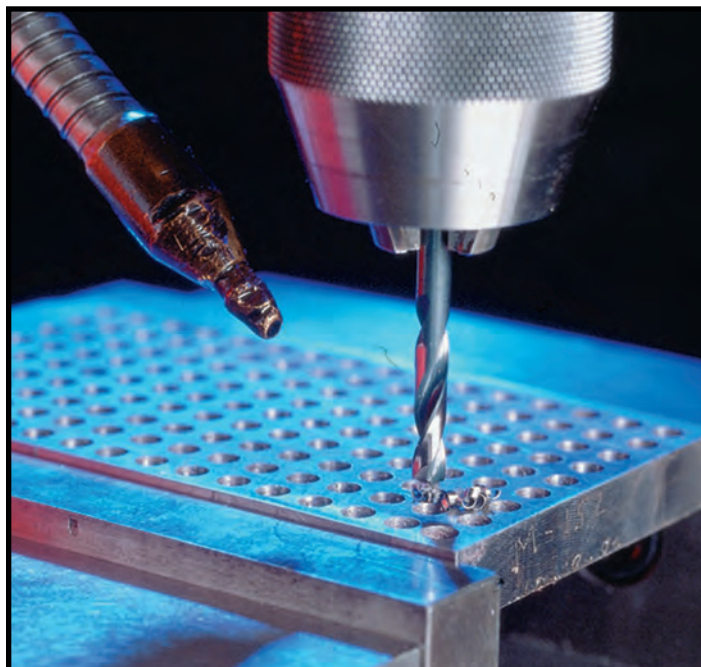
\* Sizes 53-60 are not split point



## 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 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 155-156 for BruteLube Material Safety Data Sheets

# 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.  
Furnished with standard shanks.

**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

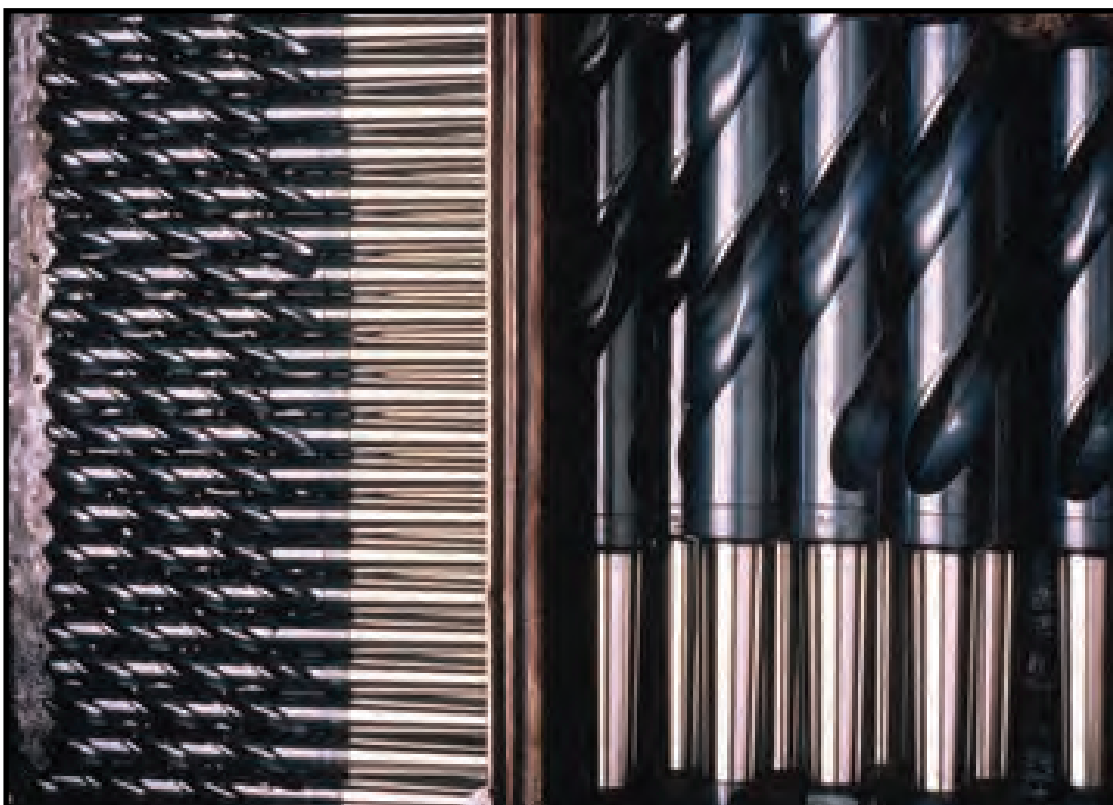


## List No. 702 continued



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

# CHAMPION

## Taper Shank Reducing Sleeves

List No. S1

Shank  Hole



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

**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

# CHAMPION

## Taper Shank Extension Sockets

List No. S2

Shank  Hole



**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 the drill down from the machine spindle.

**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

# CHAMPION

## 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 tangs



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.

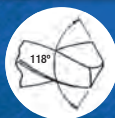
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# CHAMPION

## 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

# CHAMPION

## Screw Extractors

List No. X1

Left Hand / Spiral Flute



**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.

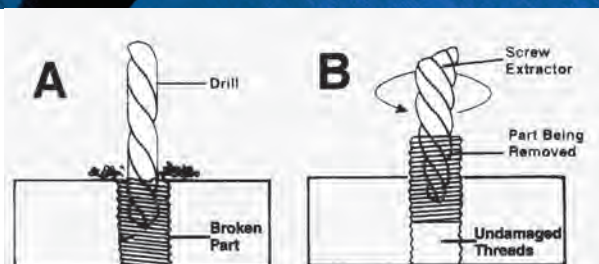
Sizes X1 thru X5 are available in an iPac combination pack with the relevant left hand XL5 drill bit.

List No. X2

Straight Flute Extractors



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

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# CHAMPION

## 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
1800-3/16	.1875	13	18
1800-7/32	.2188	13	18
1800-1/4	.2500	13	18
1800-9/32	.2812	13	18
1800-5/16	.3125	13	18
1800-11/32	.3438	13	18
1800-3/8	.3750	13	18
1800-13/32	.4062	13	18
1800-7/16	.4375	13	18
1800-15/32	.4688	13	18
1800-1/2	.5000	13	18
1800-17/32	.5312	13	18
1800-9/16	.5625	13	18
1800-5/8	.6250	13	18
1800-41/64	.6406	13	18
1800-21/32	.6562	13	18
1800-43/64	.6719	13	18
1800-11/16	.6875	13	18
1800-45/64	.7031	13	18

EDP No./ Size	Decimal Equivalent	Flute Length	Overall Length
1800-23/32	.7188	13	18
1800-47/64	.7344	13	18
1800-3/4	.7500	13	18
1800-49/64	.7656	13	18
1800-25/32	.7812	13	18
1800-51/64	.7969	13	18
1800-13/16	.8125	13	18
1800-53/64	.8281	13	18
1800-27/32	.8438	13	18
1800-55/64	.8594	13	18
1800-7/8	.8750	13	18
1800-57/64	.8906	13	18
1800-29/32	.9062	13	18
1800-59/64	.9219	13	18
1800-15/16	.9375	13	18
1800-61/64	.9531	13	18
1800-31/32	.9688	13	18
1800-63/64	.9844	13	18
1800-1	1.0000	13	18

# CHAMPION

## 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

\*Please specify CS12X when ordering.

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



EDP No./ Size	Decimal Equivalent	Flute Length	Overall Length
7012-31	.1200	1-5/8	12
<b>7012-1/8*</b>	.1250	1-5/8	12
<b>7012-30*</b>	.1285	1-5/8	12
<b>7012-29*</b>	.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
<b>7012-21*</b>	.1590	2-1/8	12
<b>7012-20*</b>	.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
<b>7012-3/16*</b>	.1875	2-5/16	12
7012-12	.1890	2-5/16	12
<b>7012-11*</b>	.1910	2-5/16	12
<b>7012-10*</b>	.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
<b>7012-1*</b>	.2280	2-5/8	12
7012-15/64	.2344	2-5/8	12
<b>7012-1/4*</b>	.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
<b>7012-5/16*</b>	.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
<b>7012-3/8*</b>	.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
<b>7012-7/16*</b>	.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
<b>7012-1/2*</b>	.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



CHAMPION  
CUTTING TOOL GROUP



## 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.

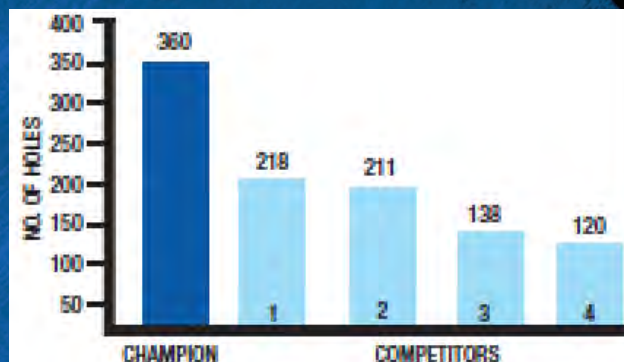
Test parameters included:

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
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MSD-HEX-1	1/8-1/2 (13 Step)
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MSD-HEX-3	1/4-3/4 (9 Step)
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MSD-HEX-4	3/16-7/8 (12 Step)
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MSD-HEX-13	1/4X1-1/8 (13 Step)
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EDP No.	Contents
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MSD-HEX-SET	MSD-HEX-1, MSD-HEX-3, MSD-HEX-4 & QCD
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EDP No.	Contents
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ELEC-KIT	MSD-HEX-13, CT3 hole cutters(7/8, 1-1/8,1-3/8) and QCD (Quick Change Driver)
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EDP No.	Contents
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QCD	Quick change driver for 1/4" & 3/8" hex shank tools
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## 1/4" SHANK EXTENSIONS List No. QCD-EXT-6/12/24

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

# CHAMPION

## 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.

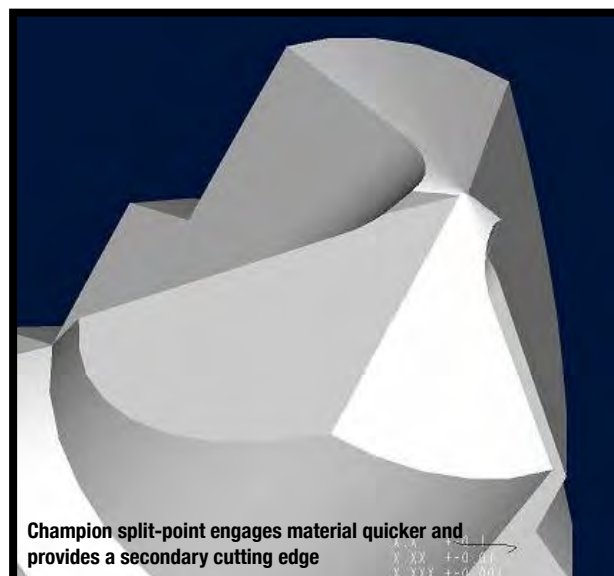
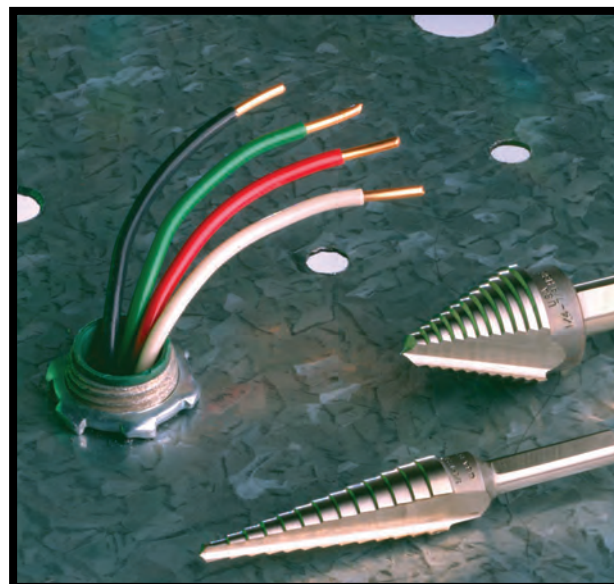
EDP No./ Diameter	No. of Steps	Size Range
MSD-1/2 x 1/8	13	1/8-1/2 x 32nds
MSD-1/2 x 3/16	6	3/16-1/2 x 16ths
MSD-7/8 x 1/4	9	single hole 7/8
MSD-3/4 x 1/4	9	1/4-3/4 x 16ths
MSD-7/8 x 3/16	12	3/16-7/8 x 16ths
MSD-1-1/8 x 7/16	12	7/16-1-1/8 x 16ths
MSD-3/8	1	single hole - 3/8
MSD-1/2	1	single hole - 1/2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



### 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

# CHAMPION

## 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

# CHAMPION

## 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					

# CHAMPION

## 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	.3123	1/4	2-3/4	CT505-5/8	.6250	9/16	4
CT505-3/8	.3750	5/16	3-1/8				

# CHAMPION

## 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

# CHAMPION

## 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

# CHAMPION

## 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
1805-30	.1285	1/2	2
1805-7/64	.1093	1/2	2
1805-1/8	.1250	1/2	2
1805-9/64	.1406	1/2	2
1805-5/32	.1562	1/2	2

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
1805-3/16	.1875	1/2	2
1805-7/32	.2187	1/2	2
1805-1/4	.2500	1/2	2

# CHAMPION

## 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
2005-1/2-1/4	.2280	1-5/16	2-1/4
2005-1X3	.2280	1-5/16	3

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

# CHAMPION

## 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

# CHAMPION

## 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 for bolt which will be driven through the newly reamed hole.

**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 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 for bolt which will be driven through the newly reamed hole.

**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 size



## 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.

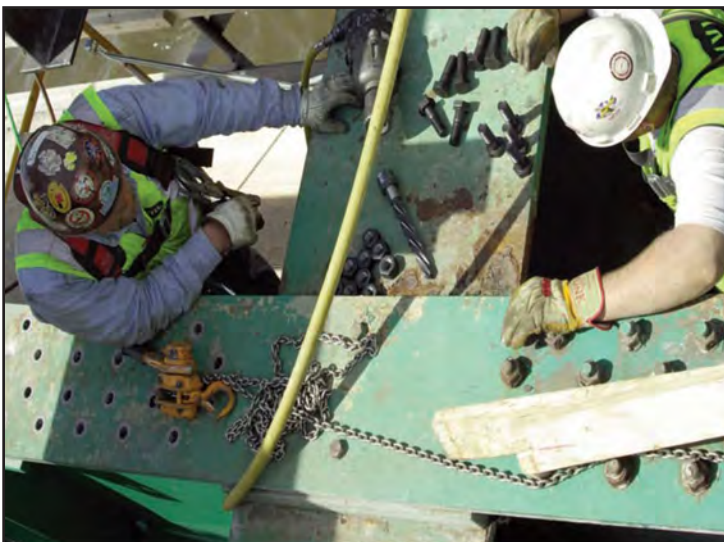
**Application:** For use in electric and pneumatic tools & sockets.

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 size

• 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



# CHAMPION

## 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.



# CHAMPION

## Bridge Reamers

List No. 982

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



**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 power tools with morse taper spindles.

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 magnetic drill presses.

**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" per foot.

**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 standard taper pins will fit.

**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

# CHAMPION

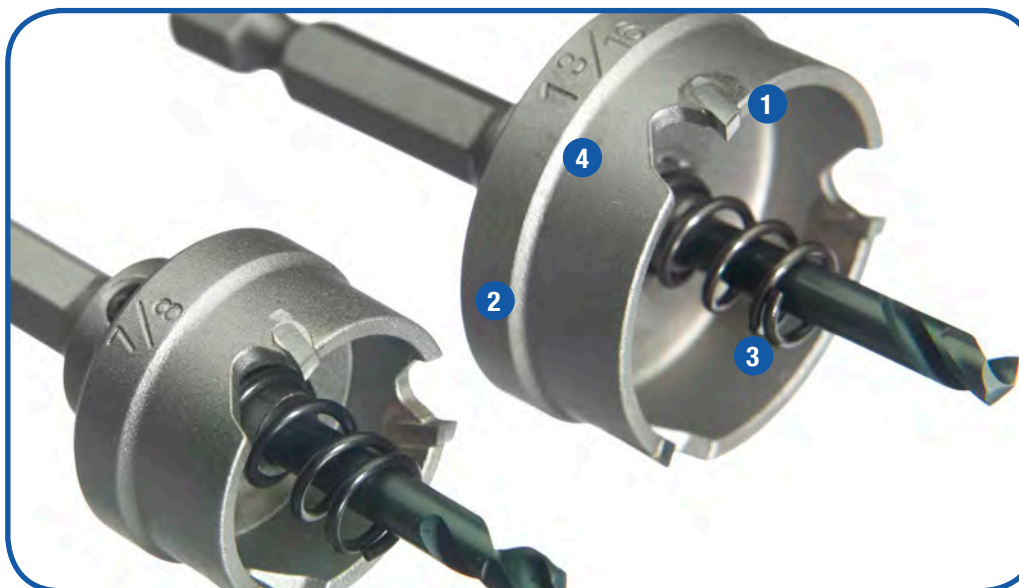
## Carbide Tipped Hole Cutters

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		

# CHAMPION

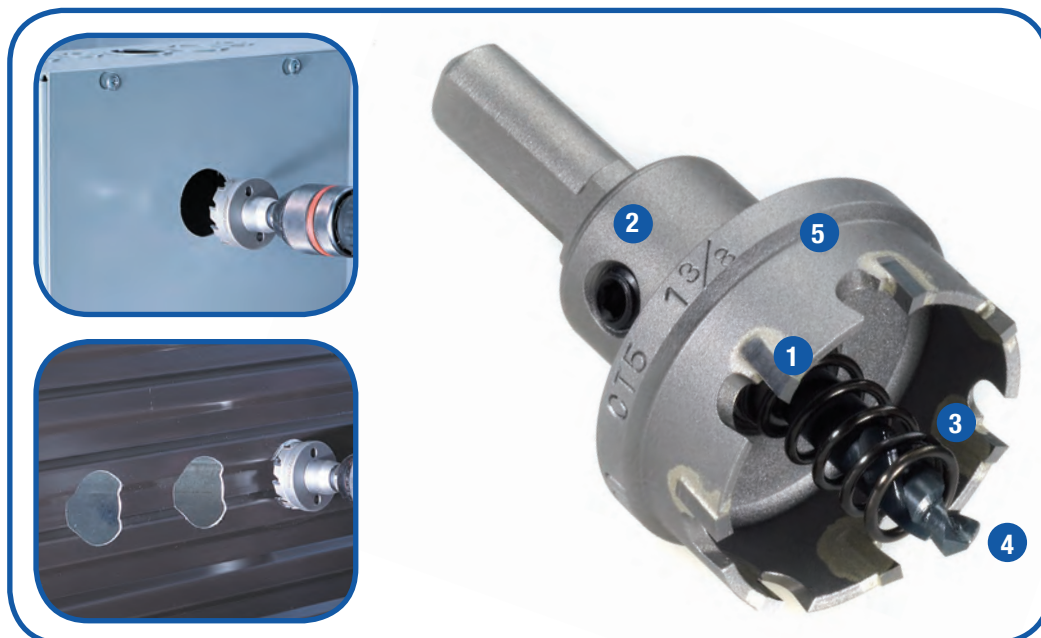
## Carbide Tipped Hole Cutters

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

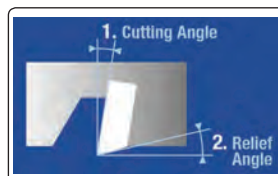
- Junction / Switch Boxes
- Metal Studs
- Appliances
- Auto Body Repair
- Truck Body Repair

- 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	

\* 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

**CHAMPION**  
CUTTING TOOL COMPANY

# CHAMPION

## 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.

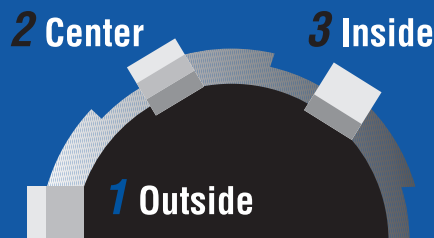
- Cut longer and faster than holesaws and twist drills, increasing productivity on the job
- Perfect portable tool for the professional electrician, plumber, mechanic and contractor
- Better than bi-metal holesaws
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP (i.e 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
CT5-9/16	CT7-1-13/16	CT7-PILOT	Pilot Drill (2-7/8" OAL)
CT5-5/8	CT7-1-7/8	CT7C0-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		

### Triple Edge Cutting System



Champion CT7 hole cutters feature two sets of three cutting blades, each with different geometries. This unique system balances the cutting forces enabling rapid, smooth drilling with better control.

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

# CHAMPION

## 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

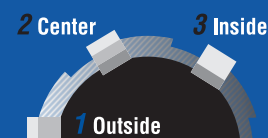
- For extra length of cutting

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.

# CHAMPION

## 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

### 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

### 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
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



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



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

CHAMPION  
CUTTING TOOL GROUP

# CHAMPION

## Sheet Metal Cutters

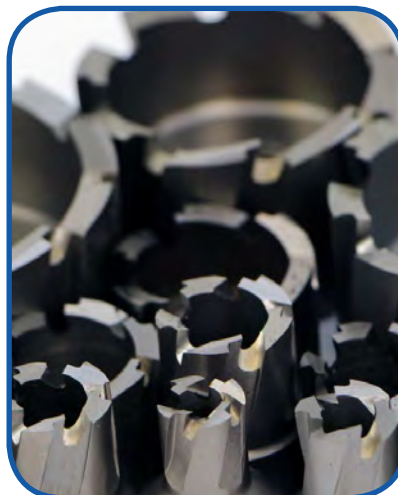
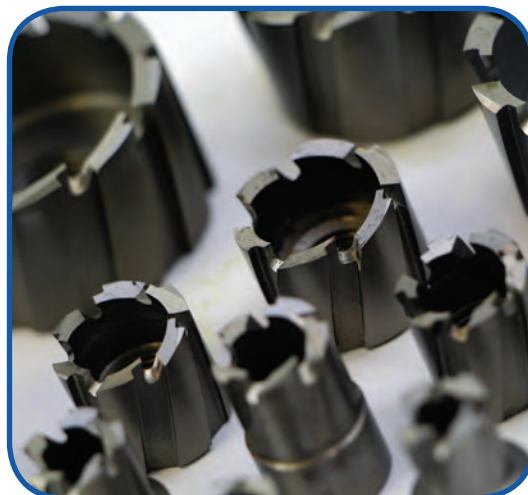
List No. SMC

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

EDP No. / Size

SMC-1/4  
SMC-5/16  
SMC-3/8  
SMC-7/16  
SMC-1/2  
SMC-9/16  
SMC-5/8  
SMC-3/4

1/2" Depth of Cut - 1/2-20 Thread -  
Use With Arbor SMC-ARBOR-2

EDP No. / Size

SMC-13/16  
SMC-7/8  
SMC-15/16  
SMC-1  
SMC-1-1/16  
SMC-1-1/8  
SMC-1-3/16  
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

SMC-ARBOR-1  
SMC-ARBOR-2

Description

Arbor for sizes 1/4" thru 3/4"  
Arbor for sizes 13/16" thru 1-1/2"

## PILOTS

EDP No./ Size

SMC-PILOT-1  
SMC-PILOT-2

Description

Pilot for sizes 1/4" thru 3/4"  
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

# CHAMPION

## 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

Cutter and arbor connection diagram for cutters with 1/4 depth of cut - using SMC-ARBOR-1



Cutter and arbor connection diagram for cutters with 1/2 depth of cut - using SMC-ARBOR-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

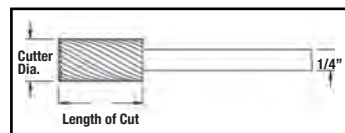
**Description:** Carbide burs are one of the most versatile metal working tools. Used in virtually every industry, burs are used in mold and pattern making, die sinking, tool making and maintenance.

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

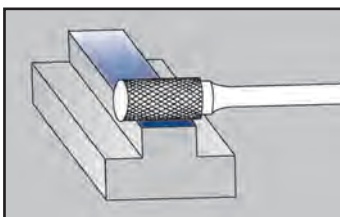
### THE QUALITY TO MEET THE MOST DEMANDING JOBS

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.

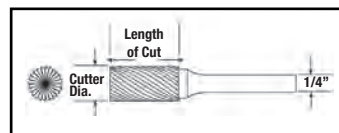
### SA Cylinder Shape



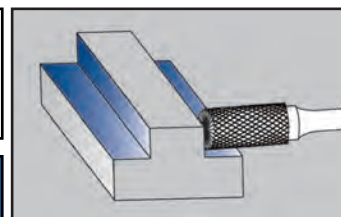
USE FOR DEBURRING



### 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	-	-

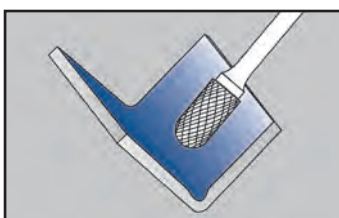
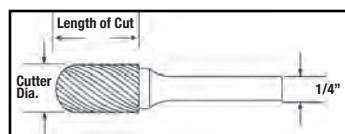
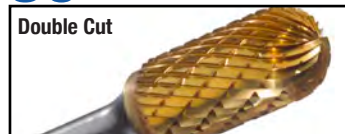
\* 6" overall length

\*\* 3/8" shank

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

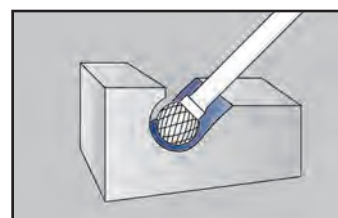
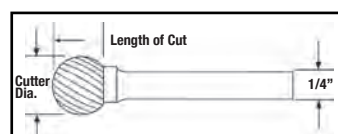


### SC Cylinder Radius End



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	-	-

\* 6" overall length

\*\* 3/8" shank

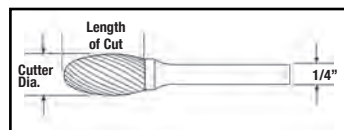
\*\*\* Available without Titanium Nitride Coating.  
Specify U (uncoated) when ordering.  
Example, USA1

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	SD5-L6*
5/8	9/16	SD6	SD6NF	-
3/4	11/16	SD7***	SD7NF	-
3/4	11/16	-	SD7NF-3/8**	-
1	15/16	SD9	-	-

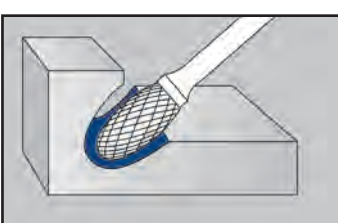




### SE Oval Shape

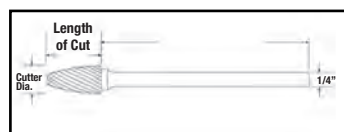
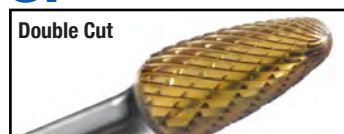


USE FOR CONTOURING

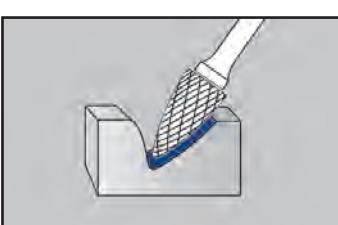


Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
3/16	5/16	SE11	-	-
1/4	3/8	SE1***	-	SE1-L6*
3/8	5/8	SE3***	SE3NF	SE3-L6*
1/2	7/8	SE5***	SE5NF	SE5-L6*
5/8	1	SE6***	SE6NF	-
3/4	1	SE7	SE7NF	-
3/4	1	-	SE7NF-3/8**	-

### SF Tree Shape Radius End

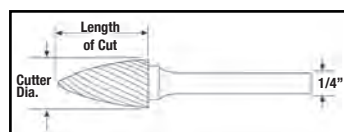
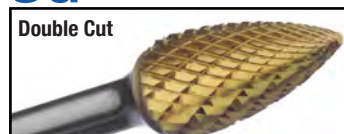


USE FOR WORK ON NARROW CONTOURS

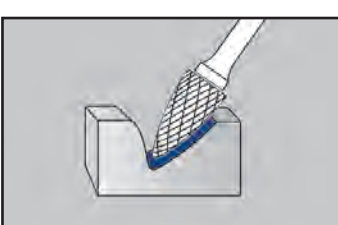


Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/8	1/2	SF11	-	-
1/4	3/4	SF1***	SF1NF	-
1/4	1/2	-	-	SF1-L6*
3/8	3/4	SF3***	SF3-NF	SF3-L6*
7/16	1	SF4	-	-
1/2	3/4	SF13	-	-
1/2	1	SF5***	SF5-NF	SF5-L6*
5/8	1	SF6	SF6-NF	-
3/4	1	SF7	-	-
3/4	1-1/4	SF14	SF14-NF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

### SG Tree Shape



USE FOR NARROW CONTOURS & MILLING



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	-	-

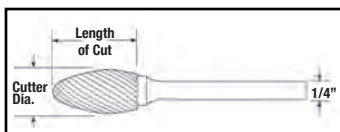
\* 6" overall length

\*\* 3/8" shank

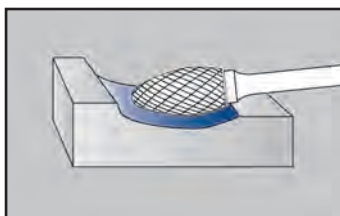
\*\*\* Available without Titanium Nitride Coating.  
Specify U (uncoated) when ordering.  
Example, USA1



### SH Flame Shape

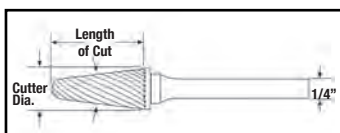
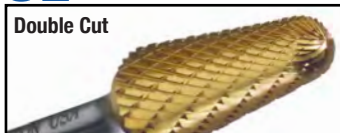


USE FOR CONTOURING

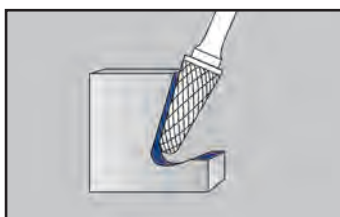


Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/4	5/8	SH1***	-	-
5/16	3/4	SH2	-	SH2-L6
1/2	1-1/4	SH5***	-	SH5-L6
5/8	1-7/16	SH6	-	-
3/4	1-5/8	SH7***	-	-

### SL SL14° Taper Radius End

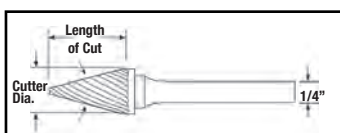


USE FOR NARROW CONTOURS / SURFACE MACHINING

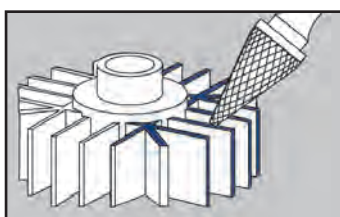


Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/4	5/8	SL1***	-	SL1-L6
5/16	7/8	SL2	-	-
3/8	1-1/16	SL3***	SL3-NF	SL3-L6
1/2	1-1/8	SL4***	SL4-N4	SL4-L6
5/8	1-3/16	SL5	SL5-NF	-
5/8	1-5/16	SL6	SL6-NF	-
3/4	1-1/2	SL7	SL7-NF	-
3/4	1-1/2	-	SL7NF-3/8	-

### 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	-

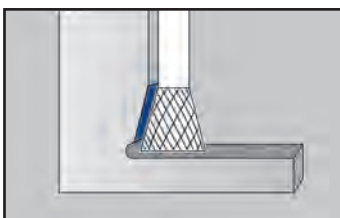
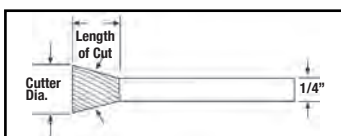
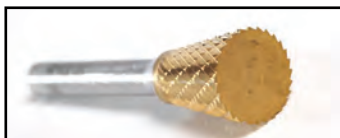
\* 6" overall length

\*\* 3/8" shank

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

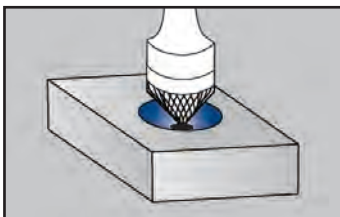
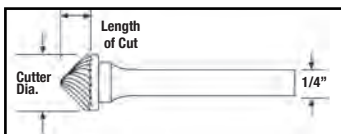


### SN Inverted Cone Shape



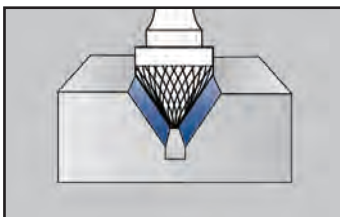
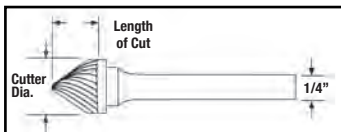
EDGE MACHINING FROM THE REAR IN HARD TO REACH AREAS

### 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

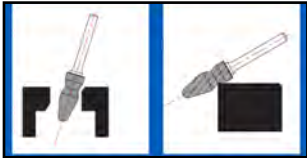


## Radius Burs



**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.

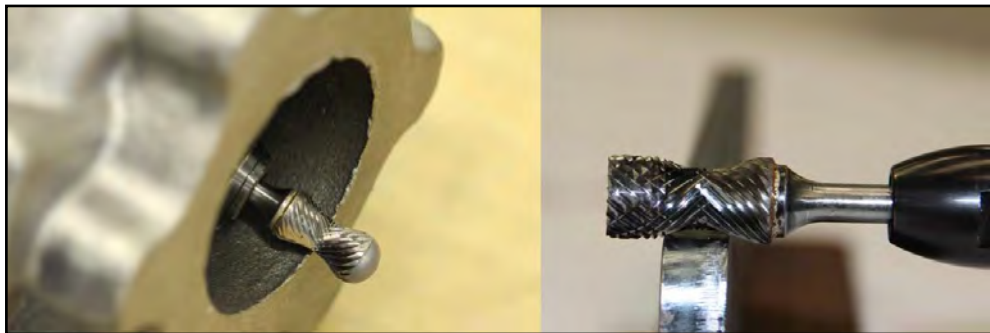
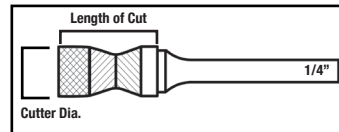
**Application:** Use on a wide variety of materials including titanium, bronze, stainless steel, cast iron, brass and more.



### 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"



# CHAMPION

## 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
<b>SA</b>	1/16	1/4	SA41
	3/32	7/16	SA42
	1/8	9/16	SA43
	1/4	1/2	SA51
<b>SB</b>	1/8	9/16	SB-43 End Cut Only
	1/8	Double Ended	SB-43 End Cut Only
	1/4	3/16	SB51
<b>SC</b>	3/32	7/16	SC41
	1/8	9/16	SC42
	1/4	1/2	SC51
<b>SD</b>	3/32	3/32	SD41
	1/8	1/8	SD42
	1/4	7/32	SD51
<b>SE</b>	1/8	7/32	SE41
	1/4	3/8	SE51
<b>SF</b>	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
<b>SG</b>	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
<b>SH</b>	1/8	1/4	SH41
<b>SJ</b>	1/8	3/32	SJ42
<b>SK</b>	1/8	1/16	SK42
<b>SL</b>	1/8	3/8	SL41
	1/4	1/2	SL42
<b>SM</b>	1/8	11/32	SM41
	1/8	7/16	SM42
	1/8	5/8	SM43
	1/4	1/2	SM51
<b>SN</b>	3/32	1/8	SN41
	1/8	3/16	SN42
	1/4	1/4	SN51

# CHAMPION

## 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.

CHAMPION  
CUTTING TOOL CORP.

## 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
<b>Straight Turning Tools - List No.AR</b>				
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
<b>Straight Turning Tools - List No.AL</b>				
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

#### 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

#### 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

#### 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

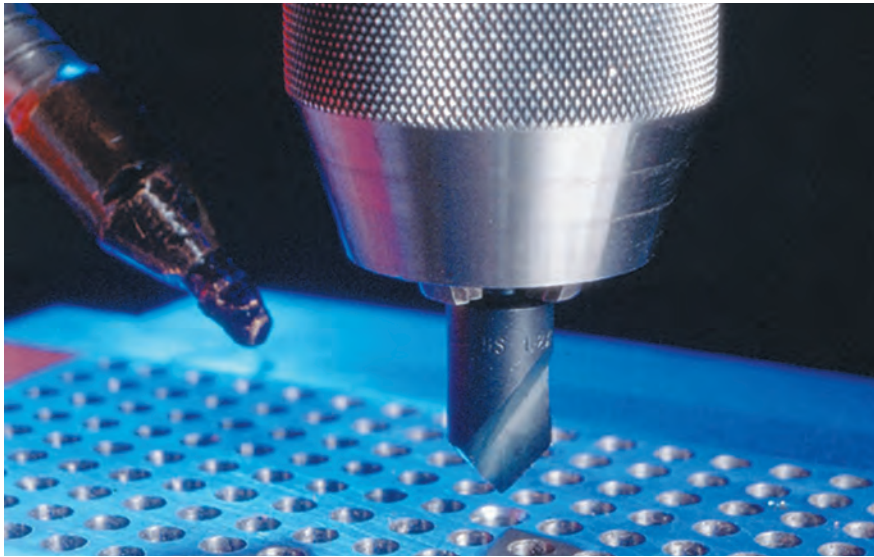
High Hook / HSS



**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

60°	82°	EDP No./Diameter			Shank Diameter	Overall Length
		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.

60°	EDP No./Diameter		Shank Diameter	Overall Length
	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

# CHAMPION

## 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.

60°	82°	EDP No./Diameter			Shank Diameter	Overall Length
		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

# CHAMPION

## 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.

60°	EDP No./Diameter		Shank Diameter	Overall Length
	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

# CHAMPION

## 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

# CHAMPION

## Carbide Combined Drill and Countersinks

List No. 198

Plain Style / 60° included angle / Solid Carbide / 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./ 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

# CHAMPION

## 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

# CHAMPION

## 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					

# CHAMPION

## 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					

# CHAMPION

## 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

# CHAMPION

## 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

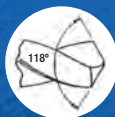
2 Flute / 118° Point / HSS

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

# CHAMPION

## 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

\* 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

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



# 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 5/8" in steel, and #10 to 9/16" in aluminum.

## Tap More Holes • Save More Time • Create Precise Threads



• 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

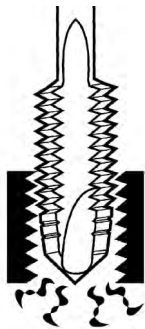


**Description:** Spiral point taps eject chips forward. Necked design for deeper, more trouble free tapping. Freer coolant flow to cutting edges. Heavier core for less breakage. Three flutes for 50 % less tooth load. Promotes faster tapping and extended tool life. Good for stainless steel.

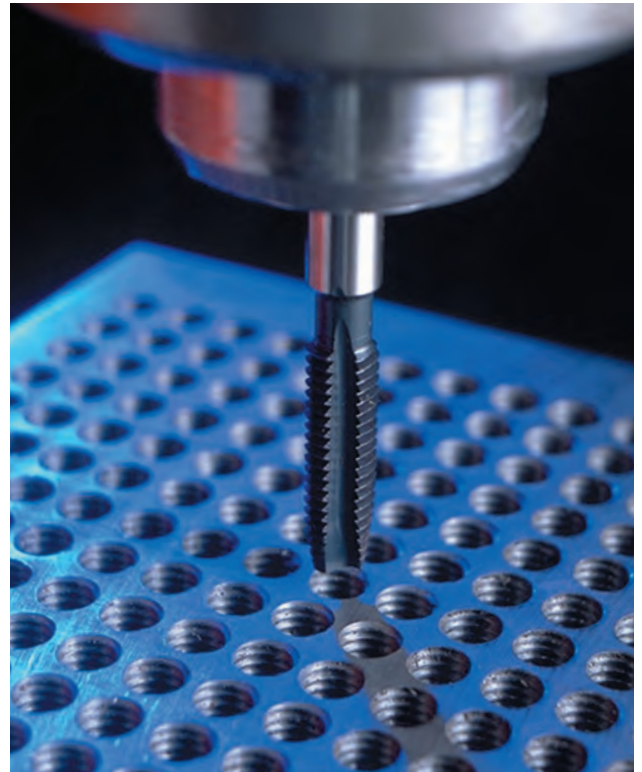
**Application:** Recommended for all through-hole applications. Used on low through high carbon steel, alloyed steels, steel drop forgings, grey cast iron, titanium, stainless steel, nimonic alloys, manganese, spring steels



EDP No./ Size	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



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.



Available in iPac



## Metric Spiral Point Taps

List No. XL22M

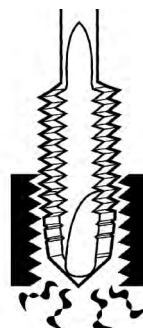
Plug Style / Three Flute / Heavy Duty / Surface Treated



**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-4x.7	D4	2	3/4	2-1/8
XL22M-5x.8	D4	2	7/8	2-3/8
XL22M-6x1	D5	2	1	2-1/2
XL22M-8x1.25	D5	2	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

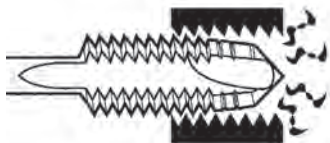
Metric Hand Taps / HSS  
Plug Style / Ground Threads

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 321M is only available in plug style.

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

# CHAMPION

## 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



# CHAMPION

## High Speed Hand Taps

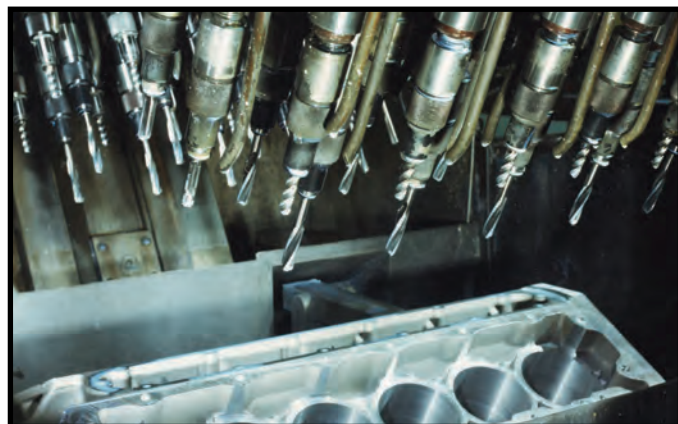
List No. 308

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.

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## 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

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## Left Hand High Speed Hand Taps

### List No. 308LH

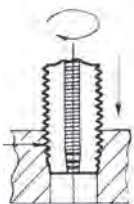
Left Hand / Standard "H" Limits / Ground Thread



**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.

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## 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-3.5x6	3	3	2	11/16
308M-4x.7	4	4	2-1/8	3/4
308M-4.5x.75	4	4	2-3/8	7/8
308M-5x.8	4	4	2-3/8	7/8
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-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-12x1.75	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.



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## Carbon Steel Hand Taps

List No. 302

List No. 302M

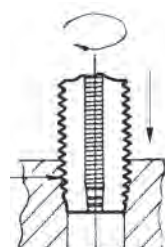
Metric Hand Taps

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	6	2-9/16	5-3/4
302-1-3/8-6	4	3	6-1/16
302-1-3/8-12	6	3	6-1/16
302-1-1/2-6	4	3	6-3/8
302-1-1/2-12	6	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	.255
3006-5/16-18	H3	4	1-1/8	.318
3006-3/8-16	H3	4	1-1/4	.381
3006-7/16-14	H3	4	1-7/16	.444
3006-1/2-13	H3	4	1-21/32	.507
3006-5/8-11	H3	4	1-13/16	.633

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## Nut Taps

List No. 1308

Standard "H" Taps / 4 FLute / Plug Style / HSS

**Description:** These taps are characterized by long thread length, long chamfers and longer shanks. The shanks are smaller than the minor diameter of the thread for chip removal and clearance.

**Application:** For tapping deeper than the threaded portion, nut taps were originally designed for tapping nuts.



EDP No./ Size	H Limits	No. of Flutes	Length of Thread	Overall Length
1308-1/4-20	H3	4	1-5/8	5
1308-5/16-18	H3	4	5-3/8	5-1/2
1308-3/8-16	H3	4	2	6
1308-1/2-13	H3	4	2-1/2	7

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## 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.

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## 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
324-1/16-27	4	11/16	2-1/8
324-1/8-27	4	3/4	2-1/8
324-1/4-18	4	1-1/16	2-7/16
324-3/8-18	4	1-1/16	2-9/16
324-1/2-14	4	1-3/8	3-1/8

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

# CHAMPION

## 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
324H-1/16-27	4	11/16	2-1/8
324H-1/8-27	4	3/4	2-1/8
324H-1/4-18	4	1-1/16	2-7/16
324H-3/8-18	4	1-1/16	2-9/16
324H-1/2-14	4	1-3/8	3-1/8

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

# CHAMPION

## 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

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## 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

# CHAMPION

## 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:** Rethreading, 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
324I-2-11-1/2	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.



# CHAMPION

## Bar Handle Tap Wrenches

List No. 3001

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



EDP No./ Diameter	Diameter Small End	Diameter Large End
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

# CHAMPION

## 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"

# CHAMPION

## 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"

# CHAMPION

## Hexagon Rethreading Dies

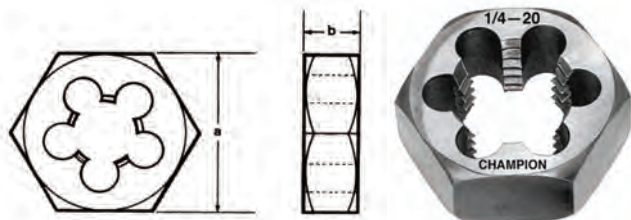
List No. 330 / List No. 330LH

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.  
Available from 1/4-20 thru 1-14.



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

# CHAMPION

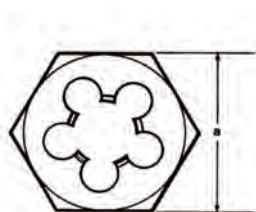
## Hexagon Rethreading Dies

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

# CHAMPION

## Hexagon Rethreading Dies

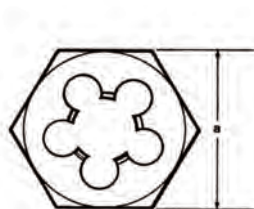
List No. 3308

8 Thread Special / 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. 8 pitch threads are a standard requirement in the energy industry. Popular applications include power equipment, oilfield and gas exploration.



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

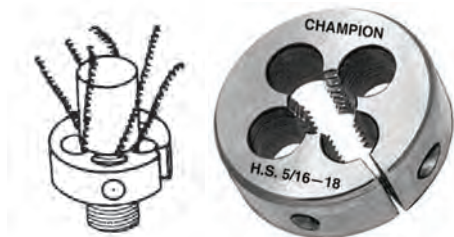
# CHAMPION

## Screw Adjustable Round Dies

List No. 328  
High Speed Steel

**Description:** To cut new threads by hand in a die stock.

**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

# CHAMPION

## Hexagon Rethreading Dies

List No. CS30

Carbon Steel

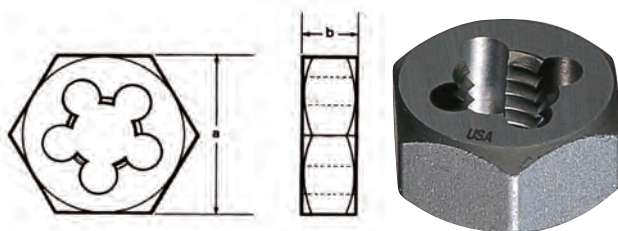
List No. CS30M

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	5/8	CS30M-14X1.25	1-7/16	5/8
CS30-9/16-18	1-7/16	5/8	CS30M-14X2	1-7/16	3/4
CS30-5/8-11	1-7/16	5/8	CS30M-16X1.5	1-7/16	3/4
CS30-5/8-18	1-7/16	5/8	CS30M-16X2	1-7/8	3/4
CS30-3/4-10	1-7/16	3/4	CS30M-18X1.5	1-7/8	3/4
CS30-3/4-16	1-7/16	3/4	CS30M-18X2.5	1-7/8	3/4
CS30-7/8-9	1-7/8	3/4	CS30M-1/8-28-BSP	1	3/8
CS30-7/8-14	1-7/8	3/4			
CS30-1-8	1-7/8	3/4			
CS30-1-12	1-7/8	3/4			
CS30-1-14	1-7/8	3/4			



## 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
106-1/32	1/8	3/32	1-1/2
106-1/16	1/8	3/16	1-1/2
106-3/32	1/8	3/8	1-1/2
106-1/8	1/8	1/2	1-1/2
106-5/32	3/16	9/16	2
106-3/16	3/16	5/8	2
106-7/32	1/4	5/8	2
106-1/4	1/4	3/4	2-1/2
106-5/16	5/16	13/16	2-1/2

EDP No./ Size	Shank Diameter	Flute Length	Overall Length
106-3/8	3/8	7/8	2-1/2
106-7/16	7/16	1	2-3/4
106-1/2	1/2	1	3
106-9/16	9/16	1-1/4	3-1/2
106-5/8	5/8	1-1/4	3-1/2
106-3/4	3/4	1-1/2	4
106-7/8	7/8	1-1/2	4
106-1	1	1-1/2	4



## 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
107-1/8	1/8	1/4	1-1/2
107-5/32	3/16	5/16	2
107-3/16	3/16	3/8	2
107-7/32	1/4	1/2	2-1/2
107-1/4	1/4	1/2	2-1/2

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



**CHAMPION**

## TiN Coated Cobalt 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
XL600-1/8X3/8	3/8	3/8	2-5/16
XL600-3/16X3/8	3/8	7/16	2-5/16
XL600-1/4X3/8	3/8	1/2	2-5/16
XL600-5/16X3/8	3/8	9/16	2-5/16
XL600-3/8X3/8	3/8	9/16	2-5/16

EDP No./ Size	Shank Diameter	Flute Length	Overall Length
XL600-1/2X1/2	1/2	1	3
XL600-5/8X5/8	5/8	1-5/16	3-7/16
XL600-3/4X3/4	3/4	1-5/16	3-9/16
XL600-1X3/4	3/4	1-1/2	3-3/4
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
602-1/8X3/8	3/8	3/8	3-1/16
602-5/32X3/8	3/8	7/16	3-1/8
602-3/16X3/8	3/8	7/16	3-1/8
602-7/32X3/8	3/8	1/2	3-1/8
602-1/4X3/8	3/8	1/2	3-1/8
602-9/32X3/8	3/8	9/16	3-1/8
602-5/16X3/8	3/8	9/16	3-1/8
602-11/32X3/8	3/8	9/16	3-1/8
602-3/8X3/8	3/8	9/16	3-1/8
602-13/32X1/2	1/2	13/16	3-3/4

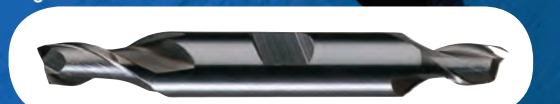
EDP No./ Size	Shank Diameter	Flute Length	Overall Length
602-7/16X1/2	1/2	13/16	3-3/4
602-15/32X1/2	1/2	13/16	3-3/4
602-1/2X1/2	1/2	13/16	3-3/4
602-9/16X5/8	5/8	1-1/8	4-1/2
602-5/8X5/8	5/8	1-1/8	4-1/2
602-11/16X3/4	3/4	1-5/16	5
602-3/4X3/4	3/4	1-5/16	5
602-7/8X7/8	7/8	1-9/16	5-1/2
602-1X1	1	1-5/8	5-7/8



## 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
602CO-1/8	3/8	3/8	3-1/16
602CO-3/16	3/8	7/16	3-1/8
602CO-1/4	3/8	1/2	3-1/8
602CO-5/16	3/8	9/16	3-1/8
602CO-3/8	3/8	9/16	3-1/8
602CO-7/16	1/2	13/16	3-3/4

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

# CHAMPION

## 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					

# CHAMPION

## 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				

# CHAMPION

## 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					

# CHAMPION

## 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.

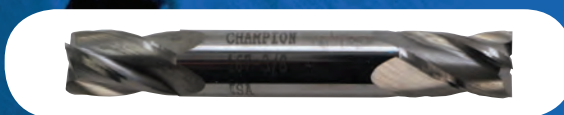
EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes	EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
166-1/16	1/8	3/16	1-1/2	4	166-3/8	3/8	7/8	2-1/2	4
166-3/32	1/8	3/8	1-1/2	4	166-7/16	7/16	1	2-3/4	4
166-1/8	1/8	1/2	1-1/2	4	166-1/2	1/2	4	3	4
166-5/32	3/16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

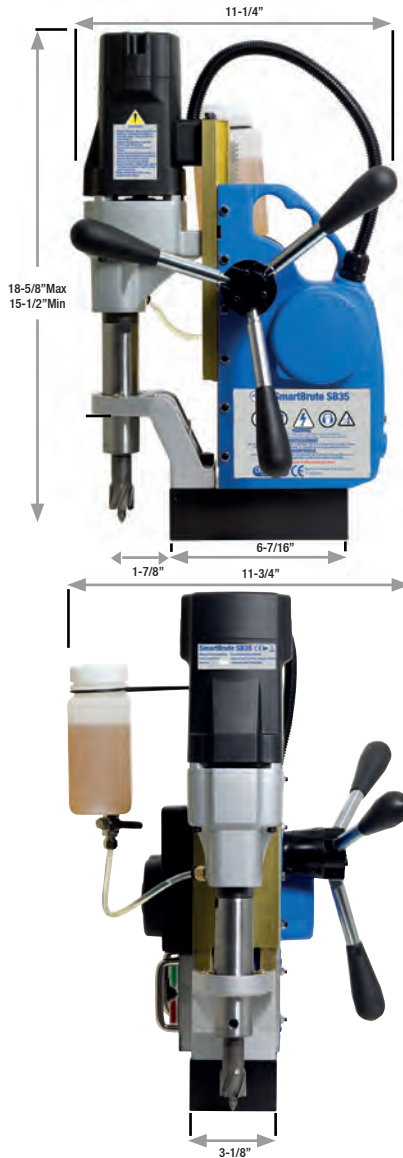
## Auto-Feed Magnetic Drill Press

# 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.



**NEW**

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

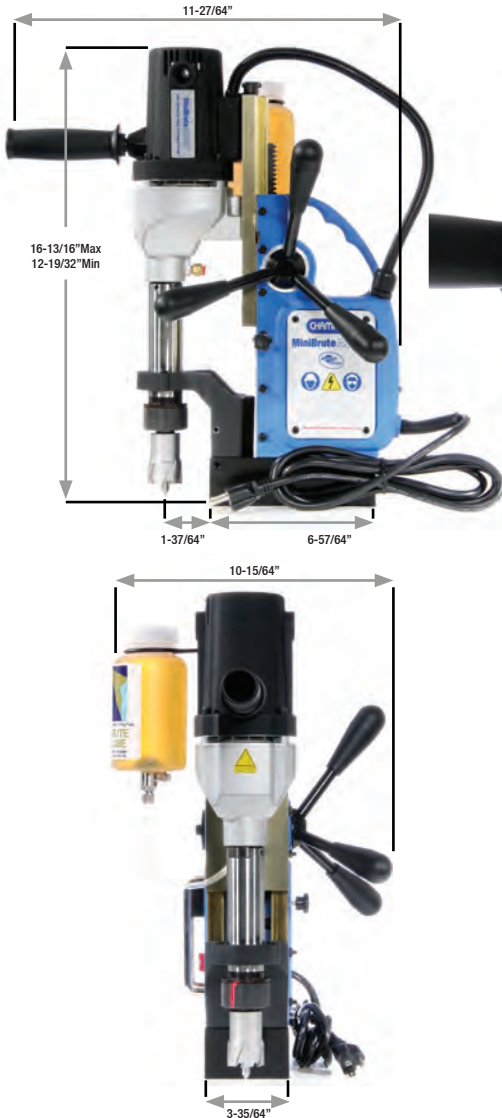
- QXSB35 Drill Chuck/Adaptor



# 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.



## 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 annular cutters 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 Hougen® cutters

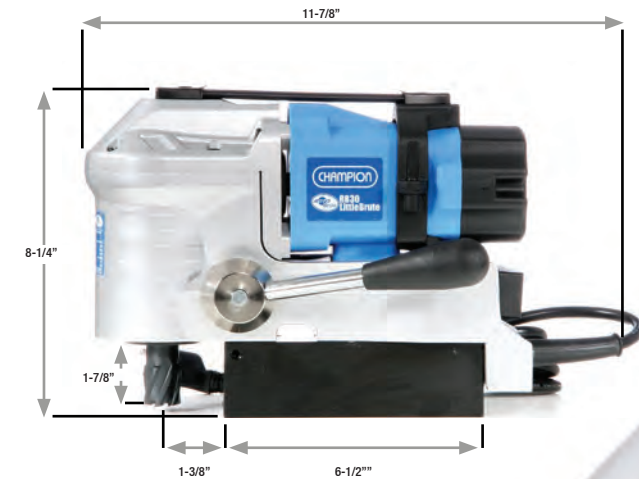


# LittleBrute Magnetic Drill Press RB30

## 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

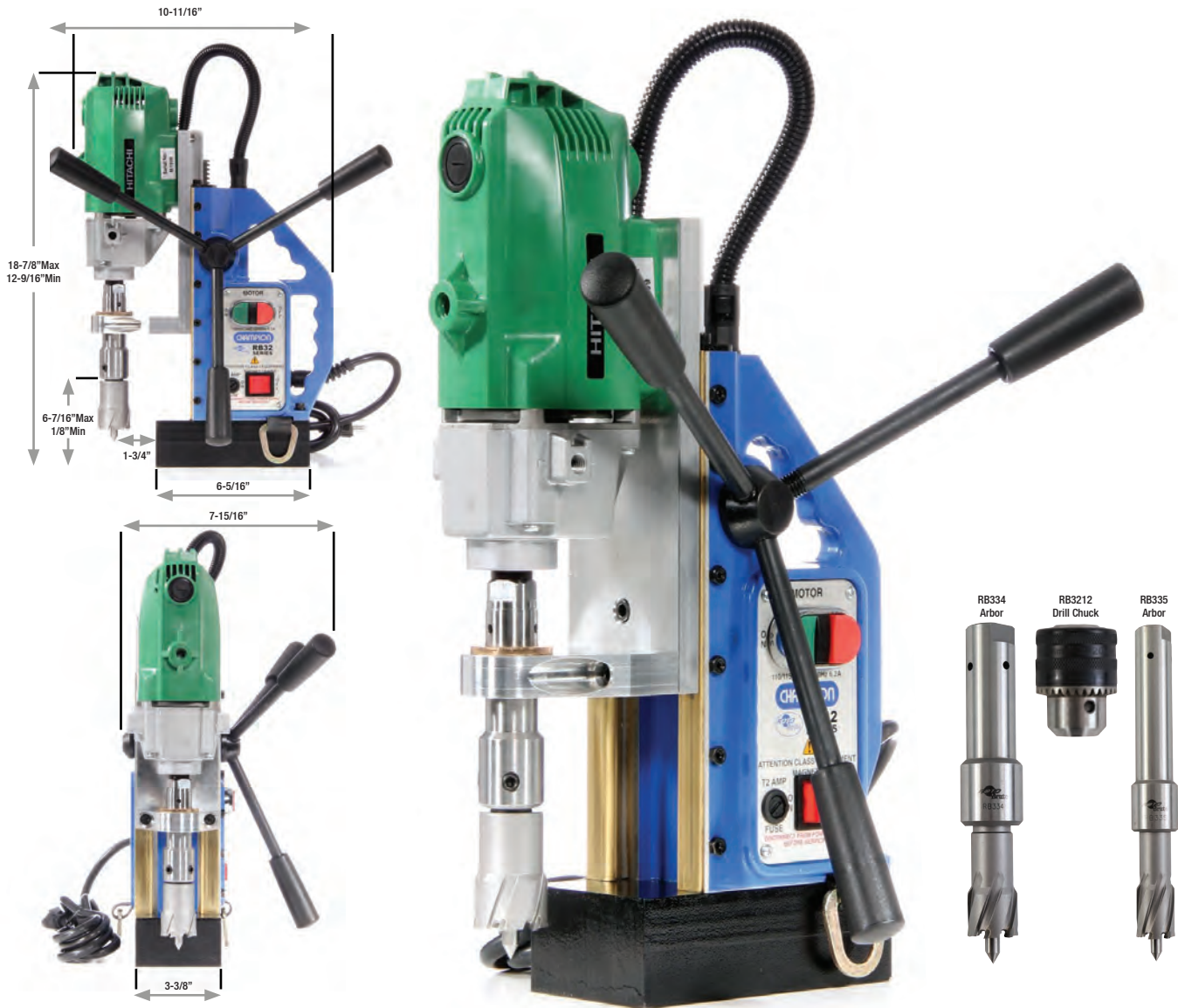
- INCLUDED
- Built in arbor



# 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)

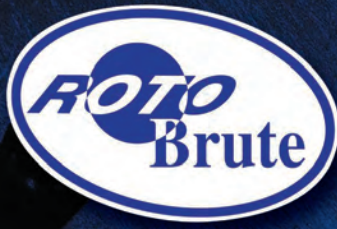
## Arbors & Chucks

### 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



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 and improved control panel provides easy operation of motor direction, speed and magnet on/off.
- 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
- 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 Rotobrute 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-NH0

Optional arbor specially designed to adapt Houghen® 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



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

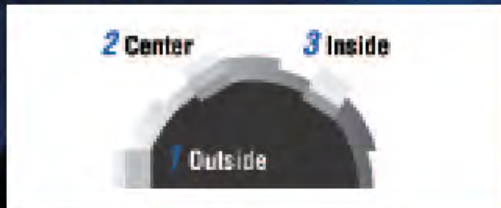


**Description:** Maximize cutting performance of any portable magnetic drill press. Their superior "Triple Edge" cutting action outperforms ordinary high speed steel annular cutters and twist drills 6:1.

**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, burr 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.

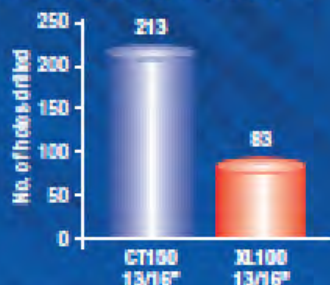


## CT150 vs Standard HS Annular Cutter Comparison

CT Advantage

**256%**

Material used - Construction Steel (25mm)  
AC35 Magnetic drill press used -  
930 watt @ 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

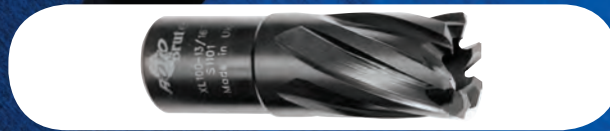
\*\* CT300-PIN-1-1/4" for CT300 > 2-1/4" diameter





# 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	
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

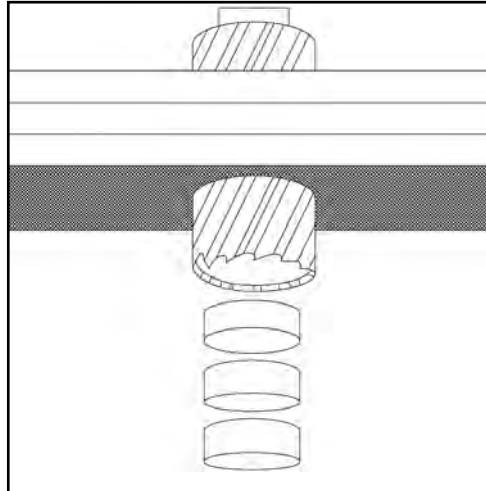


**Description:** Carbide tipped "stack cut" annular cutters feature a special tooth grind which enables drilling multiple plates at one time.

**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



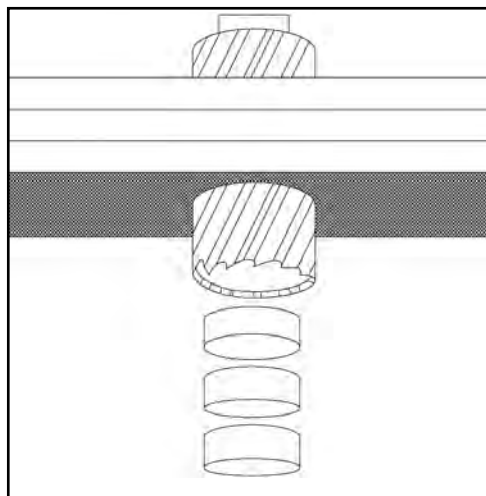
**Description:** Stack cutting annular cutters available for drilling multiple layers without stopping to remove center plugs.

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 and 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
9/16	CT200STK-9/16
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:** Rotobrut pins slide through the center of the annular cutter to:

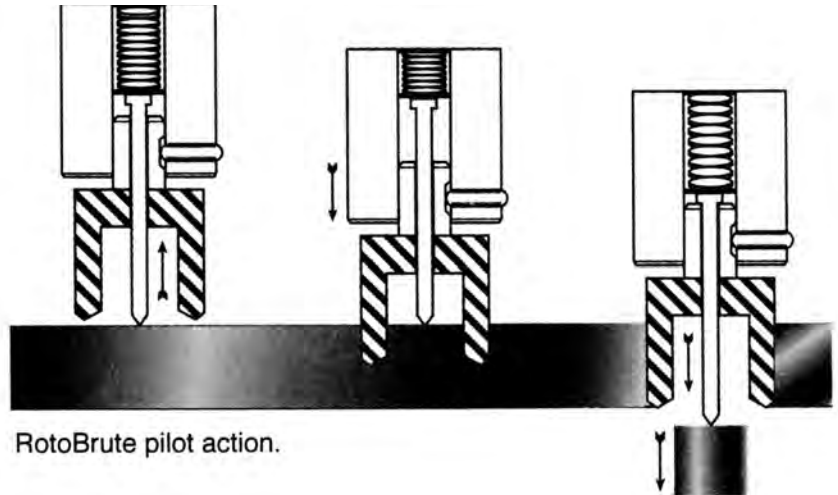
- Help the operator set the precise location to drill
- Guide a steady flow of cutting fluid to the cutting edges
- Eject the slug when the cutter has completed the hole

### 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
CT150P	5/16 diameter pilot pins for CT200 cutters
CT200-PIN	Pilot pins for CT200 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



**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
CM24-1/4	1/4	24
CM24-5/16	5/16	24
CM24-3/8	5/16	24
CM24-1/2	3/8	24
CM24-9/16	3/8	24
CM24-5/8	1/2	24
CM24-3/4	1/2	24

EDP No./ Diameter	Shank Diameter	Overall Length
CM24-7/8	1/2	24
CM24-1	1/2	24
CM24-1-1/8	1/2	24
CM24-1-3/16	1/2	24
CM24-1-1/4	1/2	24
CM24-1-3/8	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
TCB-5/32 X 3-1/2	5/32	3 1/2
TCB-5/32 X 4-1/2	5/32	4 1/2
TCB-5/32 X 5-1/2	5/32	5 1/2
TCB-3/16 X 3-1/2	3/16	3 1/2

EDP No./ Diameter	Shank Diameter	Overall Length
TCB-3/16 X 4-1/2	3/16	4 1/2
TCB-3/16 X 5-1/2	3/16	5 1/2
TCB-3/16 X 6-1/2	3/16	6 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 and no load speed of 440 rpm.

**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
CM79-1-3/4*	1/2	12
CM79-2*	1/2	12
CM79-2-1/2*	1/2	12
CM79-3*	1/2	12

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

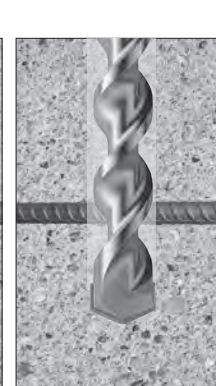
Rebar Step 1



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

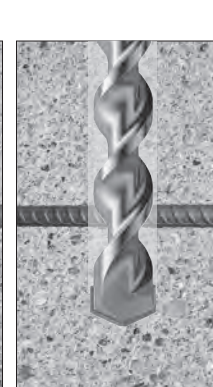
Rebar Step 1



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

**Description:** Versatile slot drive system hammer bits fit most rotary hammers. Vacuum brazed with pure copper at 1900°F. Vacuum heat 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.



List No. CM9



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-5/8X10X12**	10	12
CM95X-1/4X10X12*	10	12	CM95X-5/8X16X18**	16	18
CM95X-5/16X4X6*	4	6	CM95X-3/4X16X18**	16	18
CM95X-5/16X10X12*	10	12	CM95X-7/8X16X18**	16	18
CM95X-5/16X16X18*	16	18	CM95X-1X16X18**	16	18
CM95X-3/8X4X6**	4	6	CM95X-1-1/4X16X18**	16	18
CM95X-3/8X10X12**	10	12			

\* Popular sizes available in bulk packs

### CM95 ATTRIBUTES

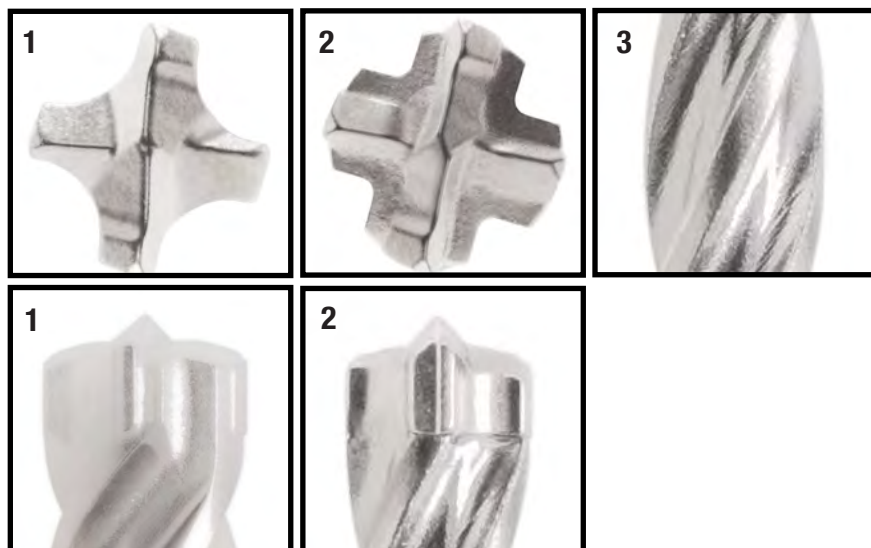
- Made in Germany - world renowned quality
- 2 high performance head styles dependent on diameter -  
4 cutter welded solid tip inserts - 5/32" to 5/16" \* (1)  
4 cutter brazed solid tip inserts - 7/16" to 5/8" \*\* (2)
- Modern heat treat and brazing processes
- Serrated tip geometry for faster concrete 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.

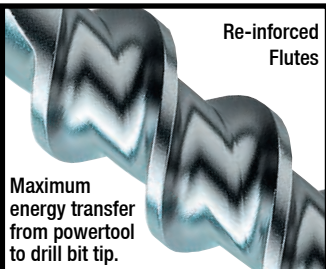
**Application:** For use in concrete and hard masonry materials. Ideal for pipe, electrical, cable and wiring clearances. Also ceiling & wall cavities. For use in SDS Max rotary hammers.



4 Cutter SDS-Max / Spline



Re-inforced Flutes



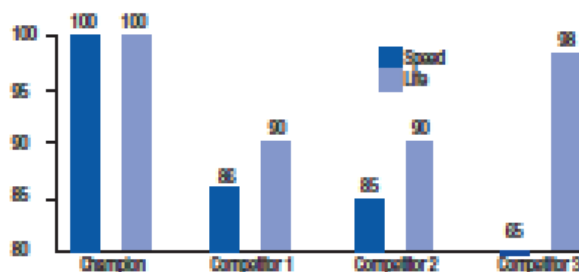
Maximum energy transfer from powertool to drill bit tip.

- 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

### SDS-Max Bit - 1x21 (CM96)

MACHINE - MAKITA HR4500 / MATERIAL - Concrete C45/55

RPM - 240 min-1 / PRESSURE - 200-250 N / DRILLING DEPTH - 7 inch



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
CM96-1-1/8X31X36	31	36
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



**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

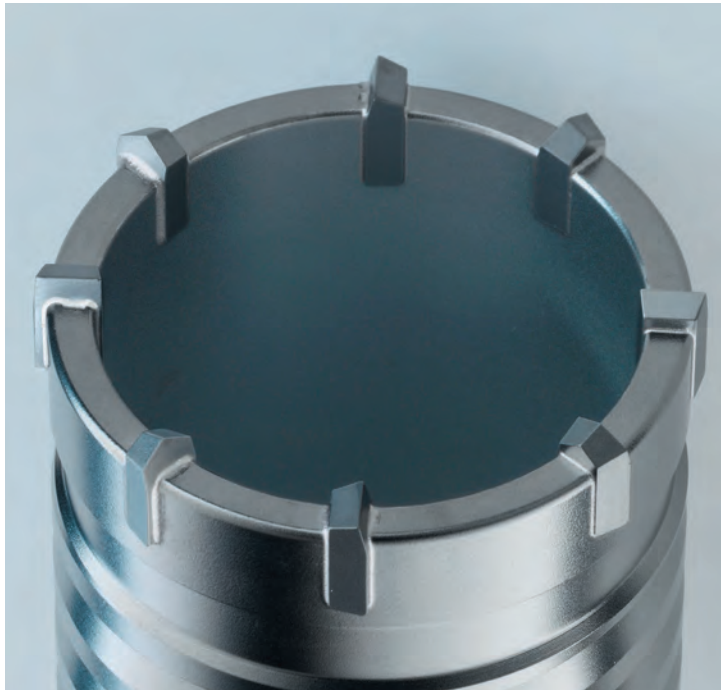
List No. CM89HC

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.



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

### 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

### 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	

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

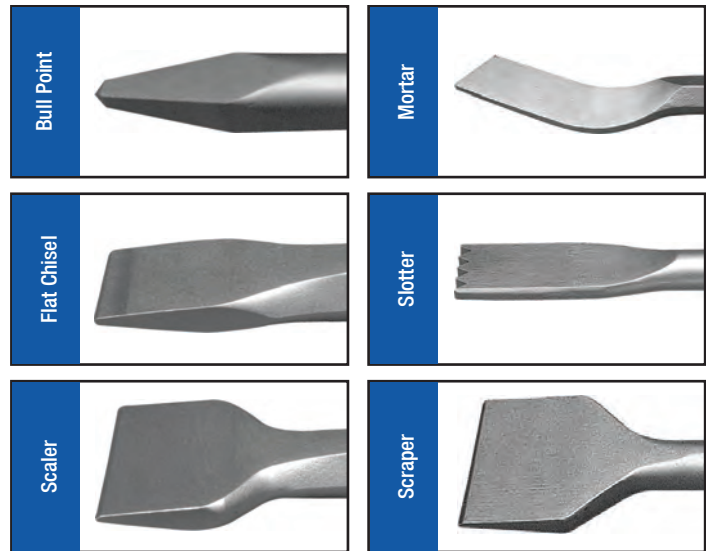
**CM96 SDS Max-Chisels:** For large rotary hammers with SDS-Max drive.

**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

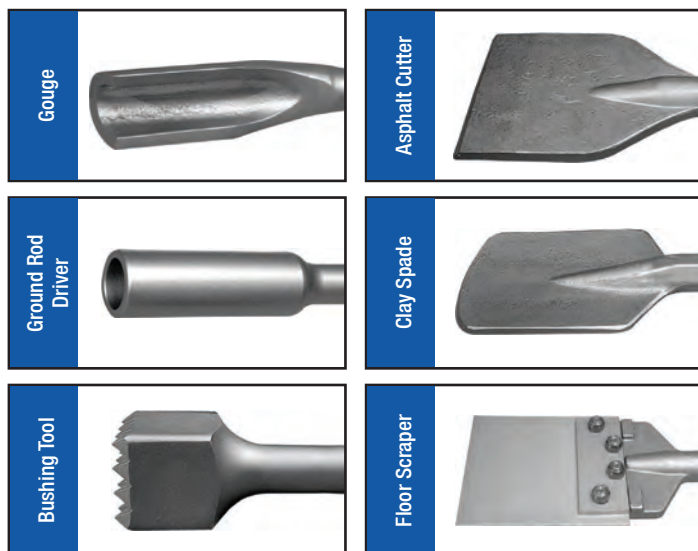


## List No. CM96

### 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.



## 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

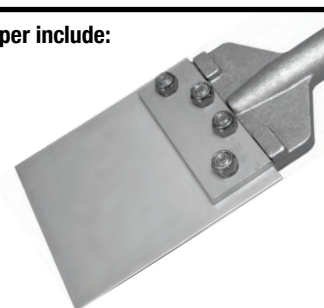
## List No. CM99 Floor Scraper & Accessories

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 hole cutters. 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, fiberglass, 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" &amp; 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
8048-1/4x12	12
8048-1/4x18	18
8048-1/4x24	24
8048-1/4x30	30
8048-5/16x12	12
8048-5/16x18	18
8048-5/16x24	24
8048-3/8x12	12
8048-3/8x18	18
8048-3/8x24	24

EDP No./ Diameter	Overall Length
8048-3/8x30	30
8048-7/16x12	12
8048-7/16x18	18
8048-1/2x12	12
8048-1/2x18	18
8048-1/2x24	24
8048-9/16x18	18
8048-5/8x18	18
8048-11/16x18	18
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
8700-12	12	1/2
8700-18	18	1/2
8700-24	24	1/2

EDP No./ Diameter	Length	Shank Diameter
8800-18	18	3/8
8800-24	24	3/8

**PROLINE****17" Auger Drills****List No. 8018**

Auger / Single Flute / 5/16" &amp; 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
8018-3/8*	12	11	17
8018-7/16*	12	11	17
8018-1/2*	12	11	17
8018-9/16**	12	11	17
8018-5/8**	12	11	17
8018-11/16**	12	11	17
8018-3/4**	12	11	17
8018-13/16**	12	11	17

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
8018-7/8**	12	11	17
8018-15/16**	12	11	17
8018-1**	12	11	17
8018-1-1/16**	12	11	17
8018-1-1/8**	12	11	17
8018-1-1/4**	12	11	17
8018-1-3/8**	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
113C	705 Black HSS Drills
113C0	705C Cobalt HSS Drills
113LH	705LH Left Hand Drills
113C-SP	705SP Split Point Drills
113T-C	700T TiN Coated Drills
113-XG0	XG0 BlackGold Drills
113-XL5	XL5 Brute Platinum Drills
113-XL28	XL28 Brute Mechanics Drills
P13C	US5 Black HSS Drills
113-MT	Empty Case

### 15 Piece Metal Cased Sets



1/16 thru 1/2 x 32nds

EDP No.	Description
15C	405 Bright HSS Drills
115C	705 Black HSS Drills
115C0	705C Cobalt HSS Drills
115LH	705LH Left Hand Drills
115C-SP	705SP Split Point Drills
115T-C	700T TiN Coated Drills
115-XG0	XG0 BlackGold Drills
115-XG38	XG0 & XG38 3/8" Shank Drills
115C-XL5	XL5 Brute Platinum Drills
115-XL28	XL28 Brute Mechanics Drills
115-XL38	XL5 & XL38 Brute 3/8" Shank
P15C	US5 Black 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
21C	405 Bright HSS Drills
121C	705 Black HSS Drills
121C0	705C Cobalt HSS Drills
121LH	705LH Left Hand Drills
121C-SP	705SP Split Point Drills
121T-C	700T TiN Coated Drills
121-XG0	XG0 BlackGold Drills
121C-XL5	XL5 Brute Platinum Drills
121-XL28	XL28 Brute Mechanics Drills
P21C	US5 Black HSS Drills
P21C-3/8	US5 & 738 3/8" Shank Drills
P21HD	USHD Black HSS Drills
121-MT	Empty Case

### 7 Piece Drill Sets



1/16 thru 1/4 x 32nds

EDP No.	Description
107P	705 Black HSS Drills
107C0	705C Cobalt HSS Drills
107LH	705LH Left Hand Drills
107P-XL5	XL5 Brute Platinum Drills

### 20 Piece Metal Cased Sets



Micro Drills - Wire Gauge 61 thru 80

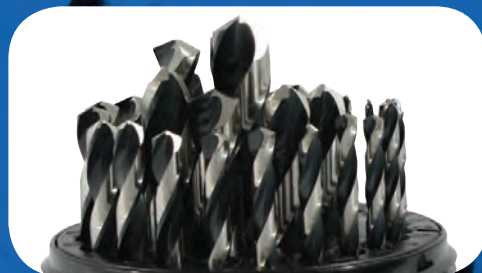
EDP No.	Description
20C	405 Bright HSS Drills
120C	705 Black HSS Drills
120C0	705C Cobalt HSS Drills
120-MT	Empty Case

### 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
126C0	705C Cobalt HSS Drills
126C-SP	705SP Split Point Drills
126T-XG0	XG0 BlackGold Drills
126-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
129T-C	700T TiN Coated Drills
129-3/8C	705 & 738 3/8" Shank Drills
129SM	1705 Screw Machine Drills
129-XG0	XG0 BlackGold Drills
129C-XL5	XL5 Brute Platinum Drills
129-XL28	XL28 Brute Mechanics Drills
129-XG38	XG0 & XG38 3/8" Shank Drills
129C-XL38	XL5 & XL38 Brute 3/8" Shank
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-XG0	XG0 BlackGold Drills
TWISTER-705C	705C Cobalt Drills
TWISTER-US5-29	US5 Black HSS Drills
TWISTER-USHD-29	USHD Black HSS Split Point
TWISTER-XG38	XG38 BlackGold 3/8" Shank Drills
TWISTER-XM28-29	XM28 Mechanics Length Drills
TWISTER-705-29	705 Black HSS Drills
TWISTER-705SP-29	705SP Split Point Drills

### Metric Drill Sets



EDP No.	Description
M11C	708 1-6mm X .5mm
M11-XL8	XL8 1-6mm X .5mm
M25C	708 1-13mm X .5mm
M25-XL8	XL8 1-13mm X .5mm
M11-MT	Empty Case
M25-MT	Empty Case

### 60 Piece Metal Cased Sets



#1 thru #60

EDP No.	Description
60C	405 Bright HSS Drills
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-XG0	XG0 BlackGold Drills
160-MT	Empty Case

### 115 Piece Metal Cased Sets



1/16 thru 1/2 X 64ths, #1 thru #60, A thru Z

EDP No.	Description
SS50C	405 Bright HSS Drills
SS150C	705 Black HSS Drills
SS150CO	705C Cobalt HSS Drills
SS150-SP	705SP Split Point Drills
SS150-XL5	XL5 Brute Platinum Drills
SS150-XG0	XG0 BlackGold 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
712C0-8C	712C0 Cobalt 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

### 16 Piece Taper Shank Drill Set



EDP No.	Description
702-1016	33/64 - 3/4 x 64ths
702-2016	49/64 - 1 x 64ths
702-1016-MT	Empty Case
702-2016-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	705 Drills / XL22M Metric Taps
TD18M-MT	18 Piece Metric Case Only

### Combination Drill & Tap Sets



#### DT22 Series

Create hole and threads in a single pass. No center drilling or punching required.

EDP No.	Description
DT22-SET	6 Piece - 8-32, 10-24, 12-24, 1/4-20, 5/16-18, 3/8-16
DT22M-SET	5 Piece - 4x.7, 5x.8, 6x1, 8x1.25, 10x1.5



#### 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.

**Weight:** 23lbs.

**Dimensions:** 25-1/2"L x 11-3/4" x 2"H

EDP No.	Description
S32JR	33/64 - 3/4 x 64ths
S32-LTD	49/64 - 1 x 64ths
S32-ULTRA	Empty Case



#### S40 Series Tap & Die Sets #4 - 1 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
S40JR	302 carbon taps & 327 carbon dies
S40-LTD	308 HS taps & 327 carbon dies
S40-ULTRA	308 HS taps & 328 HS 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
S51JR	302 carbon taps & 327 carbon dies
S51-LTD	308 HS taps & 327 carbon dies
S51-ULTRA	308 HS taps & 328 HS dies

Note: Plug style taps supplied as standard in all sets.

#### 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



### 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 Boxes



Conveniently organizes the most popular high speed taps in a durable steel case which fits any toolbox. The tap kit isolates each tap, which prevents chipping.

EDP No.

Description

308-10C

10 Piece 308 1/4 -1/2

321-10C

10 Piece 321 1/4 -1/2

XL22-10C

10 Piece XL22 1/4 -1/2

XL22T-10C

10 Piece XL22T 1/4 -1/2

308-19C

19 Piece 308 #0 - #12

321-19C

19 Piece 321 #0 - #12

TK10-MT

10 Piece tap empty case

TK19-MT

19 Piece tap empty case

### Hexagon Die Sets



EDP No.

Description

330-10NC

10 Piece 1/4 - 1 NC

330-10NF

10 Piece 1/4 - 1 NF

330-20

20 Piece 1/4 - 1 NC/NF

330-20M

4-27mm 330M dies



### 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
BK5PT-NF	Non-Ferrous 5 Piece Bur Kit in Plastic Case: SA5NF, SC3NF, SF3NF, SC5NF, SD5NF

### 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

### Adjustable Hand Reamer Sets



EDP No.	Description
900-9	4 Piece 1/4 - 3/8
900-44	11 Piece 15/32 - 1-1/2
900-45	8 Piece 15/32 - 1-1/16
900-46	3 Piece 3/8 - 15/32

### 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.



### CT3 Hole Cutter Set



EDP No.	Description
ELEC-KIT	MSD-HEX-13, CT3-7/8, CT3-1-1/8, CT3-1-3/8 and QCD in plastic case
CT3P-SET-1	7/8 (2ea.), 1-1/8 (2ea.), 1-3/8 and QCD in plastic case
CT3P-SET-2	MSD-HEX-13, CT3-7/8, CT3-1-1/8, CT3-1-3/8 and QCD in plastic case

### 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

### 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
CT7P-SPRINKLER-SET	1-3/16, 1-1/4, 1-1/2, 1-3/4, 2 and 2-1/8 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

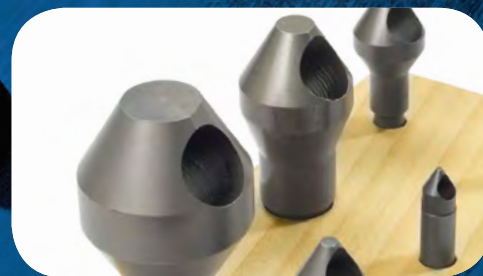


EDP No.	Description
CT7P-MECHANICAL-1	12 Piece Master Mechanical Set: 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/2 and 3 in plastic case
CT7P-ELECTRICAL-1	10 Piece Master Electrical Set: 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8, 4-1/2 in plastic case

### CT7/CT9 Lockset Kit



EDP No.	Description
CT9P-DOOR-SET	CT7-7/8, CT7-1, CT9-1-1/2, CT9-2-1/8 in plastic case



### 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-2	82° CSK5S, CSK6S, CSK8S, CSK10S, CSK8-2, CSK10S-2, CSK12-2, CSK14-2, CSK16-2, Pilots w/1/64 oversize diameters
CSK-SET-3	82° CSK5S, CSK6S, CSK8S, CSK10S
CSK-SET-4	82° CSK6S, CSK8S, CSK10S, CSK18
CSK-SET-5	CSK5S, CSK6S, CSK8S, CSK10S, CSK18
CSK-SH-SET	CSK-3SH, CSK-8SH, CSK-18SH

### Zero Flute Countersink Sets



EDP No.	Description
DBK-SET	90° DBK6, DBK8, DBK14, DBK18, DBK26, DBK36

### 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
CM9-SET5	CM9 - 3/16, 1/4, 5/16, 3/8, 1/2
CM95-SET7-LTD	CM95 - 5/32, 3/16, 1/4, 3/8, 1/2 CM95X - 1/4, 3/8
CM95-SET7	CM95 - 5/32, 3/16, 1/4 (2), 3/8 (2), 1/2



### 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
D2-XL5	720 Piece Wire Gauge Drills
D3-XL5	258 Piece Letter 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-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

### Taper Shank Drill Dispenser



EDP No.	Description
D1-702	702 Drills from 1/8 thru 1
D1-702-MT	702 Empty Dispenser

### Empty Metric Drill Dispensers



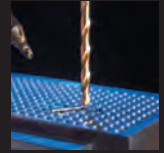
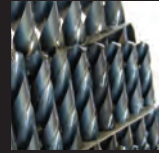
EDP No.	Description
DM1	Dispenser for 1 - 13mm x 0.5mm
DM2	Dispenser for 1 - 6.9mm x 0.1mm

### 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 drill dispenser



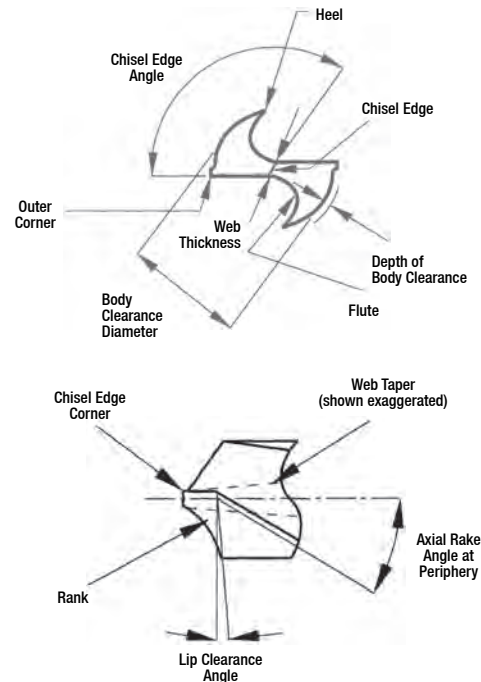
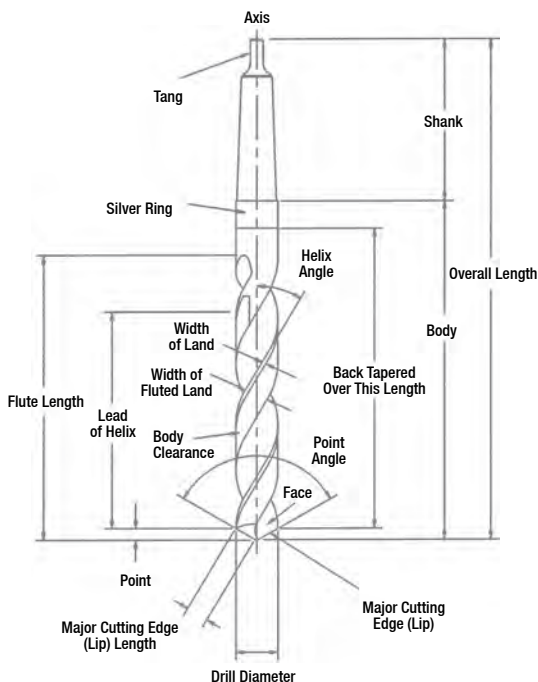
## Technical Tips / Drills

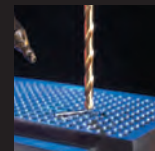
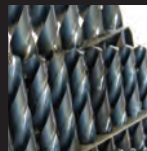
1. The most common mistake when drilling is to over-speed and under feed the tool. This will generate excess heat at the cutting edge, prematurely dulling the drill. Brute drills are designed to be fed heavily. If speed is increased an increase to feed is also appropriate. This will ensure that a "healthy" 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 regrounding 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

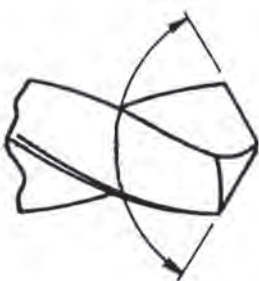
### 12. CHIP SHAPE CHANGES WHEN DRILLING

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



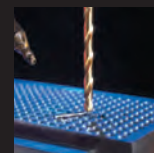
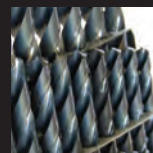
### 118° Conventional Point

- 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°

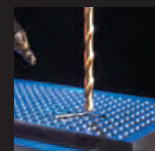
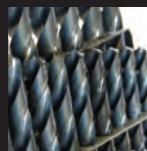


## Technical Tips / Drills

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 MACHINE	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												

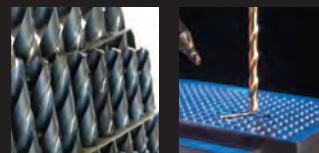


### Material Application Chart

Material Level	Titanium			Stainless Steel			Steel		Steel		
	Ti175A	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

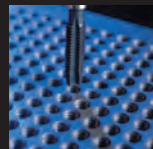
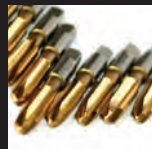
### Product Categories - Best / Better / Good Suitability

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
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 ¾-16 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 ¾-16 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. Photo shows multi-spindle production tapping of V12 engine block using spiral flute taps.

#### 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.

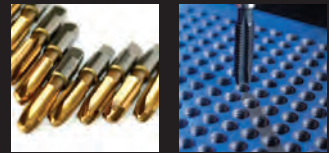
#### 324/325 Pipe Taps



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 ¾” 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

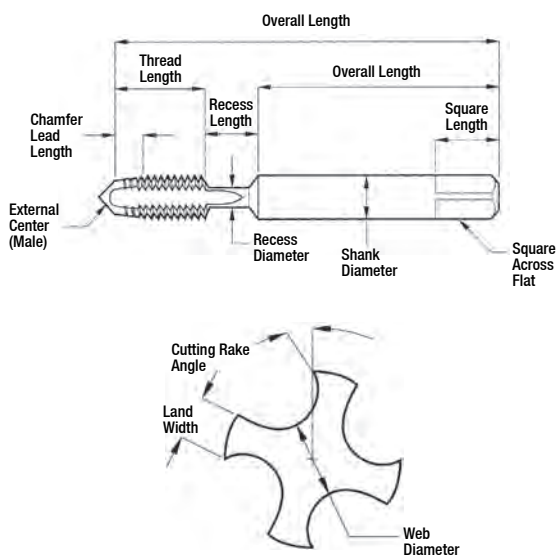
### Spiral point taps

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.

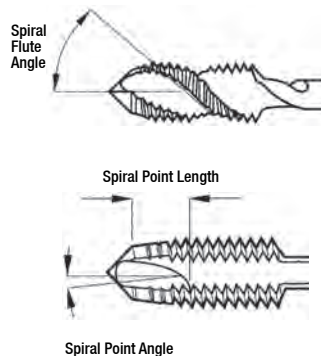
### General hints on Tapping

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 mouthing”.

### Tap Nomenclature



### Spiral Tap Nomenclature



### Tap Chamfers

#### Taper - 7 to 10 pitches

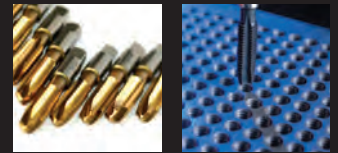
The taper chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.

#### Plug - 3 to 5 pitches

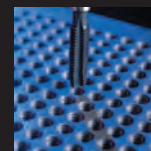
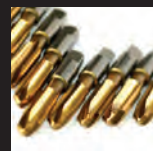
The most common chamfer for use by hand or machine in through or blind holes. This chamfer is more efficient than a bottoming chamfer.

#### 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	Hole too Small Tap Hitting Bottom  Misalignment Tapping too deep Dull tap Cramped condition	Use to correct Consult Tap Drill Chart Correct adjustment Exercise more care Use positive reverse Drill hole taper Make correction Use spiral point or serial taps Sharpen tap Check tap holder and alignment
Chipping	Inadequate lubrication Hitting bottom of hole or chips packed in bottom of hole Hard spots In work Loading	Consult lubrication chart if lubrication engineer Check reversing stop Drill hole deeper Check hole for work hardening Check lubrication / Use surface treated taps
Torn or Rough Threads	Incorrect hook, relief, or chamfer Inadequate lubrication Dull tap Loading	Grind correctly Increase flow - see that it is getting into the hole Resharpen tap Use surface treated taps / check lubrication
Tapping Oversize or Bell-Mouth Holes	Loose spindle or worn holders Misalignment Excessive thrust Loading	Repair machine, tap holders or work holders Correct condition Adjust pressure if air driven / use more care if manual Use surface treated taps
Excessive Wear	Inadequate lubrication Sand in cored holes Abrasive material	Check lubrication engineer Clean hole before tapping If Bakelite, etc : use oversize tap with surface treatment



### Tap Drill Sizes

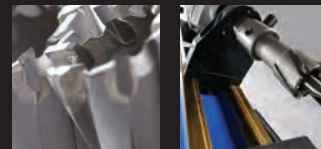
Tap Size	Tap Drill Size	Prob % of Thread	Tap Size	Tap Drill Size	Prob % of Thread
0-80	56	74	3/8-24	Q	75
	3/64	71		8.5mm	70
1-64	54	81	7/16-14	U	75
	53	59	7/16-20	W	75
1-72	1.50mm	68		25/64"	68
	53	67	1/2-13	27/64"	75
2-56	51	74		11.0mm	64
	50	62	1/2-20	11.4mm	74
2-64	50	70		29/64"	67
	49	56	9/16-12	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	7/8-11	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	11/16-16	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
	0	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"



## 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)	Cutting Dia. Inches.	51	102	153	204	255	306	357	407	458	509	
Revolutions per minute (RPM)															
Aluminum	Wrought & Cast Die Cast 360.0, 380.0 383.0, 413.0 390.0, 392.0	*30-150 *40-125 *40-125 *40-125	500-1000 450-600 450-600 75-100	.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	
Brass & Bronze		-	300-600	1.2500	31	61	92	122	153	183	214	244	275	306	
Cast Iron	Soft Medium Chilled	120-150 160-220 230-300	75-125 50-100 30-50	1.3750	28	56	83	111	139	167	194	222	250	278	
				1.5000	25	51	76	102	127	153	178	204	229	255	
Malleable Iron	Ferretic Pearlitic Temperature Martensite	110-160 160-220 200-320	100-130 75-100 30-60	1.6250	24	47	71	94	118	141	165	188	212	235	
				1.7500	22	44	65	87	109	131	153	175	196	218	
Magnesium		*50-90	8	1.8750	20	41	61	81	102	122	143	163	183	204	
Nickel Alloys Monel Monel	200-230 400-404 K500, 502	80-170 115-240 150-330	60-80 35-50 20-40	2.0000	19	38	57	76	95	115	134	153	172	191	
				2.1250	18	36	54	72	90	108	126	144	162	180	
Steel Resulphurized/Leaded Free Machining		-	105-130	2.2500	17	34	51	68	85	102	119	136	153	170	
Carbon Steel	10xx, 12xx, xx10, xx20	125-160	90--110	2.3750	16	32	48	64	80	96	113	129	145	161	
				2.5000	15	31	46	61	76	92	107	122	138	153	
Steel Alloys Soft Steel Alloys Medium Steel Alloys Hard		170-210 220-250 260-300 325-400	65-90 55-75 35-50 30-40	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	
Tool Steel		210-2150	35-60	3.1250	12	24	37	49	61	73	86	98	110	122	
Forgings		-	40-50	3.2500	12	24	35	47	59	71	82	94	106	118	
Armor Plate		200-250 250-300	40-55 30-45	3.3750	11	23	34	45	57	68	79	91	102	113	
Stainless Steel Ferritic	430,405 430F	135-185	90-125	3.5000	11	22	33	44	55	64	76	87	98	109	
				3.6250	11	21	32	42	53	63	74	84	95	105	
Stainless Steel Austenitic	Lower BHN Higher BHN	135-185 225-275	55-75 40-70	3.7500	10	20	31	41	51	61	71	81	92	102	
				3.8750	10	20	30	39	49	59	69	79	89	99	
Stainless Steel Nitomic (Low Alloy)		275-325	25-35	4.0000	10	19	29	38	48	57	67	76	86	95	
Stainless Steel Matensitic	By Hardness Range 501 416/440F	135-185 185-240 275-325 375-425	70-125 45-110 35-55 30-55												
Stainless Steel Precipitation Hardening	By Hardness Range 17-4 PH	150-200 275-325 325-375	45-55 40-50 35-45												

### 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.

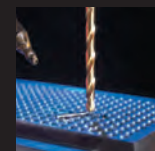
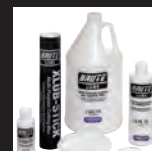
### Machine Maintenance

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.

**CHAMPION**

# 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

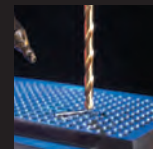
Known Hazards Under 29 CFR 1910.1200

Mutagenic (genetic defects) NONE

Reproductive NONE

Systemic NONE

Teratogenic (birth defects) NONE



## 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.

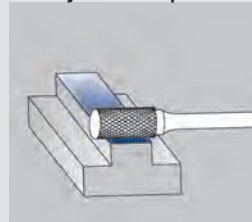
### When to Use a Double Cut Bur

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

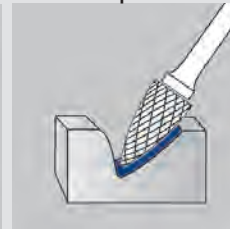
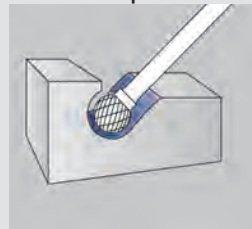
SA - Cylinder Shape

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.
3. 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

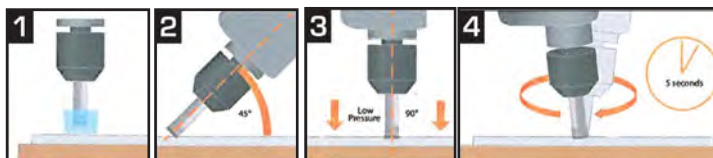
- This drill can be used dry by simply dipping it into a suitable liquid before drilling each hole
- Using this drill with a constant flow of water will extend its life dramatically - follow guidelines below:
  - Use spray bottle to apply water on vertical surfaces
  - On horizontal surfaces start with 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.

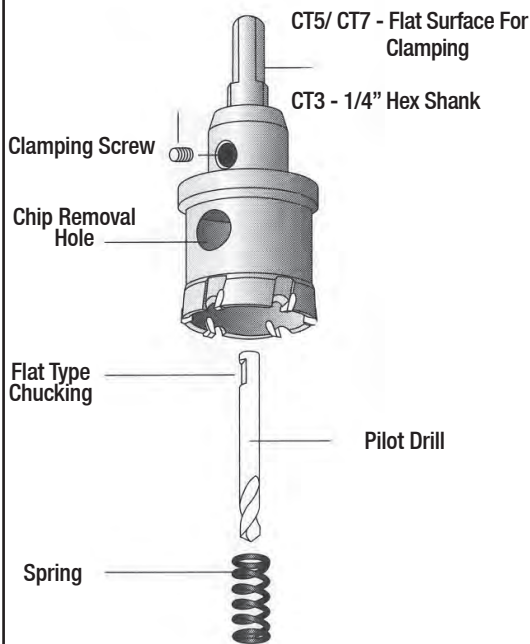


### Technical Tips - CT Cutters

#### 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

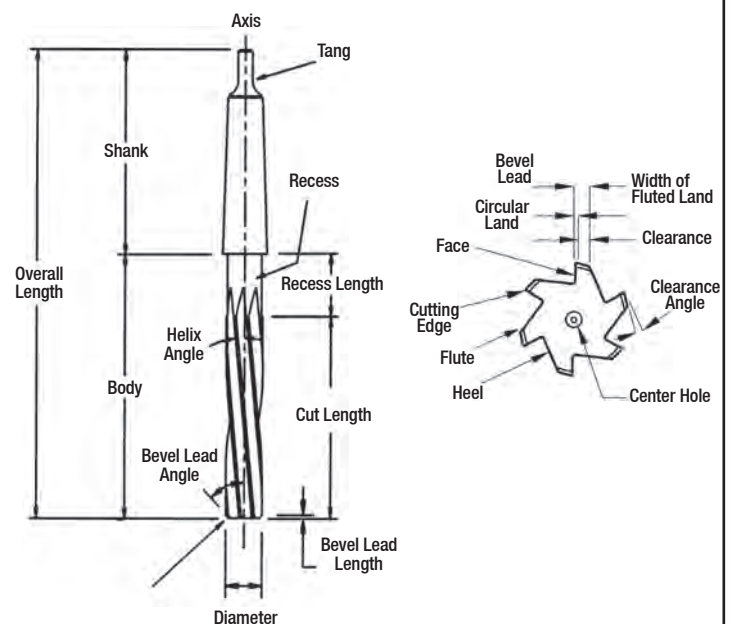


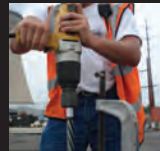
### Technical Tips - Reamers

#### 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.

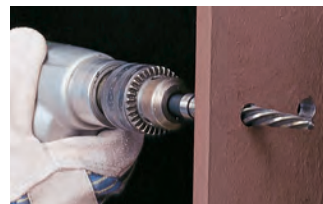
#### Champion Reamer

#### 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

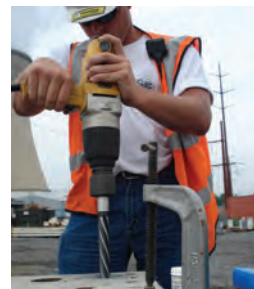


Used by steel erectors in electric and pneumatic impact wrenches for aligning structural steel. Left hand flutes cut with a shearing action which safely projects chips forward. Short length for use in tight areas. Available from 11/16 to 1-3/16". HX80 style has straight flutes.

##### 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.



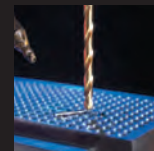
##### 900 Adjustable Hand Reamers



Extension Pilot

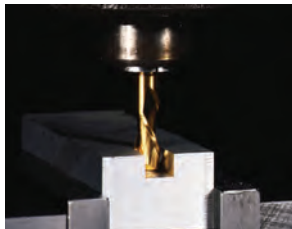
Used in automotive and aircraft maintenance for repair of king pins and piston bushings. An economical tool for precisely reaming a small number of odd-sized holes. Adjustable to precisely fit a range of sizes, eliminating the need for single purpose, special diameter reamers. Available from 8/16(1/4") to letter O(3-11/32"). For hand use only. Available with 900P extension pilots and in sets



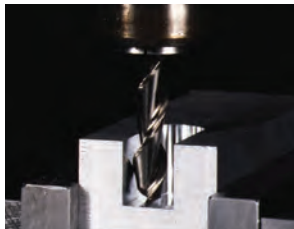


### Technical Tips - End Mills

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



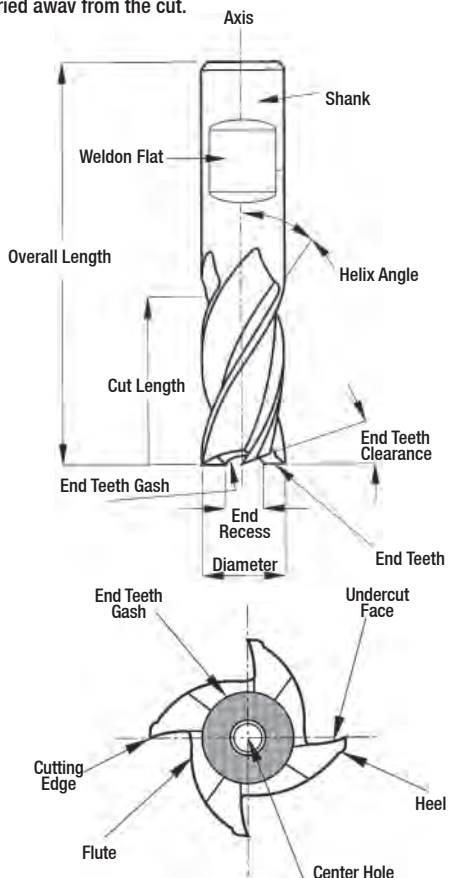
### End Mill Anatomy

**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

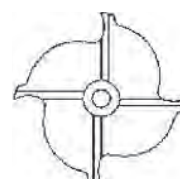
- Center Cutting (CC)-Able to “plunge-cut” or drill into material
- Non Center Cutting (NCC)-End cutting edges do not meet in center, hence tool cannot plunge-cut.
- Ball Nose-Used to create compound curved shapes (i.e. molds)



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.

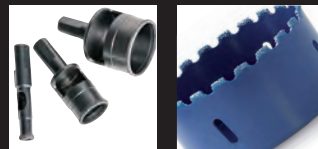
It is particularly important that the rate of feed per tooth does not increase for diameters < 3/8”.

### 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.

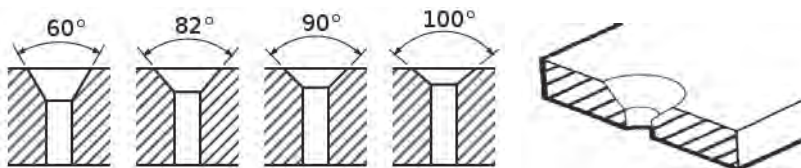
### Popular Champion End Mills Include:

- 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

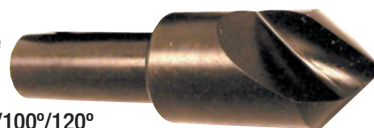
- Pilotless countersinks are recommended for bolt sizes from .073 to 1-15/32 and screw sizes #4 through #10. (Round shank - DCB 60°, CSK 82°, DBK90°, CSA100°) (1/4" Hex Shank - CSK-SH)



#### 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  
Aluminum  
Mild Steel  
Stainless Steel

Surface Feet / Minute (SFM)  
200 - 250  
100 - 110  
30 - 100

#### Sample Calculations for 1/4" Countersink Speed (RPM)

(225 (SFM) x 3.82 / .2500) / 3 = 1,146 RPM  
(115 (SFM) x 3.82 / .2500) / 3 = 586 RPM  
(65 (SFM) x 3.82 / .2500) / 3 = 381 RPM



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D2	143	ROTOBRUTE TAP COLLETS	111	US-BK8P	140
D2-XL5	143	S1	39	USHD	20
D3	143	S2	39	X1	41
D3-XL5	143	S32JR	138	X1-1-5	41/137
D4	143	S32-LTD	138	X1-1-6	41/137
D4-XL5	143	S32M-LTD	138	X1-705LH	41/136
DBK	73	S32-ULTRA	138	X1-XL5LH	41/136
DBK-SET	142	S40JR	138	X2	41
DIS-MT	143	S40-LTD	138	X2-1-5	41/137
DM1	143	S40-ULTRA	138	X2-1-6	41/137
DM2	143	S40M-LTD	138	XG12	31
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DRILL DISPLAYS	143	S51-LTD	138	XG38	28
DRILL GUAGE	51	S51-ULTRA	138	XG0	14
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DT22HEX	75	SA80P-SET4	140	XL100-SET	142
DT22HEXM	75	SA80-SET	140	XL12	30
DT22HEX-SET-MET6	137	SB35	102	XL12-33	136
DT22HEX-SET-MS5	137	SHANK ADAPTORS	127	XL12-8C	136
DT22HEX-SET-NC5	137	SHANK EXTENSIONS	127	XL12-8P	136
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HX82M	53	SS150-SP	135	XL46	84
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M25-MT	135	TD18	137	XL8	23
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MSD-HEX	46	TD18-XL	137	XL86M	52
MSD-HEX-SET	46/140	TD18B-MT	137	XLT TAPPER	76
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P15C	134	TD18M-XL22M	137		
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P21C	134				



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