

CHAMPION

Innovative Cutting Tool Solutions



CHAMPION

BRUTE
PLATINUM

ROTO
Brute

PROLINE

2011 Product Catalog

CHAMPION

Your Productivity Partner

Professional Grade Products

Champion has been dedicated to servicing professionals with industrial grade products and services since 1897. Our product range includes twist drills, end mills, taps, dies, cutters, power tools, and masonry tools that are engineered for peak performance. Our distribution network serves cutting tool users in all fifty U.S. States, and is expanding internationally. Our commitment to same-day shipping and superior technical support give you, our customer, the Champion Edge.

Innovative Cutting Tool Solutions

Our CT5 Carbide tipped hole cutter has been completely redesigned. The result is faster hole penetration, and longer tool life. The design enhancements include a new carbide tip pocket for faster chip evacuation, improved carbide tips, stepped pilot drill for smoother penetration, and stiffer spring for positive slug ejection.

The new CM95X series of SDS-Plus hammer bits features a "solid-tip" which penetrates rebar-imbedded concrete. These state of the art SDS-Plus bits penetrate the toughest aggregates including Vermont granite.

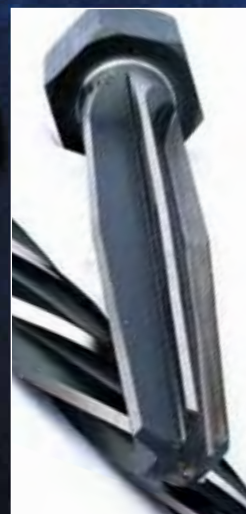
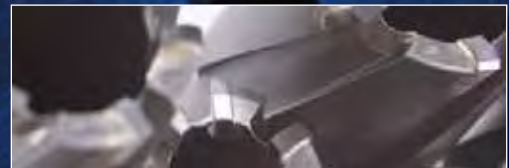
Champion's iPac system provides professional grade cutting tools in individual and combination packs. The iPac range includes twist drills, taps, and screw extractors.

DT22HEX combination drill and taps create a hole and thread in one application. Available in NC/NF, and metric sizes, these industrial quality tools are available from 6-32 machine screw size to 1/2-13. Perfect for industrial, MRO and electrical professions.

Champion's CT9 was designed in conjunction with locksmiths whose work requires the installation of locksets in steel doors. CT9 hole cutters enable quick drilling of 1-1/2" and 2-1/8" holes in steel doors.

New RotoBrute CT300 and CT400 carbide tipped annular cutters are engineered for cutting 3" and 4" thick steel, pipe, and square channel. Users report up to 1000 holes from a single RotoBrute carbide tipped annular cutter.

MSD-Hex Step Drills are industrial grade, not consumer-grade. Improved geometry includes a 135-degree split point for accurate hole location, and fast drilling. The double-flute design provides balanced drilling, and symmetrical holes.



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www.championcuttingtool.com

CHAMPION

CHAMPION

Your Service Partner

Product

In depth inventory that includes twist drills, taps, end mills, reamers, burs, annular cutters, countersinks, magnetic drill presses, plus a broad range of "hard to find" tools.



Innovation

Consistent flow of innovative, cutting edge products. Champion leads the way in increasing our partners productivity levels with solutions.



Service

Historical order fill-rates of 99% coupled with same-day shipping is one reason why Champion continues to be the industry's #1 productivity partner.



Marketing

Updated website includes product videos and product application information. The new Champion Product Line Card (PLC) illustrates every Champion product in an eight-page format.



Showroom

The RollFlex display organizes your cutting tool inventory while providing a multitude of product variations from twist drills to carbide burs.



Promotions

The ChampionEdge, a quarterly publication introduces innovative product and shares timely news and user success stories.



Technical

Visit the Champion website for technical support, including FAQ, RotoBrute support, decimal charts, metric/imperial conversion macros, and speed and feed calculators.



Technology

Precision machining processes, state of the art production facilities, the most modern operating systems for stock control and order processing.



The Champion Brands



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.

Champion brand twist drills are more than just "drill bits". From screw machine drills to taper shank drills, Champion twist drills are manufactured to exacting standards that yield the lowest cost per hole.

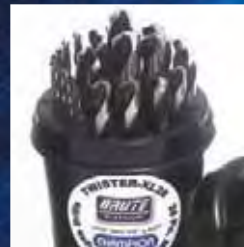
The Champion range of taps will give you close tolerance threads in a variety of applications, including both high speed tapping heads and hand use.

All Champion carbide burs are titanium nitride coated for long life and high performance.

The range of reamers available includes bridge reamers, adjustable hand reamers, chucking reamers and chassis reamers. When you need to align, enlarge or debur holes you can count on Champion reamers.



BRUTE
PLATINUM



Champion's Brute drill was developed to outperform costly cobalt drills. It penetrates faster and is more flexible, so Brute drills break less and last longer.

The Brute family is rugged. All Brute Platinum drills, taps, reamers, countersinks and end mills are engineered for tough materials and environments.

The combination of quality raw materials, geometries and surface treatments provide consistent high quality for predictable and repeatable high performance.

XL5 jobber drills, XL28 mechanics length drills, and XL8 metric jobber drills all feature NOMO (Nitride on Margin Only) surface treatment.

According to our customers, nitriding simply makes our Brute drills work better!

Brute Platinum Drills are the **ultimate workhorse** for virtually any drilling application.



The Champion Brands



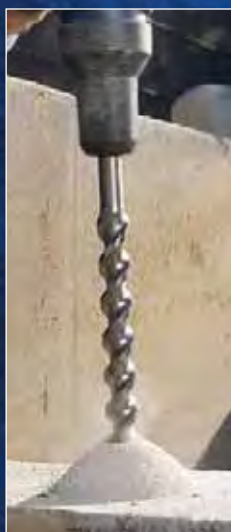
Champion's RotoBrute system is the quick and easy holemaking solution for making large diameter holes in structural steel beams and plate.

The RotoBrute drilling system features a complete line of magnetic drill presses and annular cutters, which are engineered to drill large diameter holes in structural steel from 7/16" to 4" diameter.

Champion magnetic drill presses may be used in any position; vertical, horizontal or overhead. It allows you to take the magnetic drill to the workpiece, instead of bringing the workpiece to the drill press.

At the core of the RotoBrute system is the broadest range of carbide tipped and high speed steel annular cutters which feature our exclusive Plus20 surface treatment. Plus20 provides cleaner cuts, positive slug ejection and long tool life.

The RotoBrute range of carbide tipped annular cutters now includes CT300 3" depth hole cutters and CT400 4" depth hole cutters. Both are recommended for thick materials and extended reach in square tubing.



PROLINE

Champion's ProLine includes over 365 sizes of masonry drills and steel chisels for the professional tradesman.

The new CM-MPB multi-purpose bit penetrates steel, concrete, wood, and non-ferrous abrasive materials.

For drilling rebar imbedded concrete, you will save time and broken bits by using our CM95X "solid-tip" SDS-Plus bits.

A full range of SDS Plus, SDS Max and Spline hammer chisels are also available.

New merchandising displays are now available for SDS Plus, SDS Max, Spline, Multi-Purpose rotary drill and core drills.



CHAMPION

What's New



RB30 LittleBrute

Low Profile Magnetic Drill Press

The new RB30 is designed to squeeze into tight spaces. It will fit behind trailer wheels so you can easily drill truck frames without removing the wheels. With an 1100 watt 650 rpm motor, it is packed with enough power to drill holes up to 1-3/8" diameter. And the quick-release arbor makes it a snap to change annular cutters in seconds.



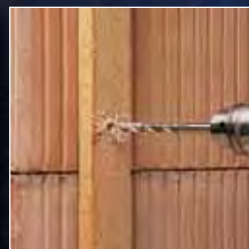
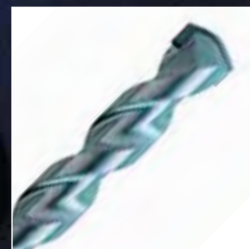
CM95X

CM95X Solid Tip Cross Head SDS Plus Hammer Bits

All new solid tip cross head design with centering tips for strength and easy start up. Made in Germany - world renowned for quality of product.

"Solid-Tip" Technology cuts through rebar while the 4 Cutter head from Champion cuts faster and lasts longer.

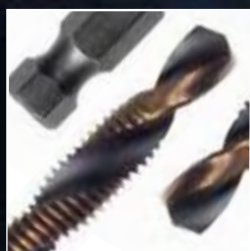
Available in 5 piece kits and new showroom merchandisers.



CM-MPB

Multi-Purpose Rotary Masonry Bits

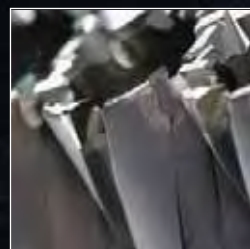
Specially designed for use in a variety of materials and applications including concrete, stone, plastics, cement board granite and more.



DT22HEX

DT22 Hex Shank Combination Drill & Taps

Create a hole and thread in a single operation! No center drilling or punching required. Its tapered neck design significantly reduces drill & tap breakage and a 135° split point permits hole and thread to be cut at high speeds.



CT300/CT400

Additional Sizes on CT300/400 Carbide Tipped Annular Cutters

Champion has increased the range of sizes available. These 3" and 4" length cutters enable users to penetrate the thickest of materials and also to continue to drill when there are multiple layers to drill such as girders.

What's New **CHAMPION**



CT3/CT5/CT7/CT9

New Plastic Cased Sets

Champion has developed a huge range of application specific kits for the Carbide Tipped Hole Cutter range of products. Held in robust plastic cased sets these range cover all major applications.



CT5 / CT7

New and Improved CT5 & CT7 Carbide Tipped Hole Cutters

Champion has redesigned the CT5 and CT7 for improved performance. Improved grinding process produces sharper edges and improved tip angles for faster cutting and better chip clearance. New carbide tip "pocket" has been enlarged for quicker chip extraction.



Showroom Assistance

Champion Showroom Merchandising

Turn a few square feet of floor space into a cutting tool showroom.

Our RollFlex display units are portable and flexible. They provide virtually unlimited options, with cutting tool modules available for twist drills, taps, carbide tipped hole cutters, burs, annular cutters and more. According to Joe Rivas, vice president of American Fasteners located in Miami Florida, "Since purchasing the RollFlex display, our counter sales have increased. Our customers get product application and usage knowledge."

Vertical(28"H) and horizontal(36"W) header cards are now available which visually display the range of Champion cutting tools available.



iPac Merchandising

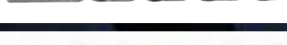
New Individual and Combination Tool Packaging

The iPac system puts industrial quality cutting tools in individual packs. Individual Brute Platinum XL5 and XL28 twist drills are available from 1/16" to 1/2".

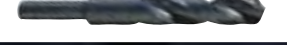
Combination iPac packages organize individual high speed tap with the recommended twist drills. Screw extractor iPac sleeves include a left hand twist drill along with its complementary screw extractor. Complete iPac display modules are available which fit the RollFlex merchandising system

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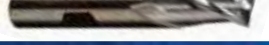
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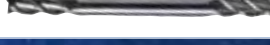
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RotoBrute

Annular Cutters

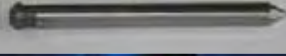
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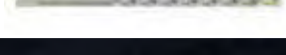
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Jobber Drills

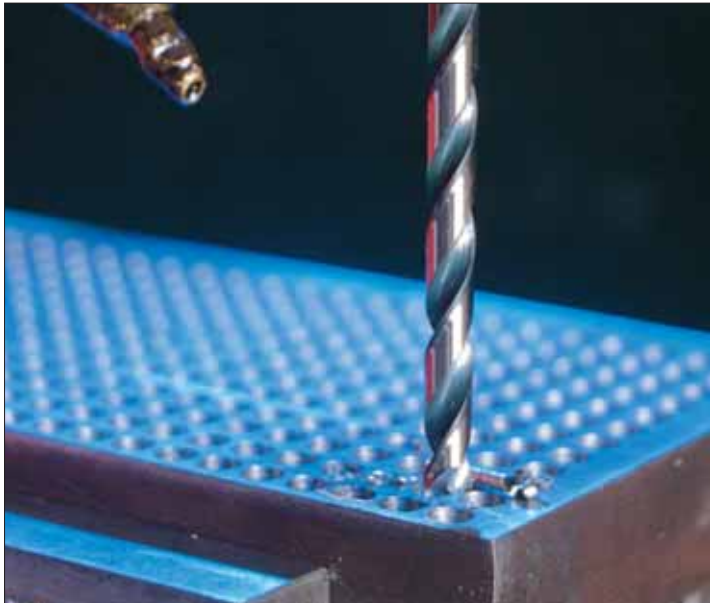
List No. XL5

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.



XL5 Jobber drill in action

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 130 & 131 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	.3770	3-5/8	5

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



** Available in iPac twin pack

* Available in iPac

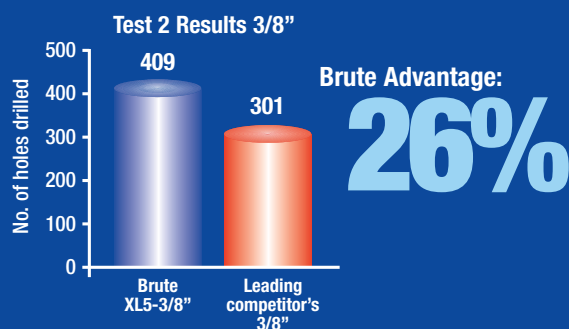
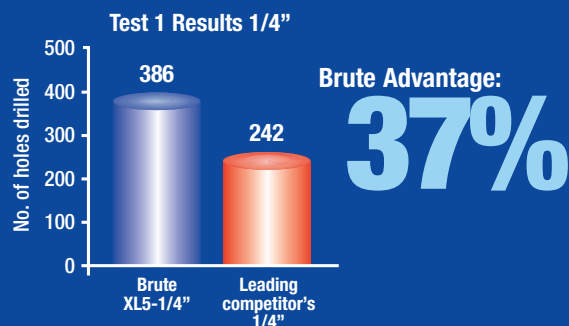
† Available in iPac combination drill and tap pack (308 Taps)

Brute Drill Performance Analysis

XL5 Jobber Drill

Test parameters

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



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

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).



See XGO drill sets on pages 130 & 131

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

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	3-3/4
XGO-5	.2055	2-1/2	3-3/4
XGO-4	.2090	2-1/2	3-3/4
XGO-3	.2130	2-1/2	3-3/4
XGO-7/32*	.2188	2-1/2	3-3/4
XGO-2	.2210	2-5/8	3-7/8
XGO-1	.2280	2-5/8	3-7/8
XGO-A	.2340	2-5/8	3-7/8
XGO-15/64*	.2344	2-5/8	3-7/8
XGO-B	.2380	2-3/4	4



** Available in iPac twin pack

* Available in iPac

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



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

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.

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

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



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

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

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

Heavy Duty Jobber Drills List No. 705SP

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



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

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

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

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

* 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	.2344	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.

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	2-1/8

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	1-3/4	2-7/8
705-27	.1440	1-7/8	3
705-26	.1470	1-7/8	3
705-25	.1495	1-7/8	3
705-24	.1520	2	3-1/8
705-23	.1540	2	3-1/8
705-5/32	.1562	2	3-1/8
705-22	.1570	2	3-1/8
705-21	.1590	2-1/8	3-1/4
705-20	.1610	2-1/8	3-1/4
705-19	.1660	2-1/8	3-1/4
705-18	.1695	2-1/8	3-1/4
705-11/64	.1719	2-1/8	3-1/4
705-17	.1730	2-3/16	3-3/8
705-16	.1770	2-3/16	3-3/8
705-15	.1800	2-3/16	3-3/8
705-14	.1820	2-3/16	3-3/8
705-13	.1850	2-5/16	3-1/2
705-3/16	.1875	2-5/16	3-1/2
705-12	.1890	2-5/16	3-1/2
705-11	.1910	2-5/16	3-1/2

*Please specify 405 (bright finish) when ordering.

List No. 705 continued



List No. 405* continued



EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
705-10	.1935	2-7/16	3-5/8
705-9	.1960	2-7/16	3-5/8
705-8	.1990	2-7/16	3-5/8
705-7	.2010	2-7/16	3-5/8
705-13/64	.2031	2-7/16	3-5/8
705-6	.2040	2-1/2	3-3/4
705-5	.2055	2-1/2	3-3/4
705-4	.2090	2-1/2	3-3/4
705-3	.2130	2-1/2	3-3/4
705-7/32	.2188	2-1/2	3-3/4
705-2	.2210	2-5/8	3-7/8
705-1	.2280	2-5/8	3-7/8
705-A	.2340	2-5/8	3-7/8
705-15/64	.2344	2-5/8	3-7/8
705-B	.2380	2-3/4	4
705-C	.2420	2-3/4	4
705-D	.2460	2-3/4	4
705-1/4/E	.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	.2969	3-1/16	4-3/8
705-N	.3020	3-1/16	4-3/8
705-5/16	.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

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
US5-1/4/E	.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	4-5/8
US5-Q	.3320	3-7/16	4-3/4

*Please specify USHD when ordering.

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	4-3/4
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.

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

CHAMPION



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-1/4/E	.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



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	.4062	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 drilling in both portable and fixed operations. Metric standard machines for the printing, knitting, woodworking and metal working industries.

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
XL8-1.0	0.0394	11/16	1-5/8
XL8-1.5	0.0591	7/8	1-7/8
XL8-2.0	0.0787	1	2
XL8-2.5	0.0984	1-3/8	2-3/8
XL8-3.0	0.1181	1-5/8	2-3/4
XL8-3.5	0.1378	1-3/4	2-7/8
XL8-4.0	0.1575	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
XL8-6.5	0.2559	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
XL8-9.0	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
XL8-10.5	0.4134	3-7/8	5-1/4
XL8-11.0	0.4331	4-1/16	5-1/2

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
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 pages 130-131

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.

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	.0728	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	2-11/2	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



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
706-15.50*	.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

*Metric drills 13mm and larger 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.



EDP No.	Description
XLUB-4	4 oz.
XLUB-16	16 oz.
XLUB-128	1 gallon
XLUB-WAX2	2 oz.
XLUB-WAX16	17 oz.

See pages 153-154 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.



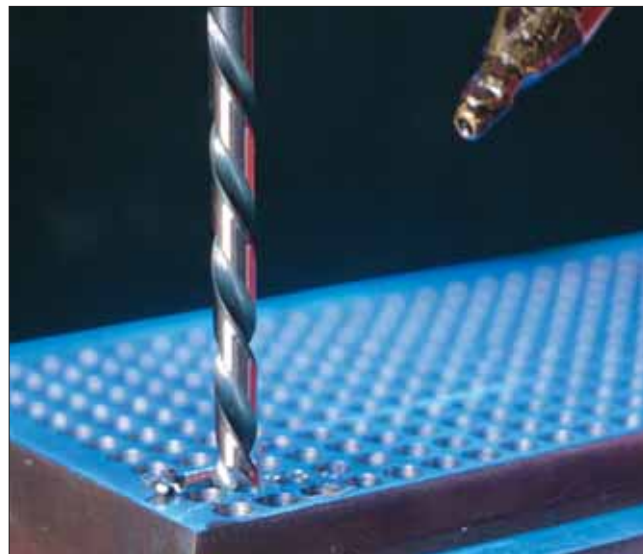
EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
XL5LH-5/64*	.0781	1	2
XL5LH-7/64*	.1094	1-1/2	2-5/8
XL5LH-5/32*	.1562	2	3-1/8
XL5LH-1/4*	.2500	2-3/4	4
XL5LH-19/64*	.2969	3-1/16	4-3/8

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.



* 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

Application: 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.

Applications: 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: 3/8 thru 1/2 have 3/8" diameter flatted 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



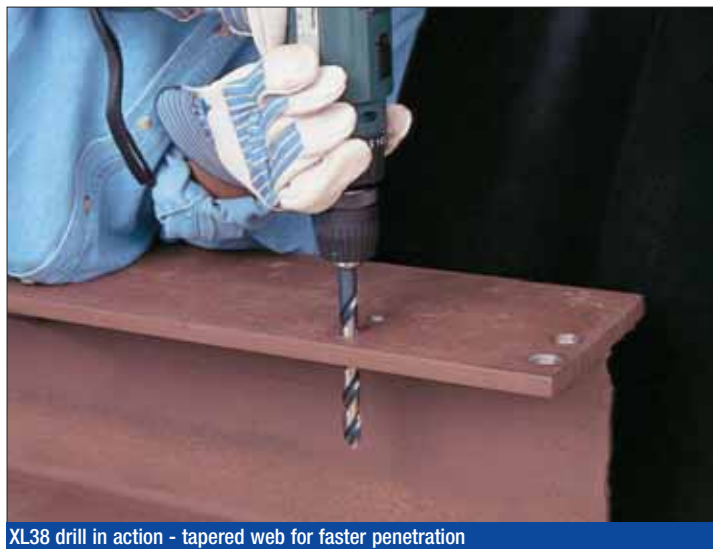
3/8" Shank Drills List No. XL38

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: Wide range of metals including stainless steel.



XL38 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: Ideal for 3/8" cordless drills. 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.

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".

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
738-25/64	.3906	3-1/4	5-1/8
738-13/32	.4062	3-7/8	5-1/4
738-27/64	.4219	3-15/16	5-3/8
738-7/16	.4375	4-1/16	5-1/2
738-29/64	.4531	4-3/16	5-5/8
738-15/32	.4687	4-5/16	5-3/4
738-31/64	.4844	4-3/8	5-7/8

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
738-1/2	.5000	4-1/2	6
738-17/32	.5312	3-1/8	6
738-9/16	.5625	3-1/8	6
738-19/32	.5938	3-1/8	6
738-5/8	.6250	3-1/8	6
738-21/32	.6562	3-1/8	6
738-11/16	.6875	3-1/8	6

CHAMPION

3/8" Shank Screw Machine Drills

List No. 2905

135° Split Point / Black Oxide Treated / HSS



Description: Designed for portable drilling where chuck capacity is 3/8".

Application: Sheet metal and other thin materials.

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
2905-7/16	.4375	2-1/16	3-7/16
2905-1/2	.5000	2-1/4	3-3/4

CHAMPION

1/4" Shank Screw Machine Drills

List No. 2705

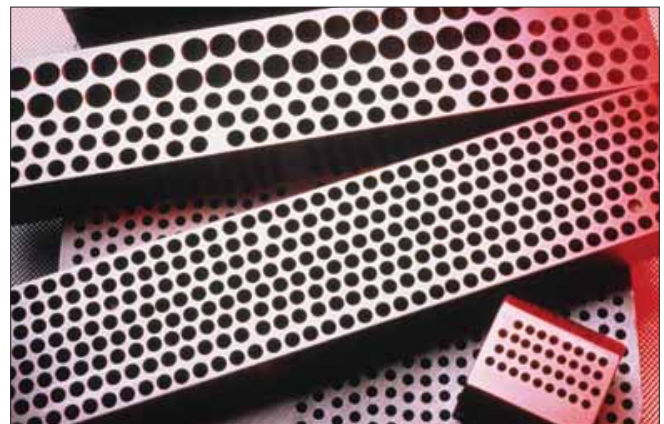
135° Split Point / Black Oxide Treated / HSS



Description: 135° heavy duty split point for self centering and easy penetration.

Application: Designed for portable drilling where chuck capacity is 1/4". For portable drilling of sheet metal and other thin materials.

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
2705-5/16	.3125	1-5/8	2-13/16
2705-3/8	.3750	1-13/16	3-1/8
2705-7/16	.4375	2-1/16	3-7/16
2705-1/2	.5000	2-1/4	3-3/4



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" Shank / Heavy Duty / 118° Split Point /
3 Flatted Shanks / 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 56 for enlarging holes.

CHAMPION

BlackGold® Silver & Deming Drills

List No. XG12

118° Split Point / 1/2" Flatted Shank

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



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	.5938	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: 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



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

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

Cobalt Heavy Duty Silver & Deming Drills List No. 712C0

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



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

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

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
712C0-17/32	.5312	3-1/8	6
712C0-9/16	.5626	3-1/8	6
712C0-19/32	.5938	3-1/8	6
712C0-5/8	.6250	3-1/8	6
712C0-21/32	.6562	3-1/8	6
712C0-11/16	.6875	3-1/8	6
712C0-23/32	.7188	3-1/8	6
712C0-3/4	.7500	3-1/8	6
712C0-25/32	.7812	3-1/8	6
712C0-13/16	.8125	3-1/8	6
712C0-27/32	.8438	3-1/8	6
712C0-7/8	.8750	3-1/8	6

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
712C0-29/32	.9062	3-1/8	6
712C0-15/16	.9375	3-1/8	6
712C0-31/32	.9688	3-1/8	6
712C0-1	1.000	3-1/8	6
712C0-1-1/16	1.0625	3-1/8	6
712C0-1-1/8	1.1250	3-1/8	6
712C0-1-3/16	1.1875	3-1/8	6
712C0-1-1/4	1.2500	3-1/8	6
712C0-1-5/16	1.3125	3-1/8	6
712C0-1-3/8	1.3750	3-1/8	6
712C0-1-7/16	1.4375	3-1/8	6
712C0-1-1/2	1.5000	3-1/8	6

Note: "S&D" drills should not be used to enlarge holes.
See SA80 reamer listing on page 56.

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
US12-1-5/64	1.0781	3-1/8	6
US12-1-3/32	1.0938	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. 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

CHAMPION



List No. 1705C continued



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

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
1705C-7/32	.2188	1-1/4	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	2-1/2
1705C-1/4/E	.2500	1-7/16	2-1/2
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.

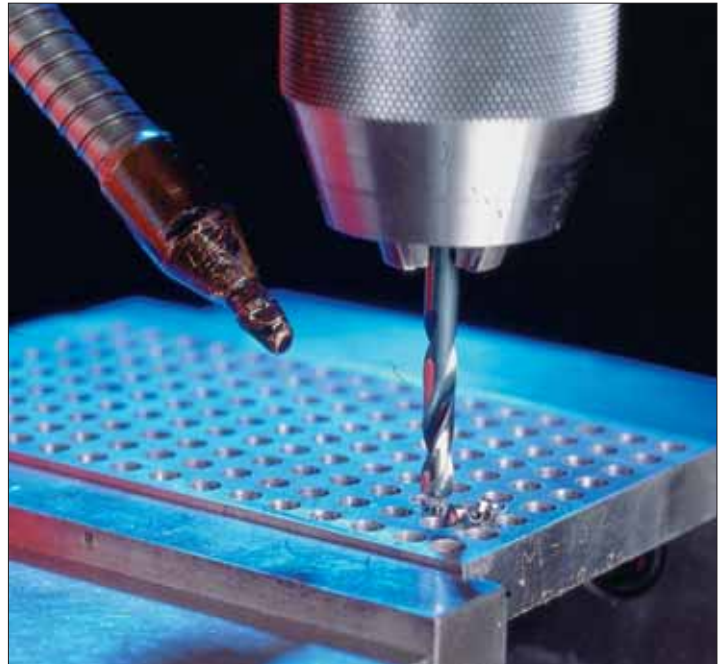
EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
1705-60	.0400	1/2	1-3/8
1705-59	.0410	1/2	1-3/8
1705-58	.0420	1/2	1-3/8
1705-57	.0430	1/2	1-3/8
1705-56	.0465	1/2	1-3/8
1705-3/64	.0469	1/2	1-3/8
1705-55	.0520	5/8	1-5/8
1705-54	.0550	5/8	1-5/8
1705-53	.0595	5/8	1-5/8
1705-1/16	.0625	5/8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

CHAMPION



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
XLUB-4	4 oz.
XLUB-16	16 oz.
XLUB-128	1 gallon
XLUB-WAX2	2 oz.
XLUB-WAX16	17 oz.

See pages 153-154 for BruteLube Material Safety Data Sheets

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

Furnished with standard shanks.



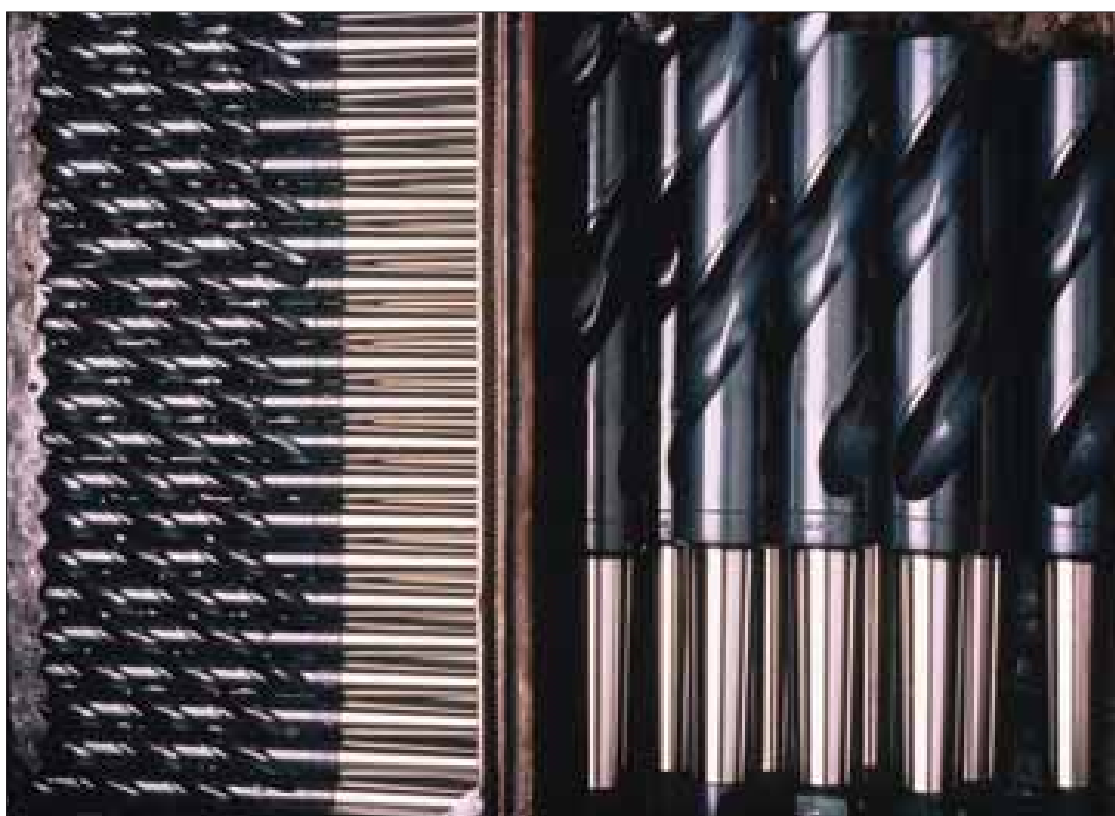
EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length	Shank No.
702-1/8	.1250	1-7/8	5-1/8	1
702-9/64	.1406	2-1/8	5-3/8	1
702-5/32	.1562	2-1/8	5-3/8	1
702-11/64	.1719	2-1/2	5-3/4	1
702-3/16	.1875	2-1/2	5-3/4	1
702-13/64	.2031	2-3/4	6	1
702-7/32	.2188	2-3/4	6	1
702-15/64	.2344	2-7/8	6-1/8	1
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

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length	Shank No.
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
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	13	4
702-1-3/16	1.1875	7-3/8	13	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	1.3438	8-3/4	14-3/8	4
702-1-23/64	1.3594	8-7/8	14-1/2	4
702-1-3/8	1.3750	8-7/8	14-1/2	4
702-1-25/64	1.3906	9	14-5/8	4
702-1-13/32	1.4062	9	14-5/8	4
702-1-27/64	1.4219	9-1/8	14-3/4	4
702-1-7/16	1.4375	9-1/8	14-3/4	4
702-1-29/64	1.4531	9-1/4	14-7/8	4
702-1-15/32	1.4688	9-1/4	14-7/8	4
702-1-31/64	1.4844	9-3/8	15	4
702-1-1/2	1.5000	9-3/8	15	4
702-1-17/32	1.5312	9-3/8	16-3/8	5
702-1-9/16	1.5625	9-5/8	16-5/8	5
702-1-19/32	1.5938	9-7/8	16-7/8	5
702-1-5/8	1.6250	10	17	5
702-1-21/32	1.6562	10-1/8	17-1/8	5
702-1-11/16	1.6875	10-1/8	17-1/8	5



EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length	Shank No.
702-1-23/32	1.7188	10-1/8	17-1/8	5
702-1-3/4	1.7500	10-1/8	17-1/8	5
702-1-25/32	1.7812	10-1/8	17-1/8	5
702-1-13/16	1.8125	10-1/8	17-1/8	5
702-1-27/32	1.8438	10-1/8	17-1/8	5
702-1-7/8	1.8750	10-3/8	17-3/8	5
702-1-29/32	1.9062	10-3/8	17-3/8	5
702-1-15/16	1.9375	10-3/8	17-3/8	5
702-1-31/32	1.9688	10-3/8	17-3/8	5
702-2	2.0000	10-3/8	17-3/8	5
702-2-1/32	2.0312	10-1/4	17-3/8	5
702-2-1/16	2.0625	10-1/4	17-3/8	5
702-2-3/32	2.0938	10-1/4	17-3/8	5
702-2-1/8	2.1250	10-1/4	17-3/8	5
702-2-5/32	2.1562	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	19-1/2	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
702-3	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

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

Shank  Hole



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

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

CHAMPION

Taper Shank Extension Sockets List No. S2

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

Shank  Hole



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

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



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.

CHAMPION

CHAMPION

Taper Length Drills

List No. 704

118° Point / Straight Shank / HSS



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

Application: Frequently used in lathes and screw machines.

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

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



Screw Extractors

List No. X1*

Left Hand / Spiral Flute



List No. X2

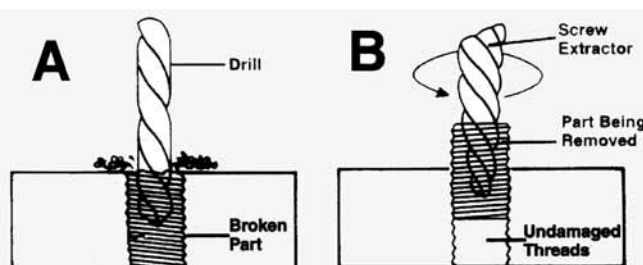
Straight Flute Extractors



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

Sizes X1-1 thru X1-5 are available in an iPac combination pack with left hand twist drills.

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).



* Available as part of an iPac screw extractor and left hand drill combination pack.

EDP No./ Size	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'

Note: Please specify X2 to order straight flute screw extractors

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	extractors #1-5
X1-1-6	extractors #1-6
X2-1-5	straight flute extractors #1-5
X2-1-6	straight flute extractors #1-6



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./ Diameter	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./ Diameter	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".

EDP No./ Diameter	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	6-1/8	9-1/4
1212-1	1.0000	6-3/8	9



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.

EDP No./ Diameter	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./ Diameter	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* Contractor Series



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./ Diameter	Decimal Equivalent	Flute Length	Overall Length
7012-60	.0400	11/16	12
7012-59	.0410	11/16	12
7012-58	.0420	11/16	12
7012-57	.0430	3/4	12
7012-56	.0465	3/4	12
7012-3/64	.0469	3/4	12
7012-55	.0520	7/8	12
7012-54	.0550	7/8	12
7012-53	.0595	7/8	12
7012-1/16	.0625	7/8	12
7012-52	.0635	7/8	12
7012-51	.0670	1	12
7012-50	.0700	1	12
7012-49	.0730	1	12
7012-48	.0760	1	12
7012-5/64	.0781	1	12
7012-47	.0785	1	12

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

*Please specify CS12X when ordering.

CHAMPION



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

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

*Please specify CS12X when ordering.



Flute milling of taper shank drills

CHAMPION

6" Aircraft Extension Drills

List No. 7006

135° Split Point / Black Oxide Treated / HSS

List No. CS6X* Contractor Series



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./ Diameter	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

EDP No./ Diameter	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

*Please specify CS6X when ordering.



CHAMPION

CHAMPION

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
in its nearest competitor**

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

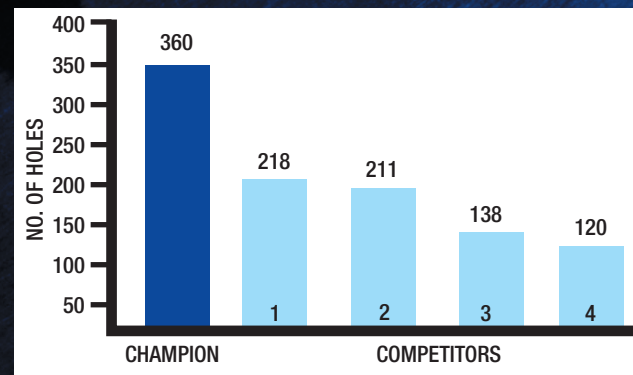
Test parameters included:

Fixed force of 50 lbs

1/2" hole to be drilled

Maximum time limit of 60 seconds allowed

Maximum 360 holes per bit recorded



EDP No./ Diameter	Size Range
MSD-HEX-1	1/8-1/2 (13 Step)
MSD-HEX-3	1/4-3/4 (9 Step)
MSD-HEX-4	3/16-7/8 (12 Step)
MSD-HEX-13	1/4x1-1/8 (13 Step)

EDP No.	Contents
MSD-HEX-SET	Includes 1 each: MSD-HEX-1, MSD-HEX-3, MSD-HEX-4 and QCD (Quick Change Driver)

EDP No.	Contents
ELEC-KIT	Includes 1 each: MSD-HEX-13, CT3 hole cutters(7/8, 1-1/8, 1-3/8) and QCD (Quick Change Driver)



MSD-HEX-SET

CHAMPION

Multi Step Drills

List No. MSD

2 Flute / HSS / Split Point

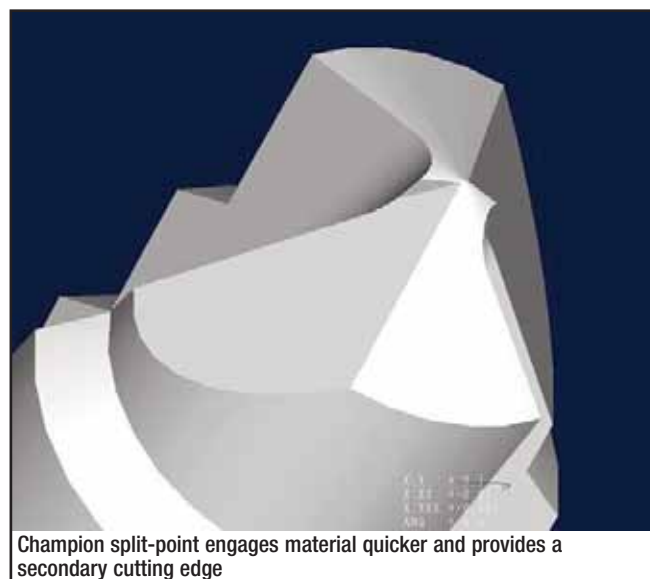


Description: Graduated step design creates clean, accurate, bur-free holes of multiple diameters in all sheet metals up to 1/8" thick. Self starting tip eliminates the need for pilot hole drilling, while the balanced double flute design provides less chattering.

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	3/4-1-3/8 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

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



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

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
CT705-1/8	.1250	1-1/2	2-3/4
CT705-5/32	.1562	1-7/8	3
CT705-3/16	.1875	1-7/8	3
CT705-7/32	.2187	2-1/2	4
CT705-1/4x4	.2500	2-1/2	4

EDP No./Diameter	Decimal Equivalent	Flute Length	Overall Length
CT705-1/4x6	.2500	4-1/4	6
CT705-5/16x4	.3125	2-1/2	4
CT705-5/16x6	.3125	4-1/4	6
CT705-3/8x6	.3750	4	6
CT705-1/2x6	.5000	4	6

CHAMPION

Die Drills

List No. CT605

Carbide Tipped /118° Point / Straight Flute



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

Application: Use a constant flow of coolant and clear chips frequently. A light feed with steady pressure at 75-100 SFM is recommended.

EDP No./Diameter	Decimal Equivalent	Shank Diameter	Flute Length	Overall Length
CT605-3/16	.1875	11/64	1-1/2	3-1/2
CT605-7/32	.2188	13/64	1-3/4	3-3/4
CT605-1/4	.2500	7/32	2	4
CT605-9/32	.2812	1/4	2-1/4	4-1/4
CT605-5/16	.3125	9/32	2-1/2	4-1/2
CT605-11/32	.3438	5/16	2-3/4	4-3/4
CT605-3/8	.3750	11/32	3	5
CT605-13/32	.4062	3/8	3	5-1/4
CT605-7/16	.4375	13/32	3	5-1/2
CT605-15/32	.4688	7/16	3-1/4	5-3/4

EDP No./Diameter	Decimal Equivalent	Shank Diameter	Flute Length	Overall Length
CT605-1/2	.5000	15/32	3-1/2	6
CT605-17/32	.5312	1/2	3-1/2	6
CT605-9/16	.5625	17/32	3-1/2	6
CT605-19/32	.5938	9/16	4	7
CT605-5/8	.6250	19/32	4	7
CT605-21/32	.6562	5/8	4-1-2	7-1/2
CT605-11/16	.6875	21/32	4-1/2	7-1/2
CT605-23/32	.7188	11/16	4-3/4	8
CT605-3/4	.7500	11/16	4-3/4	1

CHAMPION

Glass & Tile Drills

List No. CT505

High Temperature Brazed Carbide Spear Point / Tool Steel Body / Straight Shank



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
CT505-1/8	.1250	7/64	2-1/2
CT505-3/16	.1875	5/32	2-1/2
CT505-1/4	.2500	7/32	2-1/2
CT505-5/16	.3123	1/4	3
CT505-3/8	.3750	5/16	3-1/2

EDP No./Diameter	Decimal Equivalent	Flute Length	Overall Length
CT505-7/16	.4375	3/8	3-1/2
CT505-1/2	.5000	7/16	3-1/2
CT505-9/16	.5625	1/2	4
CT505-5/8	.6250	9/16	4

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 nonferrous 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

CHAMPION

Spotting & Centering Drills List No. 1710

118° Point / Bright Finish / HSS / Straight Shank



Description: Short overall length, no body clearance and short flutes, these tools have extreme rigidity and may be chucked very close to the drill point for accurate location.

Application: Used to produce center or starting holes for subsequent operations.

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
1710-1/8	.1250	3/8	1-1/4
1710-3/16	.1875	1/2	1-3/8
1710-1/4	.2500	5/8	1-1/2
1710-5/16	.3125	5/8	1-1/2
1710-3/8	.3750	1	2
1710-7/16	.4375	1	2
1710-1/2	.5000	1	2

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
1710-5/8	.6250	1-1/8	2-1/4
1710-3/4	.7500	1-1/8	2-1/4
1710-7/8	.8750	1-1/4	2-1/2
1710-1	1.0000	1-1/4	2-1/2
1710-1-1/4	1.2500	2	4
1710-1-1/2	1.5000	2-1/2	5
1710-1-3/4	1.7500	2-3/4	5-1/2

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
2005-1X2-1/4	.2280	1-5/16	2-1/4
2005-1X3	.2280	1-5/16	3
2005-1X4-1/2	.2280	1-5/16	4-1/2

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
2005-1X6	.2280	1-5/16	6
2005-.231X3	.2310	1-5/16	3



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.

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

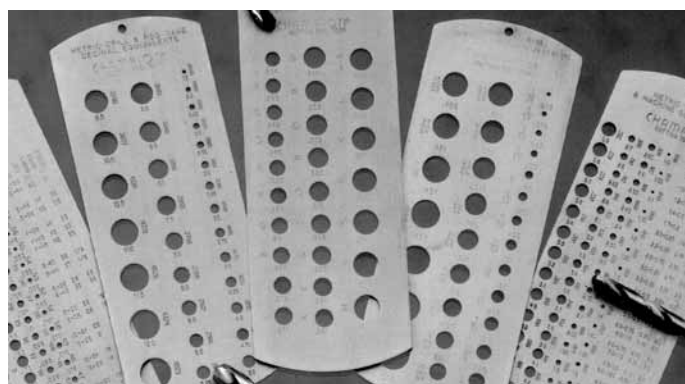


Drill Gauge Plates

High Quality Hardened Steel / Stain Resistant Satin Chrome Finish

Description: 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
XLUB-4	4 oz. fluid
XLUB-16	16 oz. fluid
XLUB-128	1 gallon fluid
XLUB-WAX2	2 oz. wax
XLUB-WAX16	17 oz. wax

See pages 153-154 for BruteLube Material Safety Data Sheets



Hex Shank Bridge Reamers

List No. XL86

Left Hand Spiral Flute / Right Hand Cut / HSS



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 off-size, misshapen and misaligned holes
- Operator can use same power tool for reaming and driving the structural bolts



Hex Shank Car Reamers

List No. HX80

Straight Flute / Right Hand Cut / HSS



List No. HX82

Left Hand Spiral Flute / Right Hand Cut / HSS



Description: Short length for use in tight areas.

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

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 & hex sockets.

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

Note: Hex shank sizes are the same size as the required nut size

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

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 RB65 magnetic drill press.

Application: Bridge building, erection and ship building industries.

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

EDP No./ Diameter	Point Diameter	Overall Length	Flute Length	Shank No.
980-15/16	5/8	12	7-3/8	3
980-1	11/16	12	7-3/8	3
980-1-1/16	3/4	12	7-3/8	3
980-1-1/8	13/16	12	7-3/8	3
980-1-3/16	7/8	12	7-3/8	3
980-1-1/4	15/16	13	7-3/8	4
980-1-5/16	1	13	7-3/8	4

CHAMPION

Bridge Reamers List No. 982

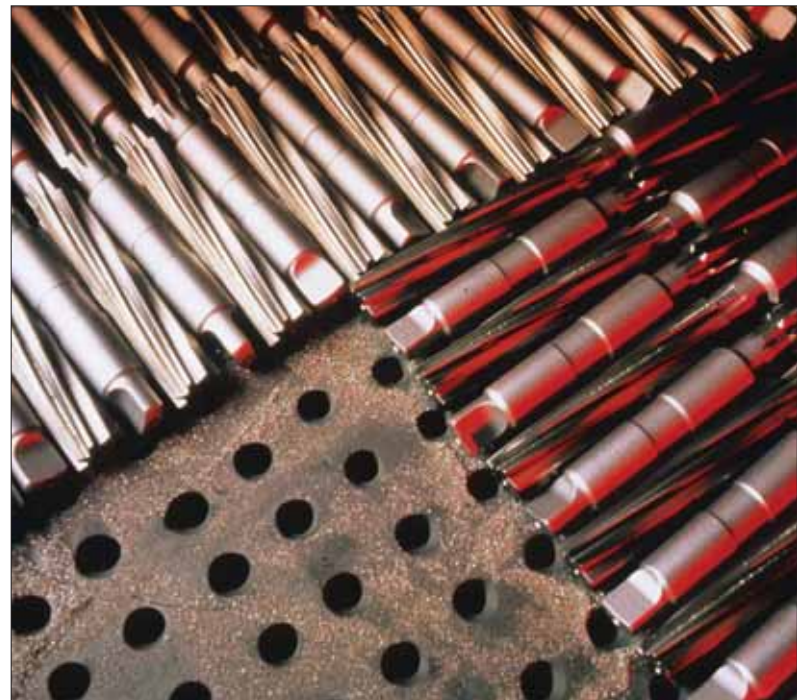
Taper Shank / Left Hand Spiral Flute / Right Hand Cut / HSS



Description: Cut with a shearing action, sending chips forward and generally give superior hole quality and bind less than the straight flute design.

Application: Bridge building, erection and ship building industries.

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



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.

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

*Shank diameter same as reamer diameter.

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



CHAMPION

Chucking Reamers

List No. 970

Fractional / Straight Shank / Straight Flute / HSS



Description: For close tolerance machine reaming of a wide range of materials.

Application: Used in turret lathes and drill presses as well as other standing machinery.

EDP No./ Diameter	Decimal Equiv	Flute Length	Overall Length
970-3/64	.0469	1/2	2-1/2
970-1/16	.0625	1/2	2-1/2
970-5/64	.0781	3/4	3
970-3/32	.0938	3/4	3
970-7/64	.1094	7/8	3-1/2
970-1/8	.1250	7/8	3-1/2
970-9/64	.1406	1	4
970-5/32	.1562	1	4
970-11/64	.1719	1-1/8	4-1/2

EDP No./ Diameter	Decimal Equiv	Flute Length	Overall Length
970-3/16	.1875	1-1/8	4-1/2
970-13/64	.2031	1-1/4	5
970-7/32	.2188	1-1/4	5
970-15/64	.2344	1-1/2	6
970-1/4	.2500	1-1/2	6
970-17/64	.2656	1-1/2	6
970-9/32	.2812	1-1/2	6
970-19/64	.2969	1-1/2	6
970-5/16	.3125	1-1/2	6

CHAMPION

List No. 970 continued



EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
970-21/64	.3281	1-1/2	6
970-11/32	.3438	1-1/2	6
970-23/64	.3594	1-3/4	7
970-3/8	.3750	1-3/4	7
970-25/64	.3906	1-3/4	7
970-13/32	.4062	1-3/4	7
970-27/64	.4219	1-3/4	7
970-7/16	.4375	1-3/4	7
970-29/64	.4531	1-3/4	7
970-15/32	.4688	1-3/4	7
970-31/64	.4844	2	8
970-1/2	.5000	2	8
970-17/32	.5313	2	8
970-9/16	.5625	2	8
970-19/32	.5938	2	8
970-5/8	.6250	2-1/4	9
970-21/32	.6562	2-1/4	9

EDP No./ Diameter	Decimal Equivalent	Flute Length	Overall Length
970-11/16	.6875	2-1/4	9
970-23/32	.7188	2-1/4	9
970-3/4	.7500	2-1/2	9-1/2
970-25/32	.7812	2-1/2	9-1/2
970-13/16	.8125	2-1/2	9-1/2
970-27/32	.8438	2-1/2	9-1/2
970-7/8	.8750	2-5/8	10
970-29/32	.9062	2-5/8	10
970-15/16	.9375	2-5/8	10
970-31/32	.9688	2-5/8	10
970-1	1.0000	2-3/4	10-1/2
970-1-1/16	1.0625	2-3/4	10-1/2
970-1-1/8	1.1250	2-7/8	11
970-1-3/16	1.1875	2-7/8	11
970-1-1/4	1.2500	3	11-1/2
970-1-3/8	1.3750	3-1/4	12
970-1-1/2	1.5000	3-1/2	12-1/2

CHAMPION

Chucking Reamers

List No. 970L

Letter Size / Straight Shank / Straight Flute / HSS



Description: For close tolerance machine reaming of a wide range of materials.

Application: Used in turret lathes and drill presses as well as other standing machinery.

EDP No./ Size	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
970L-A	.2340	6	.2265	1-1/2	6
970L-B	.2380	6	.2329	1-1/2	6
970L-C	.2420	6	.2329	1-1/2	6
970L-D	.2460	6	.2329	1-1/2	6
970L-E	.2500	6	.2405	1-1/2	6
970L-F	.2570	6	.2485	1-1/2	6
970L-G	.2610	6	.2485	1-1/2	6
970L-H	.2660	6	.2485	1-1/2	6
970L-I	.2720	6	.2485	1-1/2	6
970L-J	.2770	6	.2485	1-1/2	6
970L-K	.2810	6	.2485	1-1/2	6
970L-L	.2900	6	.2792	1-1/2	6
970L-M	.2950	6	.2792	1-1/2	6

EDP No./ Size	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
970L-N	.3020	6	.2792	1-1/2	6
970L-O	.3160	6	.2792	1-1/2	6
970L-P	.3230	6	.2792	1-1/2	6
970L-Q	.3320	6	.2792	1-1/2	6
970L-R	.3390	6	.2792	1-1/2	6
970L-S	.3480	6	.3105	1-3/4	6
970L-T	.3580	6	.3105	1-3/4	7
970L-U	.3680	6	.3105	1-3/4	7
970L-V	.3770	6	.3105	1-3/4	7
970L-W	.3860	6	.3105	1-3/4	7
970L-X	.3970	6	.3105	1-3/4	7
970L-Y	.4040	6	.3105	1-3/4	7
970L-Z	.4130	6	.3730	1-3/4	7

CHAMPION

CHAMPION

Chucking Reamers

List No. 970W

Wire Gauge / Straight Shank / Straight Flute / HSS

Description: For close tolerance machine reaming of a wide range of materials.

Application: Used in turret lathes and drill presses.



EDP No./ Size	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
970W-1	.2280	6	.2173	1-1/2	6
970W-2	.2210	6	.2173	1-1/2	6
970W-3	.2130	6	.2075	1-1/4	5
970W-4	.2090	6	.2016	1-1/4	5
970W-5	.2055	6	.2016	1-1/4	5
970W-6	.2040	6	.1945	1-1/4	5
970W-7	.2010	6	.1945	1-1/4	5
970W-8	.1990	6	.1895	1-1/4	5
970W-9	.1960	6	.1895	1-1/4	5
970W-10	.1935	6	.1860	1-1/4	5
970W-11	.1910	6	.1860	1-1/4	5
970W-12	.1890	6	.1805	1-1/8	4-1/2
970W-13	.1850	6	.1805	1-1/8	4-1/2
970W-14	.1820	6	.1755	1-1/8	4-1/2
970W-15	.1800	6	.1755	1-1/8	4-1/2
970W-16	.1770	6	.1704	1-1/8	4-1/2
970W-17	.1730	6	.1645	1-1/8	4-1/2
970W-18	.1695	6	.1595	1-1/8	4-1/2
970W-19	.1660	6	.1595	1-1/8	4-1/2
970W-20	.1610	6	.1530	1-1/8	4-1/2
970W-21	.1590	6	.1530	1-1/8	4-1/2
970W-22	.1570	6	.1510	1	4
970W-23	.1540	4	.1460	1	4
970W-24	.1520	4	.1460	1	4
970W-25	.1495	4	.1430	1	4
970W-26	.1470	4	.1430	1	4
970W-27	.1440	4	.1350	1	4
970W-28	.1405	4	.1350	1	4
970W-29	.1360	4	.1275	1	4
970W-30	.1285	4	.1190	7/8	3-1/2
970W-31	.1200	4	.1110	7/8	3-1/2
970W-32	.1160	4	.1110	7/8	3-1/2
970W-33	.1130	4	.1045	7/8	3-1/2
970W-34	.1110	4	.1045	7/8	3-1/2
970W-35	.1100	4	.1020	7/8	3-1/2
970W-36	.1065	4	.1020	7/8	3-1/2
970W-37	.1040	4	.0940	7/8	3-1/2
970W-38	.1015	4	.0940	7/8	3-1/2
970W-39	.0995	4	.0918	7/8	3-1/2
970W-40	.0980	4	.0918	7/8	3-1/2
970W-41	.0960	4	.0918	7/8	3-1/2
970W-42	.0935	4	.0870	3/4	3
970W-43	.0890	4	.0800	3/4	3
970W-44	.0860	4	.0800	3/4	3
970W-45	.0820	4	.0761	3/4	3
970W-46	.0810	4	.0761	3/4	3
970W-47	.0785	4	.0710	3/4	3

EDP No./ Size	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
970W-48	.0760	4	.0710	3/4	3
970W-49	.0730	4	.0650	3/4	3
970W-50	.0700	4	.0650	3/4	3
970W-51	.0670	4	.0650	3/4	3
970W-52	.0635	4	.0575	1/2	2-1/2
970W-53	.0595	4	.0575	1/2	2-1/2
970W-54	.0550	4	.0500	1/2	2-1/2
970W-55	.0520	4	.0500	1/2	2-1/2
970W-56	.0465	4	.0445	1/2	2-1/2
970W-57	.0430	4	.0380	1/2	2-1/2
970W-58	.0420	4	.0380	1/2	2-1/2
970W-59	.0410	4	.0380	1/2	2-1/2
970W-60	.0400	4	.0380	1/2	2-1/2



Specify series 972 for spiral flute straight shank chucking reamers.



Specify series 962 for spiral flute taper shank chucking reamers.



Specify series 960 for straight flute taper shank chucking reamers.



CHAMPION

Chucking Reamers

List No. 970D

Decimal / Straight Shank / Straight Flute / HSS



Description: For close tolerance machine reaming of a wide range of materials.

Application: Chucking reamers are commonly used in turret lathes and drill presses as well as other standing machinery.

EDP No./ Diameter	No of Flutes	Shank Diameter	Flute Length	Overall Length
970D-.1230	4	.1190	7/8	3-1/2
970D-.1240	4	.1190	7/8	3-1/2
970D-.1247	4	.1190	7/8	3-1/2
970D-.1260	4	.1190	7/8	3-1/2
970D-.1855	4	.1805	1-1/8	4-1/2
970D-.1865	6	.1805	1-1/8	4-1/2
970D-.1870	6	.1805	1-1/8	4-1/2
970D-.1885	6	.1805	1-1/8	4-1/2
970D-.2480	6	.2405	1-1/8	4-1/2
970D-.2490	6	.2405	1-1/8	4-1/2
970D-.2495	6	.2405	1-1/2	6
970D-.2510	6	.2405	1-1/2	6
970D-.3105	6	.2792	1-1/2	6
970D-.3115	6	.2792	1-1/2	6

EDP No./ Diameter	No of Flutes	Shank Diameter	Flute Length	Overall Length
970D-.3120	6	.2792	1-1/2	6
970D-.3135	6	.2792	1-1/2	6
970D-.3730	6	.3015	1-3/4	7
970D-.3740	6	.3015	1-3/4	7
970D-.3745	6	.3015	1-3/4	7
970D-.3760	6	.3015	1-3/4	7
970D-.4355	6	.3730	1-3/4	7
970D-.4365	6	.3730	1-3/4	7
970D-.4370	6	.3730	1-3/4	7
970D-.4385	6	.3730	1-3/4	7
970D-.4980	6	.4355	2	8
970D-.4990	6	.4355	2	8
970D-.4995	6	.4355	2	8
970D-.5010	6	.4355	2	8

CHAMPION

Hand Reamers

List No. 950

Straight Flute / HSS



Description: The square shank can be held securely in a tap handle, reamer wrench, or vise. Ground with a starting chamfer to provide easy entry of the reamer into the hole.

Application: Designed for hand use for the final sizing and finishing of a predrilled hole.

EDP No./ Diameter	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
950-1/8	.1250	4	1/8	1-1/2	3
950-5/32	.1562	6	5/32	1-5/8	3-1/4
950-3/16	.1875	6	3/16	1-3/4	3-1/2
950-7/32	.2188	6	7/32	1-7/8	3-3/4
950-1/4	.2500	6	1/4	2	4
950-9/32	.2812	6	9/32	2-1/8	4-1/4
950-5/16	.3125	6	5/16	2-1/4	4-1/2
950-11/32	.3438	6	11/32	2-3/8	4-3/4
950-3/8	.3750	6	3/8	2-1/2	5
950-13/32	.1062	6	13/32	2-5/8	5-1/4
950-7/16	.4375	6	7/16	2-3/4	5-1/2
950-15/32	.4688	6	15/32	2-7/8	5-3/4
950-1/2	.5000	6	1/2	3	6
950-17/32	.5313	6	17/32	3-1/8	6-1/4
950-9/16	.5625	6	9/16	3-1/4	6-1/2
950-19/32	.5938	6	19/32	3-3/8	6-3/4
950-5/8	.6250	6	5/8	3-1/2	7
950-21/32	.6562	8	21/32	3-11/16	7-3/8

EDP No./ Diameter	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
950-11/16	.6875	8	11/16	3-7/8	7-3/4
950-23/32	.7188	8	23/32	4-1/16	8-1/8
950-3/4	.7500	8	3/4 4-	3/16	8-3/8
950-25/32	.7812	8	25/32	4-3/8	8-3/4
50-13/16	.8125	8	13/16	4-9/16	9-1/8
950-27/32	.8438	8	27/32	4-11/16	9-3/8
950-7/8	.8750	8	7/8	4-7/8	9-3/4
950-29/32	.9062	8	29/32	5	10
950-15/16	.8375	8	15/16	5-1/8	10-1/4
950-1	1.0000	8	1	5-7/16	10-7/8
950-1-1/16	1.0625	10	1-1/16	5-3/8	11-1/4
950-1-1/8	1.1250	10	1-1/8	5-13/16	11-5/8
950-1-3/16	1.1875	10	1-3/16	6	12
950-1-1/4	1.2500	10	1-1/4	6-1/8	12-1/4
950-1-5/16	1.3125	10	1-5/16	6-1/4	12-1/2
950-1-3/8	1.3750	12	1-3/8	6-5/16	12-5/8
950-1-7/16	1.4375	10	1-7/16	6-7/16	12-7/8
950-1-1/2	1.5000	12	1-1/2	6-1/2	13

CHAMPION

CHAMPION

Hand Reamers

List No. 952

Spiral Flute / HSS



Description & Application: The left hand spiral flute design pushes chips forward out of the hole, and allows the reamer to be used in holes that have an interruption. Ground with a starting chamfer to provide easy entry of the reamer into the hole.

EDP No./ Diameter	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
952-1/4	.2500	6	1/4	2	4
952-5/16	.3125	6	5/16	2-1/4	4-1/2
952-3/8	.3750	6	3/8	2-1/2	5
952-7/16	.4375	6	7/16	2-3/4	5-1/2
952-1/2	.5000	6	1/2	3	6
952-17/32	.5312	6	17/32	3-1/8	6-1/4
952-9/16	.5625	6	9/16	3-1/4	6-1/2
952-19/32	.5938	6	19/32	3-3/8	6-3/4
952-5/8	.6250	6	5/8	3-1/2	7
952-21/32	.6562	8	21/32	3-11/16	7-3/8
952-11/16	.6875	8	11/16	3-7/8	7-3/4
952-23/32	.7188	8	23/32	4-1/16	8-1/8
952-3/4	.7500	8	3/4	4-3/16	8-3/8
952-25/32	.7812	8	25/32	4-3/8	8-3/4

EDP No./ Diameter	Decimal Equivalent	No. of Flutes	Shank Diameter	Flute Length	Overall Length
952-13/16	.8125	8	13/16	4-9/16	9-1/8
952-27/32	.8438	8	27/32	4-11/16	9-3/8
952-7/8	.8750	8	7/8	4-7/8	9-3/4
952-29/32	.9062	8	29/32	5	10
952-15/16	.8375	8	15/16	5-1/8	10-1/4
952-1	1.0000	8	1	5-7/16	10-7/8
952-1/16	1.0625	10	1-1/16	5-3/8	11-1/4
952-1-1/8	1.1250	10	1-1/8	5-13/16	11-5/8
952-1-3/16	1.1875	10	1-3/16	6	12
952-1-1/4	1.2500	10	1-1/4	6-1/8	12-1/4
952-1-5/16	1.3125	10	1-5/16	6-1/4	12-1/2
952-1-3/8	1.3750	12	1-3/8	6-5/16	12-5/8
952-1-7/16	1.4375	10	1-7/16	6-7/16	12-7/8
952-1-1/2	1.5000	12	1-1/2	6-1/2	13

CHAMPION

Adjustable Hand Reamers

List No. 900



Description: The most 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. Worn blades can be easily replaced by the user. For hand use only.

Application: Used widely for automotive and aircraft maintenance and railway repair.

EDP No./ Diameter	Size Range Inches	Size Range mm	Overall Length
900-8/A	1/4 - 9/32	6.30 - 7.15	3-1/4
900-7/A	9/32 - 5/16	7.15 - 8.00	3-1/2
900-6/A	5/16 - 11/32	8.00 - 8.75	4-1/8
900-5/A	11/32 - 3/8	8.75 - 9.50	4-3/8
900-4/A	3/8 - 13/32	9.50 - 10.25	4-3/4
900-3/A	13/32 - 7/16	10.25 - 11.00	5
900-2/A	7/16 - 15/32	11.00 - 12.00	5-1/4
900-A	15/32 - 17/32	12.00 - 13.50	5-1/2
900-B	17/32 - 19/32	13.50 - 15.00	5-3/4
900-C	19/32 - 21/32	15.00 - 16.75	6-1/2
900-D	21/32 - 23/32	16.75 - 18.25	6-3/4
900-E	23/32 - 25/32	18.25 - 19.75	7
900-F	25/32 - 27/32	19.75 - 21.50	7-3/8
900-G	27/32 - 15/16	21.50 - 23.75	8
900-H	15/16 - 1-1/16	23.75 - 27.00	9
900-I	1-1/16 - 13/16	27.00 - 30.25	10
900-J	1-3/16 - 1-11/32	30.25 - 34.25	11
900-K	1-11/32 - 1-1/2	34.25 - 38.00	12
900-L	1-1/2 - 1-13/16	38.00 - 46.00	14
900-M	1-13/16 - 2-7/32	46.00 - 56.00	16
900-N	2-7/32 - 2-3/4	56.00 - 70.00	18
900-O	2-3/4 - 3-11/32	70.00 - 85.00	20

Note: Replacement blades are available.



CHAMPION

Extension Pilots for Adjustable Reamers

List No. 900P



Description: Screw on extension pilots with tapered guide sleeves are used with adjustable reamers.

Application: for the in-line reaming of two holes such as king pins and piston bushings.

EDP No./ Size	Pilot Length	EDP No./ Size	Pilot Length
900P-A	5	900P-I	5-3/4
900P-B	5	900P-J	5-3/4
900P-C	5-1/4	900P-K	5-3/4
900P-D	5-3/4	900P-L	5-3/4
900P-E	5-3/4	900P-M	9
900P-F	5-3/4	900P-N	9
900P-G	5-3/4	900P-O	9
900P-H	5-3/4		

CHAMPION

Taper Pin Reamers

List No. 776

Straight Flute / Square Drive / 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.

List No. 778

Slow Spiral / Square Drive / HSS



List No. 777

Fast Spiral / Round Shank / HSS



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

CHAMPION

Carbide Tipped Hole Cutters

List No. CT3

Description: Three carbide tips, pilot drill and ejector spring. Features a 1/4" hex shank.

Application: Sheet metal up to 1/8" thick. 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 QCD (quick-change driver)
- See page 137 for the full range of CT3 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	Includes 1 each 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 cuts up to 3/16" thick.

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 NEW 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 NEW 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



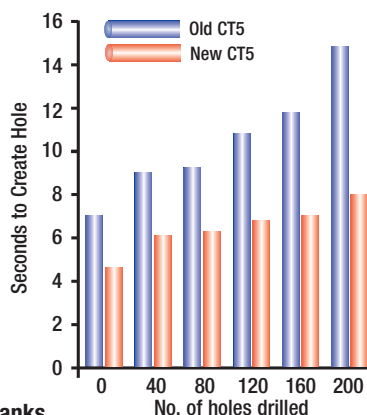
- **NEW DESIGN FOR LONGER LIFE AND FASTER CUTTING**
- Perfect portable tool for the professional electrician, plumber, mechanic and contractor
- Extremely productive tool that is a cost effective alternative to bi-metal holesaws
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless 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 138 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

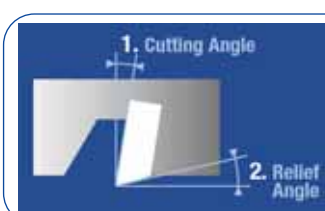
PERFORMANCE COMPARISON NEW CT5 to PREVIOUS CT5 (2")

Material: SUS304 Stainless Steel
Material thickness: 1/8" - Speed: 800 rpm



60%
Faster Cutting
(up to 100 holes)
20%
More Holes

EDP No. / Size	Description
CT5-PILOT	Pilot Drill (1-7/8" OAL)
CT5-SCREW	Screw for CT5 Hole Cutter
CT5-SPRING	Spring for CT5 Hole Cutter
CT5-PILOT-TCT	Carbide Tipped 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.

CHAMPION

CHAMPION

Carbide Tipped Hole Cutters List No. CT7



Description: The perfect, portable tool for the professional electrician, plumber, mechanic and general contractor.

Application: An extremely productive tool that is a cost effective alternative to bi-metal holesaws for drilling holes in steel and other materials up to 1" thick.



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 saving time

4 Safety collar stop

- Prevents over penetration for safer, faster operation.

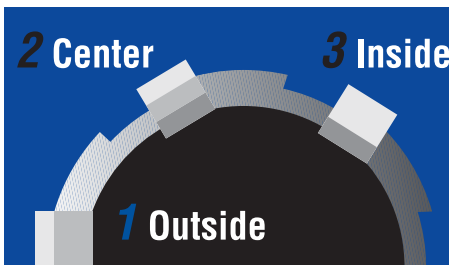
- Perfect portable tool for the professional electrician, plumber, mechanic and contractor
- Productive tool that is a cost effective alternative to bi-metal holesaws
- For cutting steel plate, iron, aluminum, copper, cast iron, stainless steel, FRP (i.e fiberglass) and plastics up to 1" thick
- 9/16" to 3" have 3/8" shank, 3-1/4" to 4-1/2" have 1/2" shank
- See page 137 for the full range of CT7 sets

Applications

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

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



Carbide Tipped Hole Cutters

List No. CT9

Description: 2" Depth of cut hole cutter. Features carbide tips, and heavy duty one piece design.

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

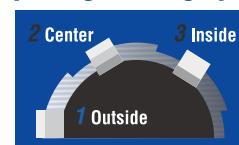
THE CHOICE FOR DRILLING LOCKSET AND DEADBOLT HOLES IN STEEL DOORS

- 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 137 for the full range of CT9 sets

EDP No. / Size	Shank Diameter
CT9-1-1/2	3/8
CT9-2-1/8	3/8

EDP No. / Size	Description
CT9-PILOT	Pilot Drill (4" OAL)
CT9-SCREW	Screw for CT9 Hole Cutter

Triple Edge Cutting System



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



Carbide Tipped Hole Cutter Accessories

CT-EXT Hole Cutter Extensions

List No. CT-EXT

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

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

QCD Quick-Change Driver

List No. QCD

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

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



Carbide Burs List No. SA Thru SN Titanium Nitride Coated



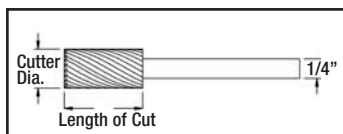
Description: Carbide burs are one of the most versatile metal working tools. Used in virtually every industry, burs are used in mold and pattern making, die sinking, tool making and maintenance.

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

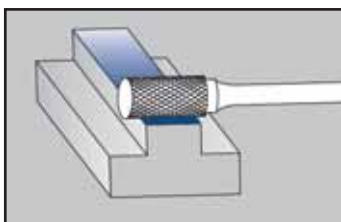
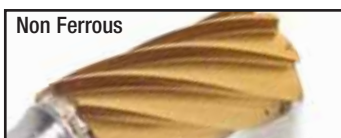
THE QUALITY TO MEET THE MOST DEMANDING JOBS

Manufactured in the U.S.A. from C2 tungsten carbide, Champion carbide burs are precision machine ground using diamond wheel and automated machinery. Producing consistent geometry, sharp cutting edges and vibration free performance. Standard 1/4" shanks unless specified differently. All Champion Carbide Burs are Titanium Nitride Coated for superior surface finish and long life - at no extra cost.

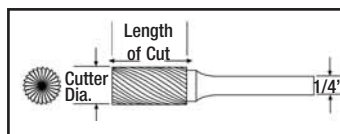
SA Cylinder Shape



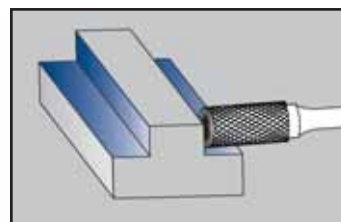
USE FOR DEBURRING



SB Cylinder End Cut



USE FOR INTERIOR COUNTER 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	-	-

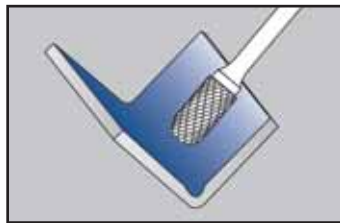
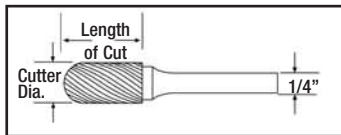
* 6" overall length

** 3/8" shank

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



SC Cylinder Radius End



USE FOR SURFACE MILLING/
CONTOURING

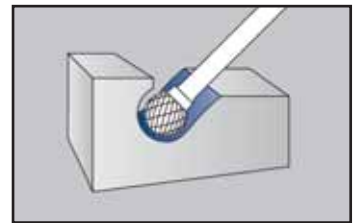
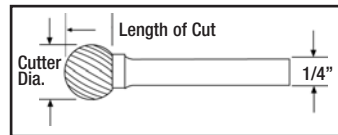
Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/8	1/2	SC11***	-	-
1/8	5/8	SC12	-	-
5/32	5/8	SC13	-	-
3/16	5/8	SC14	-	-
1/4	5/8	SC1***	-	-
1/4	1/2	-	-	SC1-L6*
1/4	3/4	-	SC1NF	-
5/16	3/4	SC2	-	-
3/8	3/4	SC3***	SC3NF	SC3-L6*
3/8	1	SC3L	-	-
3/8	1-1/2	SC3X	-	-
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 US (uncoated) when ordering.

SD Ball Shape



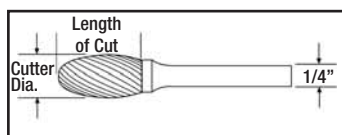
USE FOR CONTOURING / HOLE
DEBURRING / MILLING

Cutter Details		List / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/8	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	-	-





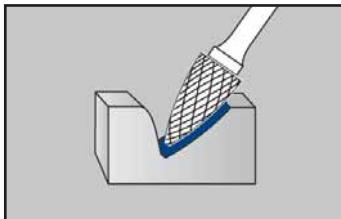
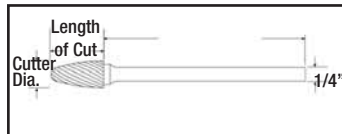
SE Oval Shape



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**	-

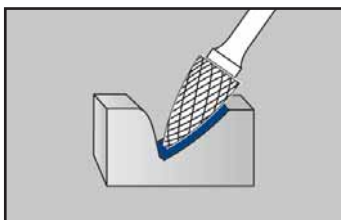
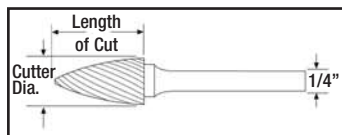
SF Tree Shape Radius End



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	-	SF14-NF-3/8**	-
3/4	1-1/2	SF15	-	-

SG Tree Shape



USE FOR NARROW
CONTOURS WORK & 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	-	-

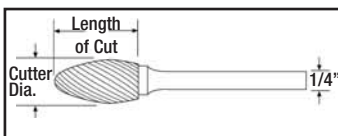
* 6" overall length

** 3/8" shank

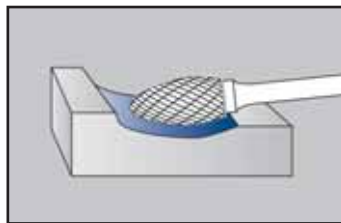
*** Available without Titanium Nitride Coating.
Specify US (uncoated) when ordering.



SH Flame Shape

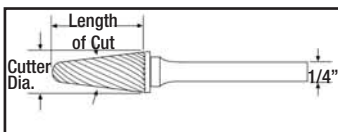


USE FOR CONTOURING

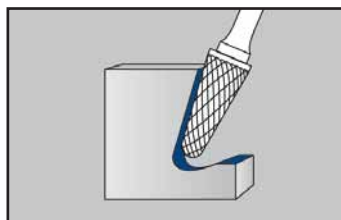


CUTTER DETAILS		LIST / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/4	5/8	SH1***	-	-
5/16	3/4	SH2	-	SH2-L6*
1/2	1-1/4	SH5***	-	SH5-L6*
5/8	1-7/16	SH6	-	-
3/4	1-5/8	SH7***	-	-

SL SL14° Taper Radius End

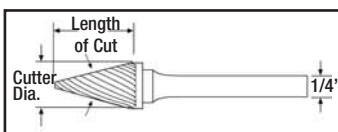


USE FOR NARROW CONTOURS /
SURFACE MACHINING

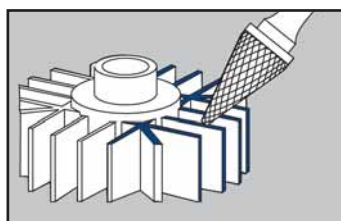


CUTTER DETAILS		LIST / EDP No.		
Cutter Diameter	Length of Cut	Double Cut	Non Ferrous	Long Series
1/4	5/8	SL1***	-	SL1-L6*
5/16	7/8	SL2	-	-
3/8	1-1/16	SL3***	SL3-NF	SL3-L6*
1/2	1-1/8	SL4***	SL4-NF	SL4-L6*
5/8	1-3/16	SL5	SL5-NF	-
5/8	1-5/16	SL6	SL6-NF	-
3/4	1-1/2	SL7	SL7-NF	-
3/4	1-1/2	-	SL7-NF-3/8**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

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	-

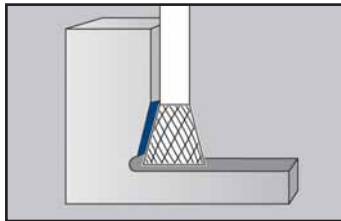
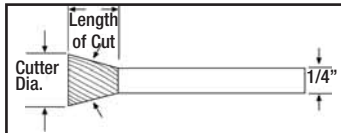
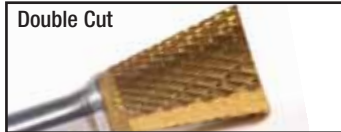
* 6" overall length

** 3/8" shank

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



SN Inverted Cone Shape

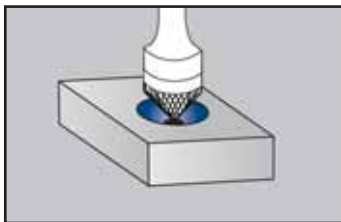
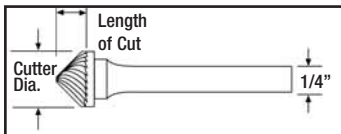


EDGE MACHINING FROM THE
REAR IN HARD TO REACH AREAS

CUTTER DETAILS			LIST / EDP NO.
Cutter Diameter	Length of Cut	Included Angle	Double Cut
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.

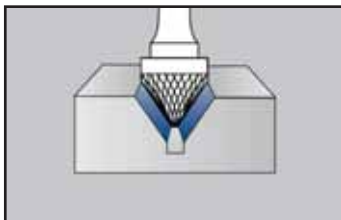
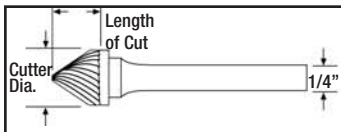
SK 90° Cone Shape



MACHINING OF ACUTE ANGLE
AREAS / COUNTERSINKING

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

SJ 60° Cone Shape



MACHINING OF ACUTE ANGLE
AREAS / COUNTERSINKING

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

CHAMPION

Miniature Carbide Burs

List No. SA Thru SN

Titanium Nitride Coated



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

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

CUTTER DETAILS			LIST / EDP NO.
Cut Style	Cutter Diameter	Length of Cut	Double Cut
SA	1/16	1/4	SA41
	3/32	7/16	SA42
	1/8	9/16	SA43
	1/4	1/2	SA51
SB	1/8	9/16	SB43
	1/8	Double End	SB-ECO End Cut Only
	1/4	3/16	SB51
SC	3/32	7/16	SC41
	1/8	9/16	SC42
	1/4	1/2	SC51
SD	3/32	3/32	SD41
	1/8	1/8	SD42
	1/4	7/32	SD51
SE	1/8	7/32	SE41
	1/4	3/8	SE51
SF	1/8	1/4	SF41
	1/8	1/2	SF42
	1/4	1/2	SF51

CUTTER DETAILS			LIST / EDP NO.
Cut Style	Cutter Diameter	Length of Cut	Double Cut
SG	1/8	1/4	SG41
	1/8	5/16	SG42
	1/8	3/8	SG43
	1/8	1/2	SG44
	1/4	1/2	SG51
SH	1/8	1/4	SH41
SJ	1/8	3/32	SJ42
SL	1/8	3/8	SL41
	1/8	1/2	SL42
SM	1/8	11/32	SM41
	1/8	7/16	SM42
	1/8	5/8	SM43
	1/4	1/2	SM51
SN	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



Single Flute Countersinks

List No. XL801

High Hook / HSS



Description: For machine countersinking holes of small diameter. Hooked rake angle gives a smooth surface finish in almost all materials. It is suggested that the diameter of the tool chosen be at least 50% larger than the finished diameter required.

Application: Not to be used in portable applications.

60°	82°	EDP No./Diameter 90°	100°	120°	Shank Diameter	Overall Length
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



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



Four Flute Machine Countersinks

List No. 800



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

60°	EDP No./Diameter 82°	90°	Shank Diameter	Overall Length
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



Description: For chatter free performance in countersinking, deburring and chamfering operations, three flute countersinks or "center reamers" seat well in the hole. A good choice for portable applications.

60°	82°	EDP No./Diameter 90°	100°	120°	Shank Diameter	Overall Length
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



Description: For the countersinking of large diameter holes.

60°	EDP No./Diameter 82°	90°	Shank Diameter	Overall Length
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

CHAMPION

Combined Drill and Countersinks

List No. 796

Bell Style / 60° and 90° Included Angles / HSS

Description: Use where parts to be machined will pass through a number of subsequent handlings & danger of marring edges of the center holes may exist.



EDP No./ Size	Body Diameter	Point Dia.	Drill Length	Point Length	Overall Length
796-11	1/8	3/64	3/64	1-1/4	.100
796-12	3/16	1/16	1/16	1-7/8	.150
796-13	1/4	3/32	3/32	2	.200
796-14	5/16	7/64	7/64	2-1/8	

EDP No./ Size	Body Diameter	Point Dia.	Drill Length	Point Length	Overall Length
796-15	7/16	5/32	5/32	2-3/4	.350
796-16	1/2	3/16	3/16	3	.400
796-17	5/8	7/32	7/32	3-1/4	.500
796-18	3/4	1/4	1/4	3-1/2	.600

CHAMPION

Combined Drill & Countersinks

List No. 795

Extra Long / 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.



EDP No./ Size	Body Diameter	Drill Diameter	Drill Length	Overall Length
795-1X3	1/8	3/64	3/64	3
795-1X4	1/8	3/64	3/64	4
795-1X5	1/8	3/64	3/64	5
795-1X6	1/8	3/64	3/64	6
795-2X4	3/16	5/64	5/64	4
795-2X5	3/16	5/64	5/64	5
795-2X6	3/16	5/64	5/64	6
795-3X4	1/4	7/64	7/64	4
795-3X5	1/4	7/64	7/64	5
795-3X6	1/4	7/64	7/64	

EDP No./ Size	Body Diameter	Drill Diameter	Drill Length	Overall Length
795-4X4	5/16	1/8	1/8	4
795-4X5	5/16	1/8	1/8	5
795-4X6	5/16	1/8	1/8	6
795-5X4	7/16	9/64	3/16	4
795-5X5	7/16	9/64	3/16	5
795-5X6	7/16	9/64	3/16	6
795-6X5	1/2	7/32	7/32	5
795-6X6	1/2	7/32	7/32	6
795-7X6	5/8	1/4	1/4	6
795-8X6	3/4	5/16	5/16	6

CHAMPION

Carbide Combined Drill and Countersinks

List No. 198

Plain Style / 60° included angle / Solid Carbide

Description: Often referred to as center drills.

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



EDP No./ Diameter	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./ Diameter	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

CHAMPION

Zero Flute Countersinks (Deburring Tools)

List No. CSK

82° Piloted



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 and wood. Ideal for the glass and window design industry. Windows & door frames, store front installers & glaziers



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



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

CHAMPION

Zero Flute Countersinks (Deburring Tools)

List No. CSK-SH

1/4" Hex Shank



EDP No./ Size	Screw Size	Shank Diameter	Overall Length	Body Diameter
CSK-3SH	Nos. 2,3,4	Hex	1-27/32	1/4
CSK-8SH	Nos. 5,6,8	Hex	2	11/32

EDP No./ Size	Screw Size	Shank Diameter	Overall Length	Body Diameter
CSK-18SH	Nos. 10,12,14	Hex	2-5/16	9/16

CHAMPION

CHAMPION

Zero Flute Countersinks

List No. CSAK

100°



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°



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.



CHAMPION

Zero Flute Countersinks

List No. DCB

60°



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
DCB6*	3/32 to 11/64	3/16	1-1/2	N/A
DCB8*	1/8 to 15/64	1/4	1-3/4	N/A
DCB14	3/16 to 13/32	1/4	1-3/4	7/16
DCB18	5/16 to 17/32	1/4	1-15/16	9/16
DCB26	7/16 to 25/32	1/2	2-11/16	13/16
DCB26A	7/16 to 25/32	1/4	2-1/8	13/16
DCB36	11/16 to 1-3/32	1/2	2-7/8	1-1/8

*Double ended.

- Chatterless finish
- Single cutting edge for fast stock removal
- Free-cutting
- Easily sharpened
- Ideal for use in portable applications

CHAMPION

SpeedThreaders

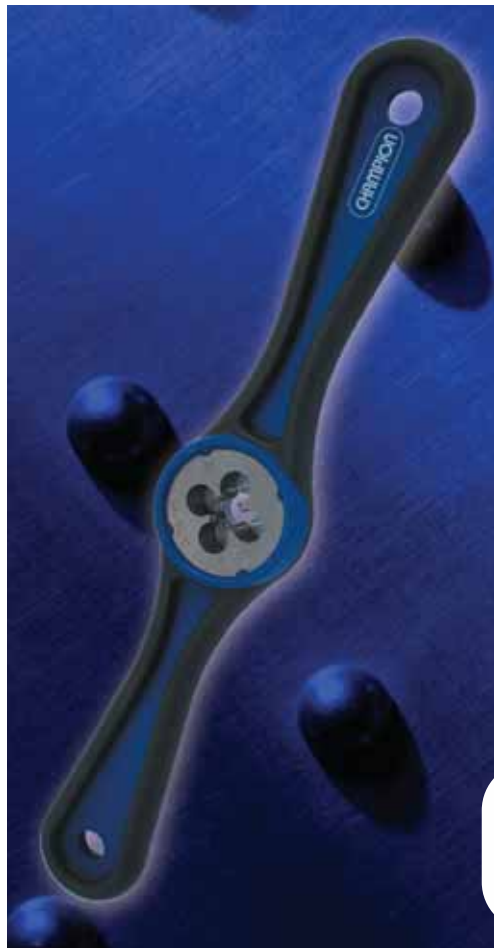
List No. ST

Single Piece Combination HSS Die & Diestock



Description: Single piece high speed die, permanently integrated into the easy-grip die handle. Self centering guide

Application: All standard die applications; cutting new or repairing worn or damaged threads.





No more time wasted with awkward handling of dies and die stocks.

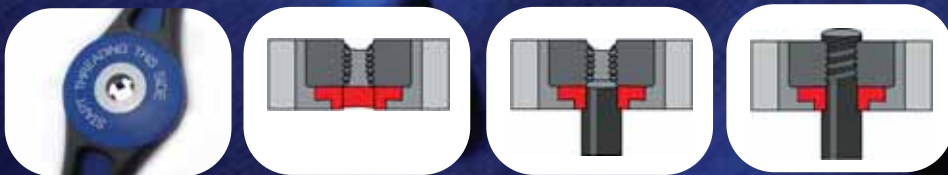
“Easy Grip” handle is comfortable to use and eliminates slipping.

Self-centering guide eliminates cross threading and ensures proper alignment every time.

Each SpeedThreader can thread up to 12 linear feet of rod.

Self-Centering guide

1. Self-centering guide ensures proper alignment.
2. Simply insert rod or damaged bolt into guide.
3. Turn clockwise to begin threading.



EDP No.	Size	EDP No.	Size	EDP No.	Description
ST-6-32	6-32	ST-7/16-20	7/16-20	ST-SPG6	4 to 42 V threads pitch gauge
ST-8-32	8-32	ST-1/2-13	1/2-13	ST-SPGM	Pitch gauge metric (M2-M12)
ST-10-24	10-24	ST-1/2-20	1/2-20	ST-CROSS	Test crosses (5mm, 8mm)
ST-10-32	10-32	ST-1/8-27	1/8-27 NPT	XLUB-1.5	Cutting lubricant
ST-12-24	12-24	ST-3x.5	3x.5		
ST-1/4-20	1/4-20	ST-4x.7	4x.7		
ST-1/4-28	1/4-28	ST-5x.8	5x.8		
ST-5/16-18	5/16-18	ST-6x1	6x1		
ST-5/16-24	5/16-24	ST-8x1.25	8x1.25		
ST-3/8-16	3/8-16	ST-10x1.5	10x1.5		
ST-3/8-24	3/8-24	ST-12x1.75	12x1.75		
ST-7/16-14	7/16-14				



CHAMPION



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	Tap 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	Tap Length
DT22M-3X.5	1-5/16	9/32	.1015	3/16
DT22M-3.5X0.6	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	3.375	13/16	.3440	15/16
DT22M-12X1.75	4-1/16	1-1/8	.4140	1-1/16



Combination Drill & Taps

List No. DT22HEX - DT22HEXM

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



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

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

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



EDP No./ Diameter	Drill Diameter	Drill Length (inches)	Overall Length (inches)	Thread Length (inches)
DT22HEX-6-32*	7/64	0.31	2.17	7/16
DT22HEX-8-32*	29	3/8	2.45	1/2
DT22HEX-10-24*	25	3/8	2.61	5/8
DT22HEX-10-32*	21	3/8	2.61	5/8
DT22HEX-12-24*	17	0.47	2.70	11/16
DT22HEX-1/4-20*	6	0.53	2.89	3/4
DT22HEX-1/4-28*	3	0.53	2.89	3/4
DT22HEX-5/16-18*	G	0.69	3.20	15/16
DT22HEX-5/16-24*	I	0.69	3.20	15/16
DT22HEX-3/8-16**	5/16	0.81	3.45	1-1/16
DT22HEX-3/8-24**	Q	0.81	3.45	1-1/16
DT22HEX-7/16-14**	U	1.00	3.83	1-1/4
DT22HEX-7/16-20**	25/64	1.00	3.83	1-1/4
DT22HEX-1/2-13**	27/64	1.13	4.07	1-3/8
DT22HEX-1/2-20**	29/64	1.13	4.07	1-3/8

* 1/4" Hex Shank

** 11/32" Hex Shank

EDP No./ Diameter	Drill Diameter	Drill Length (inches)	Overall Length (inches)	Thread Length (inches)
DT22HEX-M4X.7*	30	.31	2.40	1/2
DT22HEX-M5X.8*	19	.39	2.56	9/16
DT22HEX-M6X1*	9	.47	2.72	11/16
DT22HEX-M8X1.25*	17/64	.63	3.07	7/8
DT22HEX-M10X1.5**	Q	.79	3.31	15/16
DT22HEX-M12X1.75**	Y	.94	3.58	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

Also available in 5, 6 or 10 piece plastic cased sets.



DT22HEX-SET10





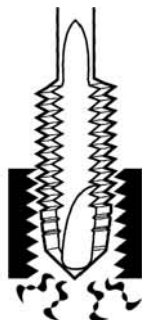
Spiral Point Taps

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.



Commonly referred to as "gun taps", spiral point taps quickly shears and ejects chips ahead of the tap. They are recommended for all through-hole applications.

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



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
XL22T-4-40	H2	3	9/16	2
XL22T-6-32	H3	3	11/16	2
XL22T-6-40	H2	3	11/16	2
XL22T-8-32	H3	3	3/4	2-1/8
XL22T-8-36	H2	3	3/4	2-1/8
XL22T-10-24	H3	3	7/8	2-3/8
XL22T-10-32	H3	3	7/8	2-3/8
XL22T-12-24	H3	3	15/16	2-3/8
XL22T-12-28	H3	3	15/16	2-3/8
XL22T-1/4-20	H3	3	1	2-1/2
XL22T-1/4-28	H3	3	1-1/8	2-3/4
XL22T-5/16-18	H3	3	1-1/8	2-3/4

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



Spiral Point Taps

List No.321

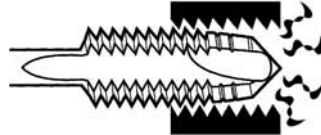
Plug Style / Standard "H" Limits / HSS



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
321-4-40	H2	2	9/16	1-7/8
321-4-48	H2	2	9/16	1-7/8
321-4-36	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

EDP No./Size	H Limits	No. of Flutes	Length of Thread	Overall Length
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



Metric Spiral Point Taps

List No.321M

Metric / Plug Style / Ground Thread / HSS



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

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

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	2	1-1/8	2-23/32

EDP No./Size	D Limits	No. of Flutes	Length of Thread	Overall Length
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

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./ Diameter	Hex	Drill Dia	Drill Length	Thread 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	H2	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	H2	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 Tap & Drill combination pack with either XL5 or XGO jobber drill bits.

CHAMPION

List No. 308 continued



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

EDP No./ Size	H Limits	No. of Flutes	Length of Thread	Overall Length
308-5/8-11	H3	4	1-13/16	3-13/16
308-5/8-18	H3	4	1-13/16	3-13/16
308-11/16-11	H3	4	1-13/16	4-1/32
308-11/16-16	H3	4	1-13/16	4-1/32
308-3/4-10	H3	4	2	4-1/4
308-3/4-16	H3	4	2	4-1/4
308-7/8-9	H4	4	2-7/32	4-11/16
308-7/8-14	H4	4	2-7/32	4-11/16
308-1-8	H4	4	2-1/2	5-1/8
308-1-12	H4	4	2-1/2	5-1/8
308-1-14	H4	4	2-1/2	5-1/8
308-1-1/8-7	H4	4	2-9/16	5-7/16
308-1-1/8-12	H4	4	2-9/16	5-7/16
308-1-1/4-7	H4	4	2-9/16	5-3/4
308-1-1/4-12	H4	6	2-9/16	5-3/4
308-1-3/8-6	H4	4	3	6-1/16
308-1-3/8-12	H4	6	3	6-1/16
308-1-1/2-6	H4	4	3	6-3/8
308-1-1/2-12	H4	6	3	6-3/8

CHAMPION

Left Hand High Speed Hand Taps

List No. 308LH

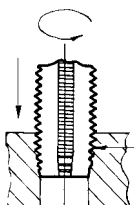
Left Hand / Standard "H" Limits / Ground Thread



Description: High quality left hand high speed hand tap.

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

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



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

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

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

CHAMPION

CHAMPION

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 "H" limits that will provide an adequate "class of fit" for standard tapping applications.



EDP No./ Size	D Limits	No. of Flutes	Overall Length	Thread 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-6x1	5	4	2-1/2	1
308M-7x1	5	4	2-23/32	1-1/8
308M-8x1.0	5	4	2-23/32	1-1/8
308M-8x1.25	5	4	2-23/32	1-1/8
308M-10x1.25	5	4	2-15/16	1-1/4
308M-10x1.5	6	4	2-15/16	1-1/4
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-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



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

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



CHAMPION

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.

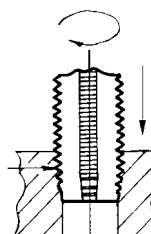


EDP No./Size	No. of Flutes	Length of Thread	Overall Length
302-4-40	3	9/16	1-7/8
302-4-48	3	9/16	1-7/8
302-5-40	3	5/8	1-15/16
302-5-44	3	5/8	1-15/16
302-6-32	3	11/16	2
302-6-40	3	11/16	2
302-8-32	4	3/4	2-1/8
302-8-36	4	3/4	2-1/8
302-10-24	4	7/8	2-3/8
302-10-32	4	7/8	2-3/8
302-12-24	4	15/16	2-3/8
302-12-28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

Note: Please specify

T (taper), P (plug), B (bottom) or S (set) when ordering.

If not specified, then (P) plug style will be supplied.



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

Note: List 302M is only available in plug style.

CHAMPION



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

Note: Specify plug or bottoming when ordering.



Pulley Taps

List No. 3006-3012

4 Flute / Ground Thread / Plug Style / HSS

Description: 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.

Available in 6", 8", 10" and 12" overall lengths.



EDP No./ Size 6" OAL	EDP No./ Size 8" OAL	EDP No./ Size 10" OAL	EDP No./ Size 12" OAL	H Limits	No. of Flutes	Length of Thread	Dia. of Shank
3006-1/4-20	3008-1/4-20	—	—	H3	4	1	.255
3006-5/16-18	3008-5/16-18	—	—	H3	4	1-1/8	.318
3006-3/8-16	3008-3/8-16	3010-3/8-16	—	H3	4	1-1/4	.381
3006-7/16-14	3008-7/16-14	—	—	H3	4	1-7/16	.444
3006-1/2-13	3008-1/2-13	3010-1/2-13	3012-1/2-13	H3	4	1-21/32	.507
3006-5/8-11	3008-5/8-11	3010-5/8-11	3012-5/8-11	H3	4	1-13/16	.633
—	—	3010-3/4-10	3012-3/4-10	H3	4	2	.759



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	1-13/16	5-1/2
1308-3/8-16	H3	4	2	6
1308-1/2-13	H3	4	2-1/2	7



8 Thread High Speed Hand Taps List No. 3088

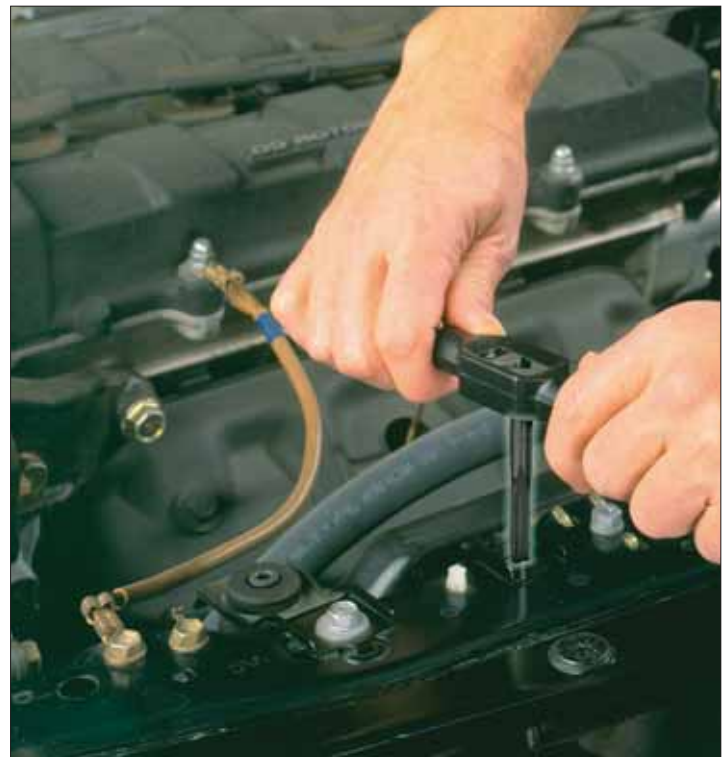
8 Thread Special / Ground Thread



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	3-1/2
3088-3-3/4	H8	8	5-5/16	10-1/2
3088-4	H8	8	5-5/16	10-3/4



Note: Specify taper, plug, bottoming or set when ordering.

CHAMPION

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

Low Hook Taper Pipe Taps

List No. 324L

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



Description: Designed for the tapping of pipe and pipe fittings in castings and similar materials that produce granular chips.

Application: For tapping of pipe and pipe fittings.

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

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

CHAMPION

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: Used for rethreading pipe fittings. In producing pipe fittings, extremely tight fits are required - the threaded portion is tapered to achieve this.



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

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

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

CHAMPION



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.

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



Tap Wrenches and Die Stocks

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



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.

"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	Size Range
2002-1	0-1/4
2002-2	1/4-1/2

Bar Handle Tap Wrenches

List No. 3001



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

Die Stocks

List No. 3291



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

List No. 3292 Hex Die Stock for use with CS30, CS30M dies

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



Round Dies

List No. 327

Stock Adjustable / Carbon Steel



Description: Used to cut external threads by hand in a die stock. This tool can be adjusted by the use of the set screws found in the die stock.

1" O.D.	EDP No./Size 1-1/2" O.D.	2" O.D.
327-4-40x1	-	-
327-6-32x1	-	-
327-8-32x1	-	-
327-10-24x1	-	-
327-10-32x1	-	-
327-12-24x1	-	-
327-12-28x1	-	-
327-1/4-20x1	-	-
327-1/4-28x1	-	-
327-5/16-18x1	-	-
327-5/16-24x1	-	-
327-3/8-16x1	-	-
327-3/8-24x1	-	-
327-7/16-14x1	-	-
-	327-7/16-14x1-1/2	-
327-7/16-20x1	-	-

1" O.D.	EDP No./Size 1-1/2" O.D.	2" O.D.
-	327-7/16-20x1-1/2	-
327-1/2-13x1	-	-
-	327-1/2-13x1-1/2	-
327-1/2-20x1	-	-
-	327-1/2-20x1-1/2	-
-	327-9/16-12x1-1/2	-
-	327-9/16-18x1-1/2	-
-	327-5/8-11x1-1/2	-
-	327-5/8-18x1-1/2	-
-	327-3/4-10x1-1/2	327-3/4-10x2
-	327-3/4-16x1-1/2	327-3/4-16x2
-	-	327-7/8-9x2
-	-	327-7/8-14x2
-	-	327-1-8x2
-	-	327-1-12x2
-	-	327-1-14x2



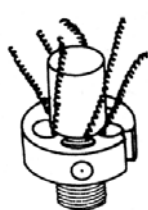
Round Metric Dies

List No. 327M

Stock Adjustable / Carbon Steel



Description: Used to cut external threads by hand in a die stock. This tool can be adjusted by the use of the set screws found in the die stock.



1" O.D.	EDP No./Size 1-1/2" O.D.	2" O.D.
327M-2.5x.45x1	-	-
327M-3.0x.5x1	-	-
327M-3.5x.6x1	-	-
327M-4.0x.7x1	-	-
327M-5.0x.8x1	-	-
327M-5.5x.9x1	-	-
327M-6.0x.75x1	-	-

1" O.D.	EDP No./Size 1-1/2" O.D.	2" O.D.
327M-6.0x1.0x1	-	-
327M-7.0x.75x1	-	-
327M-7.0x1.0x1	-	-
327M-8.0x1.0x1	-	-
327M-8.0x1.25x1	-	-
327M-10x1.25x1	-	-
327M-10x1.5x1	-	-
327M-12x1.25x1	-	-
327M-12x1.75x1	-	-
-	327M-14x2.0x1-1/2	-
-	327M-16x2.0x1-1/2	-
-	327M-20x2.5x1-1/2	-
-	-	327M-22x2.5x2
-	-	327M-24x3.0x2

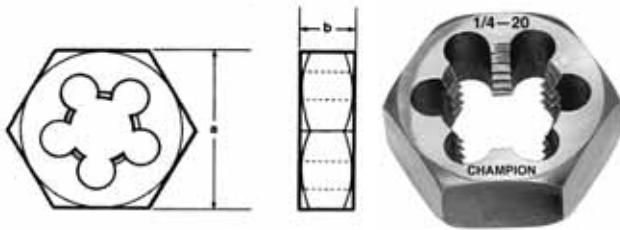
CHAMPION

Hexagon Rethreading Dies

List No. 330 / List No. 330LH
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
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

Note: 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

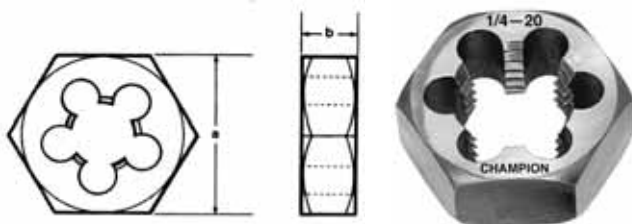
List No. 330M

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
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

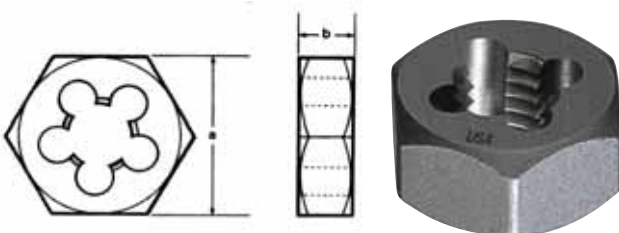
List No. 3308

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.



EDP No./ Size	(A) Size Across Flats
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

CHAMPION

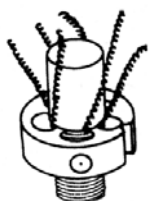
Screw Adjustable Round Dies

List No. 328
High Speed Steel



Description: Cut external 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

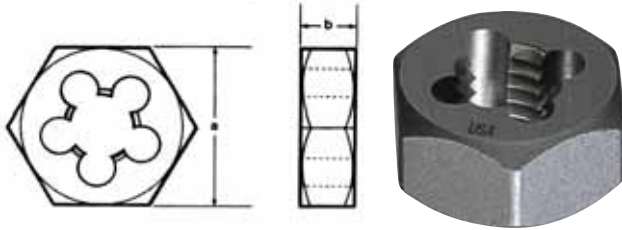
List No. CS30M

Metric Carbon Steel



Description: For rethreading worn or rusty threads.

Application: Ideal for maintenance in the shop or field.



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

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

CHAMPION

Solid Carbide End Mills

List No. 106

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



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

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

EDP No./ Diameter	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
106-1/4	1/4	3/4	2-1/2
106-5/16	5/16	13/16	2-1/2

EDP No./ Diameter	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

CHAMPION

Solid Carbide End Mills

List No. 107

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



Description: Recommended for slotting applications and plunge cutting.

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

EDP No./ Diameter	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./ Diameter	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
107-5/8	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

Corner Rounding End Mills

List No. 625

Single End / HSS



Description: Formed radius cutters are designed to create a male radius equal to a quarter circle or less on an existing corner.

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
625-1/16x3/8	3/8	7/16	2-1/2
625-3/32x3/8	3/8	1/2	2-1/2
625-1/8x1/2	1/2	5/8	3
625-5/32x1/2	1/2	3/4	3
625-3/16x3/4	3/4	7/8	3-1/8
625-1/4x3/4	3/4	1	3-1/4
625-5/16x3/4	3/4	1-1/8	3-1/4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
625-5/16x7/8	7/8	1-1/8	3-1/2
625-3/8x3/4	3/4	1-1/4	3-1/2
625-3/8x7/8	7/8	1-1/4	3-3/4
625-7/16x3/4	3/4	1-3/8	3-3/4
625-7/16x1	1	1-3/8	4
625-1/2x3/4	3/4	1-1/2	3-7/8
625-1/2x1	1	1-1/2	4-1/8

CHAMPION

CHAMPION

High Speed End Mills

List No. 600

Single End / 2 Flute / Center Cutting / HSS



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

Application: Center cutting, two flute end mills are commonly used for plunge cutting where the tool is required to create its own hole in the workpiece as part of the milling operation.

EDP No./ Diameter	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./ Diameter	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

Single End / 2 Flute / Center Cutting / HSS



Description: TiN coating offers extreme hardness and lubricity which protects the cutting edge, reducing abrasive wear and friction. TiN Coating gives increased surface hardness, increased durability and high lubricity.

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

EDP No./ Diameter	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./ Diameter	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

CHAMPION

CHAMPION

Cobalt End Mills

List No. 600C0

Single End / 2 Flute / Center Cutting / M42 Cobalt



Description: For the 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 life.

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
600C0-1/8X3/8	3/8	3/8	2-5/16
600C0-3/16X3/8	3/8	7/16	2-5/16
600C0-1/4X3/8	3/8	1/2	2-5/16
600C0-3/8X3/8	3/8	9/16	2-5/16
600C0-7/16X3/8	3/8	13/16	2-1/2

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
600C0-1/2X1/2	1/2	1	3
600C0-5/8X5/8	5/8	1-5/16	3-7/16
600C0-3/4X3/4	3/4	1-5/16	3-9/16
600C0-1X3/4	3/4	1-1/2	3-3/4
600C0-1-1/4X1	1	1-5/8	4-1/8

BRUTE
PLATINUM

TiN Coated End Mills

List No. XL600

Single End / 2 Flute / Center Cutting / M42 Cobalt



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.

EDP No./ Diameter	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./ Diameter	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

CHAMPION

High Speed End Mills

List No. 602

Double End / 2 Flute / Center Cutting / HSS



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

Application: Two flute end mills are used for plunge cutting where the tool is required to create its own hole in the workpiece as part of the milling operation.

EDP No./ Diameter	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./ Diameter	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

CHAMPION

Cobalt End Mills

List No. 602C0

Double End / 2 Flute / Center Cutting / M42 Cobalt



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.

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
602C0-1/8	3/8	3/8	3-1/16
602C0-3/16	3/8	7/16	3-1/8
602C0-1/4	3/8	1/2	3-1/8
602C0-5/16	3/8	9/16	3-1/8
602C0-3/8	3/8	9/16	3-1/8
602C0-7/16	1/2	13/16	3-3/4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
602C0-1/2	1/2	13/16	3-3/4
602C0-5/8	5/8	1-1/8	4-1/2
602C0-3/4	3/4	1-5/16	5
602C0-7/8	7/8	1-9/16	5-1/2
602C0-1	1	1-5/8	5-7/8

CHAMPION

High Speed End Mills

List No. 604

Ball Nose / Single End / 2 Flute / Center Cutting / HSS



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

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
604-1/8x3/8	3/8	3/8	2-5/16
604-3/16x3/8	3/8	1/2	2-3/8
604-1/4x3/8	3/8	5/8	2-7/16
604-5/16x3/8	3/8	3/4	2-1/2
604-3/8x3/8	3/8	3/4	2-1/2
604-7/16x1/2	1/2	1	3
604-1/2x1/2	1/2	1	3
604-9/16x1/2	1/2	1-1/8	3-1/8
604-5/8x1/2	1/2	1-1/8	3-1/8

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
604-5/8x5/8	5/8	1-3/8	3-1/2
604-3/4x1/2	1/2	1-5/16	3-5/16
604-3/4x3/4	3/4	1-5/8	3-7/8
604-7/8x7/8	7/8	2	4-1/4
604-1x1	1	2-1/4	4-3/4
604-1-1/8x1	1	2-1/4	4-3/4
604-1-1/4x1-1/4	1-1/4	2-1/2	5
604-1-1/2x1-1/4	1-1/4	2-1/2	5

CHAMPION

High Speed End Mills

List No. 605

Ball Nose / Double End / 2 Flute / Center Cutting / HSS



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

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
605-1/8x3/8	3/8	3/8	3-1/16
605-3/16x3/8	3/8	7/16	3-1/8
605-1/4x3/8	3/8	1/2	3-1/8
605-5/16x3/8	3/8	9/16	3-1/8
605-3/8x3/8	3/8	9/16	3-1/8

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
605-7/16x1/2	1/2	13/16	3-3/4
605-1/2x1/2	1/2	13/16	3-3/4
605-5/8x5/8	5/8	1-1/8	4-1/2
605-3/4x3/4	3/4	1-5/16	5
605-1x1	1	1-5/8	5-7/8

CHAMPION

CHAMPION

High Speed End Mills

List No. 601

Single End / Multi Flute / HSS

Description: 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.



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
601-1/8X3/8	3/8	3/8	2-5/16	4
601-3/16X3/8	3/8	1/2	2-3/8	4
601-1/4X3/8	3/8	5/8	2-7/16	4
601-5/16X3/8	3/8	3/4	2-1/2	4
601-3/8X3/8	3/8	3/4	2-1/2	4
601-7/16X3/8	3/8	1	2-11/16	4
601-1/2X3/8	3/8	1	2-11/16	4
601-1/2x1/2	1/2	1-1/4	3-1/4	4
601-9/16X1/2	1/2	1-3/8	3-3/8	4
601-5/8X1/2	1/2	1-3/8	3-3/8	4
601 5/8x5/8	5/8	1-5/8	3-3/4	4
601-11/16X1/2	1/2	1-5/8	3-5/8	4
601-11/16x5/8	5/8	1-5/8	3-3/4	4
601-3/4X1/2	1/2	1-5/8	4-5/8	4
601-3/4x5/8	5/8	1-5/8	3-3/4	4
601-3/4x3/4	3/4	1-5/8	3-7/8	4
601-13/16X5/8	5/8	1-7/8	4	6

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
601-7/8X5/8	5/8	1-7/8	4	6
601-7/8X7/8	7/8	1-7/8	4-1/8	4
601-1X5/8	5/8	1-7/8	4	6
601-1X3/4	3/4	1-7/8	4-1/8	4
601-1X7/8	7/8	1-7/8	4-1/8	4
601-1X1	1	2	4-1/2	4
601-1-1/8X7/8	7/8	2	4-1/4	6
601-1-1/8X1	1	2	4-1/2	6
601-1-1/4X7/8	7/8	2	4-1/4	6
601-1-1/4X1	1	2	4-1/2	6
601-1-1/4x1-1/4	1-1/4	2	4-1/2	6
601-1-3/8X1	1	2	4-1/2	6
601-1-1/2X1	1	2	4-1/2	6
601-1-1/2X1-1/4	1-1/4	2	4-1/2	6
601-1-3/4X1-1/4	1-1/4	2	4-1/2	6
601-2X1-1/4	1-1/4	2	4-1/2	8

CHAMPION

TiN Coated End Mills

List No. 601T

Single End / Multi Flute / HSS

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



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
601T-1/8X3/8	3/8	3/8	2-5/16	4
601T-3/16X3/8	3/8	1/2	2-3/8	4
601T-1/4X3/8	3/8	5/8	2-7/16	4
601T-5/16X3/8	3/8	3/4	2-1/2	4
601T-3/8X3/8	3/8	3/4	2-1/2	4
601T-7/16X3/8	3/8	1	2-11/16	4
601T-1/2X3/8	3/8	1	2-11/16	4
601T-1/2x1/2	1/2	1-1/4	3-1/4	4
601T-9/16X1/2	1/2	1-3/8	3-3/8	4
601T-5/8X1/2	1/2	1-3/8	3-3/8	4
601T-5/8x5/8	5/8	1-5/8	3-3/4	4
601T-11/16X1/2	1/2	1-5/8	3-5/8	4
601T-11/16x5/8	5/8	1-5/8	3-3/4	4
601T-3/4X1/2	1/2	1-5/8	4-5/8	4
601T-3/4x5/8	5/8	1-5/8	3-3/4	4
601T-3/4x3/4	3/4	1-5/8	3-7/8	4
601T-13/16X5/8	5/8	1-7/8	4	6

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

CHAMPION

Cobalt End Mills

List No. 601CO

Single End / Multi Flute / Center Cutting / M42 Cobalt

Description: For the 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.



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
601CO-1/8X3/8	3/8	3/8	2-5/16	4
601CO-3/16X3/8	3/8	1/2	2-3/8	4
601CO-1/4X3/8	3/8	5/8	2-7/16	4
601CO-5/16X3/8	3/8	3/4	2-1/2	4
601CO-3/8X3/8	3/8	3/4	2-1/2	4
601CO-1/2X1/2	1/2	1-1/4	3-1/4	4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
601CO-5/8X5/8	5/8	1-5/8	3-3/4	4
601CO-3/4X3/4	3/4	1-5/8	3-7/8	4
601CO-1X3/4	3/4	1-7/8	4-1/8	4
601CO-1-1/4X1	1	2	4-1/2	6
601CO-1-1/2X1-1/4	1-1/4	2	4-1/2	6



TiN Coated Cobalt End Mills

List No. XL606

Single End / Multi Flute / Center Cutting / M42 Cobalt

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.



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

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

CHAMPION

High Speed End Mills

List No. 606

Single End / 4 Flute / Center Cutting / HSS

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



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
606-1/8x3/8	3/8	3/8	2-5/16	4
606-3/16x3/8	3/8	1/2	2-3/8	4
606-1/4x3/8	3/8	5/8	2-7/16	4
606-5/16x3/8	3/8	3/4	2-1/2	4
606-3/8x3/8	3/8	3/4	2-1/2	4
606-1/2x1/2	1/2	1-1/4	3-1/4	4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
606-5/8x5/8	5/8	1-5/8	3-3/4	4
606-3/4x3/4	3/4	1-5/8	3-7/8	4
606-1x1	1	2	4-1/2	4
606-1-1/4x1-1/4	1-1/4	2	4-1/2	4
606-1-1/2x1-1/4	1-1/4	2	4-1/2	4

CHAMPION

CHAMPION

High Speed End Mills

List No. 603

Double End / 4 Flute / HSS

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.



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
603-1/8x3/8	3/8	3/8	3-1/16
603-5/32x3/8	3/8	7/16	3-1/8
603-3/16x3/8	3/8	1/2	3-1/4
603-7/32x3/8	3/8	9/16	3-1/4
603-1/4x3/8	3/8	5/8	3-3/8
603-9/32x3/8	3/8	11/16	3-3/8
603-5/16x3/8	3/8	3/4	3-1/2
603-11/32x3/8	3/8	3/4	3-1/2
603-3/8x3/8	3/8	3/4	3-1/2
603-13/32x1/2	1/2	1	4-1/8

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
603-7/16x1/2	1/2	1	4-1/8
603-15/32x1/2	1/2	1	4-1/8
603-1/2x1/2	1/2	1	4-1/8
603-9/16x5/8	5/8	1-3/8	5
603-5/8x5/8	5/8	1-3/8	5
603-11/16x3/4	3/4	1-5/8	5-5/8
603-3/4x3/4	3/4	1-5/8	5-5/8
603-13/16x7/8	7/8	1-7/8	6-1/8
603-7/8x7/8	7/8	1-7/8	6-1/8
603-1x1	1	1-7/8	6-3/8

CHAMPION

High Speed End Mills

List No. 607

Double End / 4 Flute / Center Cutting / HSS

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



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

Double End / 4 Flute / Center Cutting / M42 Cobalt

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.



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

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

CHAMPION

Cobalt Roughing End Mills

List No. 609

Single End / Multi Flute / M42 Cobalt

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.



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

CHAMPION

Long End Mills

List No. 608

Single End / Multi Flute / HSS

Description: For deep milling and profiling applications. Have a length of cut two to three times that of a standard end mill.



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
608-1/4x3/8	3/8	1-1/4	3-1/16	4
608-5/16x3/8	3/8	1-3/8	3-1/8	4
608-3/8x3/8	3/8	1-1/2	3-1/4	4
608-7/16x1/2	1/2	1-3/4	3-3/4	4
608-1/2x1/2	1/2	2	4	4
608-5/8x5/8	5/8	2-1/2	4-5/8	4
608-3/4x3/4	3/4	3	5-1/4	4
608-7/8x7/8	7/8	3-1/2	5-3/4	4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
608-1x1	1	4	6-1/2	4
608-1-1/8x1	1	4	6-1/2	6
608-1-1/4x1	1	4	6-1/2	6
608-1-1/4x1-1/4	1-1/4	4	6-1/2	6
608-1-1/2x1	1	4	6-1/2	6
608-1-1/2x1-1/4	1-1/4	4	6-1/2	6
608-1-3/4x1-1/4	1-1/4	4	6-1/2	6
608-2x1-1/4	1-1/4	4	6-1/2	8

CHAMPION

Extra Long End Mills

List No. 620

Single End / Multi Flute / HSS

Description: For deep milling and face milling applications. Series 620 end mills have a length of cut three to four times that of a standard end mill.



EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
620-1/4x3/8	3/8	1-3/4	3-9/16	4
620-5/16x3/8	3/8	2	3-3/4	4
620-3/8x3/8	3/8	2-1/2	4-1/4	4
620-1/2x1/2	1/2	3	5	4
620-5/8x5/8	5/8	4	6-1/8	4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length	No. of Flutes
620-3/4x3/4	3/4	4	6-1/4	4
620-7/8x7/8	7/8	5	7-1/4	4
620-1x1	1	6	8-1/2	4
620-1-1/4x1-1/4	1-1/4	6	8-1/2	6
620-1-1/2x1-1/4	1-1/4	8	10-1/2	6

CHAMPION

CHAMPION

Miniature End Mills

List No. 610

Stub Length / 2 Flute / Double End / HSS



Description: For milling of small diameter slots, pockets and engravings. The short flute resists breakage.

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
610-1/32x3/16	3/16	3/64	1-7/8
610-3/64x3/16	3/16	1/16	1-7/8
610-1/16x3/16	3/16	3/32	2
610-5/64x3/16	3/16	1/8	2
610-3/32x3/16	3/16	9/64	2
610-7/64x3/16	3/16	11/64	2

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
610-1/8x3/16	3/16	3/16	2
610-9/64x3/16	3/16	7/32	2
610-5/32x3/16	3/16	15/64	2
610-11/64x3/16	3/16	17/64	2
610-3/16x3/16	3/16	9/32	2

CHAMPION

Miniature End Mills

List No. 611 Regular Length / 2 Flute / Double End / HSS

Description: For milling of small diameter slots, pockets and engravings. The short flute resists breakage.

List No. 614 Regular Length / 4 Flute / Double End / HSS

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
611-1/32x3/16	3/16	3/32	2
611-3/64x3/16	3/16	9/64	2
611-1/16x3/16*	3/16	3/16	2-1/4
611-5/64x3/16	3/16	15/64	2-1/4
611-3/32x3/16*	3/16	9/32	2-1/4
611-7/64x3/16	3/16	21/64	2-1/4

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
611-1/8x3/16*	3/16	3/8	2-1/4
611-9/64x3/16	3/16	27/64	2-1/4
611-5/32x3/16*	3/16	7/16	2-1/4
611-11/64x3/16	3/16	1/2	2-1/4
611-3/16x3/16*	3/16	1/2	2-1/4

* Please specify 614 (4 Flute) when ordering

CHAMPION

Miniature End Mills

List No. 613

Stub Length / 4 Flute / Double End / HSS



Description: For milling of small diameter slots, pockets and engravings. The short flute resists breakage.

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
613-1/16x3/16	3/16	3/32	2
613-1/8x3/16	3/16	3/16	2

EDP No./ Diameter	Shank Diameter	Flute Length	Overall Length
613-5/32x3/16	3/16	15/64	2
613-3/16x3/16	3/16	9/32	2

Square Tool Bits

Square Turning Tools
High Speed / Cobalt / Super 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		

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: Both ferrous and non-ferrous alloys on lathe turning.

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

Super Cobalt

List No.517*

M42 8% Cobalt / 10° Bevel

Description: M42 cobalt steel tool bit for maximum wear resistance.

Application: Machining of high-tensile, heat-resistant materials, and mild materials where longer tool life is needed.

* Please specify 515 / 516 / 517 when ordering.

Brazed Carbide Tool Bits

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

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

Lead 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

Square 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	7

Pointed Nose Tools - List No.D -

For undercutting and chamfering

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

Threading Tools - List No.E -

For universal threading 30° chamfering, notching and undercutting

E4-883	E4-370	1/4	1/4	2
E5-883	E5-370	5/16	5/16	2-1/4
E6-883	E6-370	3/8	3/8	2-1/2
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

Cut Off Tools - List No.CTR/CTL -

For cutoff or grooving of solid bar

CTR11-883	CTR11-370	1/2	1	5
CTR22-883	CTR22-370	1/2	1	5
CTR33-883	CTR33-370	1/2	1	5
CTR44-883	CTR44-370	1/2	1	5
CTR55-883	CTR55-370	5/8	1-1/4	5
CTL11-883	CTL11-370	1/2	1	5
CTL22-883	CTL22-370	1/2	1	5
CTL33-883	CTL33-370	1/2	1	5
CTL44-883	CTL44-370	1/2	1	5
CTL55-883	CTL55-370	5/8	1-1/4	5



MiniBrute

Magnetic Drill Press

RB32



Weight



Magnetic Strength



Motor Speed



Cutter Capacity



Drill Capacity



Vertical Travel



Height



Depth



Width



RB32-VSR

The same features as the RB32 but has variable speed control and reverse. It also features an isolating power relay for improved handling safety. This machine can run twist drills at correct RPM and has optional tapping attachments.

Features

- Weighs only 28 lbs
- Cutter capacity: 1-3/8" Diameter x 2" Depth
- Built-in fluid reservoir
- Reversible feed handle
- 6" vertical travel

Benefits

- Lighter weight makes handling and transport easier and safer
- Same capacity as machines weighing much more
- 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 with every RB32

Carrying case, safety strap, RB334 3/4" arbor, RB3212 1/2" drill chuck (and safety screw), D-handle, cutting fluid, safety guard, chuck key, hex keys and spanner wrenches



MightiBrute

Magnetic Drill Press

RB45



Weight



Magnetic Strength



Motor Speed



Cutter Capacity



Drill Capacity



Vertical Travel



Height



Depth



Width



Features

- Weighs only 44 lbs
- Cutter capacity: 2" Diameter x 2" Depth
- Built-in fluid reservoir
- Reversible feed handle
- 8" vertical travel

Benefits

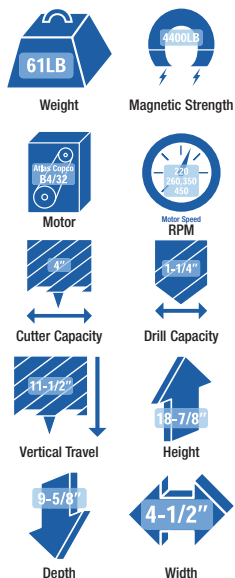
- Much lighter than machines with less cutter capacity
- Greater capacity than machines weighing much more
- Delivers the coolant to work place and cutter
- Left hand use and operating in restrictive areas
- Utilize S&D drills up to 1"

INCLUDED WITH EVERY RB45

Carrying case, safety strap, RB433 #2MT arbor, cutting fluid, safety guard, drift key and hex keys



MegaBrute Magnetic Drill Press RB65



RB65-VSR

All the same features as the RB65 but has variable speed control and reverse. It also features an isolating power relay for improved handling safety.

Features

- Weighs only 61 lbs
- Cutter capacity: 4" Diameter x 3" Depth
- Built-in fluid reservoir
- Reversible feed handle
- #3 Morse Taper Spindle

Benefits

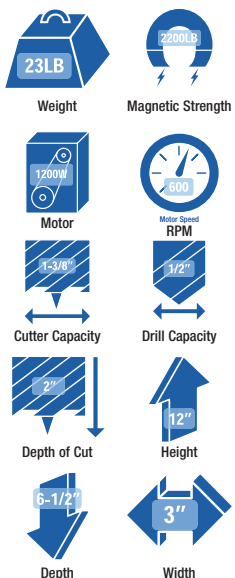
- Excellent machine for all fabrication shops
- Enables greatest selection of cutters available
- Left hand use and operating in restrictive areas
- Allows the use of twist drills up to 1- 1/4"

INCLUDED WITH EVERY RB65

Carrying case, safety strap, RB634 3/4" arbor, cutting fluid, safety guard, drift key and hex keys.



Magnetic Drill Press AC35



Features

- Weighs only 23 lbs
- Cutter capacity: 1-3/8" Diameter x 2" Depth
- Standard external fluid reservoir
- Quick change cutter arbor
- No load speed 600 RPM

Benefits

- Easy to maneuver
- Same capacity as machines weighing much more
- Convenient cooling and less fill ups than arbor reservoir
- Annular cutters changed quickly with no tools
- Great for use with carbide tipped annular cutters

Included with every AC35

Carrying case, hex keys, safety chain, external coolant bottle, cutting fluid, safety guard
Quick release arbor enables cutter change in seconds



LittleBrute Magnetic Drill Press RB30



Weight



Magnetic Strength



No Load Motor Speed
RPM



Full Load Motor Speed
RPM



Cutter Capacity



Vertical Travel



Height



Depth



Width



Features

- Only 7-3/4" in height
- Only 22.4 lb in weight
- LED Light for improved vision in dark areas
- No-volt release switch for motor on/off
- Safety strap slot
- Gearbox housing doubles as a guard
- Removeable handle for use on both sides

Benefits

- Has the ability to be used in difficult to access areas
- Ideal for truck wheel arches, girders & machine assembly
- Light and easy to maneuver

Included with every RB30

Carrying case, cutting fluid, wrench M8, hex Key M2.5, hex Key M4, safety chain



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
DIS-RMX7	RotoMag 20 piece display





Magnetic Drill Press Accessories

Pipe Saddle



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

Champion's RotoBrute pipe saddle enables Rotobrut 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

Industrial Arbors



EDP No.	Description	Set Screws List No.
RB334	1/2-20 thread mounted 3/4 for RB32	RB3074
RB335	1/2-20 thread mount 3/4 arbor for 2" depth cutters	RB3074
RB433	Converts #2 Morse taper to 3/4 arbor for RB45	RB45-204
RB632	Converts #3MT to 1-1/4 arbor to run 2-5/16+ dia./3" depth cutters in RB65	RB6106
RB633	Converts #3MT to 3/4 arbor to run up to 2-1/4 dia./3" depth cutters in RB65	RB6105
RB634	Converts #3MT to 3/4 up to 2-1/4 arbor for RB65	RB6105
RB635	Converts #3MT to 1-1/4 arbor to run 2-5/16+ diameter cutters for RB65	RB6106
AC3502LQ	Quick change arbor for AC35	

Drill Chucks and Keys



EDP No.	Description	EDP No.	Description
RB3212	1/2-20 thread mounted drill chuck for RB32	RB6534	#3 Morse taper mounted 3/4" drill chuck RB65
RB3212-KEY	Chuck key	RB6534-KEY	Chuck key
RB4512	#2 Morse taper shank 1/2" drill chuck for RB45	RB-HEX-SET	RB hex key set
RB4512-KEY	Chuck key	RB32-0515	Chuck key for AC35-1220
RB1234	Chuck adaptor RB32 3/4" shank	AC35-1220	1/2" drill chuck for AC35-451220/AC35-461220
RB6512	#3 Morse taper mounted 1/2" drill chuck for RB65	AC35-451220	Drill chuck adaptor use with chuck AC35-1220
RB6512-KEY	Chuck key	AC35-461220	Quick change adaptor use with chuck AC35-1220

Tapping Attachments

Greatly reduce tool change over time with RB series tappers. Precision manufactured for rugged use. Taps can be changed in seconds. The adaptors are engineered for use with the RB32 VSR and RB65 VSR (variable speed / reverse) variants. The adaptors accept a number of "quick-change" #2 tap collets that will accept tap sizes 0-6 up to 7/8", small and large shank 1/8", 1/4", 3/8" & 1/2" NPT.



RB65-TAPPER



RB32-TAPPER

RotoBrute Quick Change Tapping Collets

EDP No.	Tap Sizes	EDP No.	Tap Sizes	EDP No.	Tap Sizes
RB-925	0-6	RB-933	1/2"	RB-940	1/8" Small Shank NPT
RB-926	#8	RB-934	9/16"	RB-941	1/8" Large Shank NPT
RB-927	#10	RB-935	5/8"	RB-942	1/4" NPT
RB-928	#12	RB-936	11/16"	RB-943	3/8" NPT
RB-929	#14 & 1/4"	RB-937	3/4"	RB-944	1/2" NPT
RB-930	5/16"	RB-938	13/16"		
RB-931	3/8"	RB-939	7/8"		
RB-932	7/16"				





Carbide Tipped Annular Cutters

List No. CT150 / CT200 / CT300 / CT400



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

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

Time Saving Features

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



Triple Edge cutting features

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



CT150 vs Standard HS Annular Cutter Comparison

CT Advantage

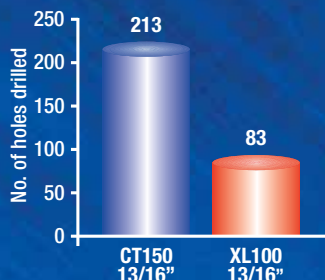
256%

Material used - Construction Steel (25mm)

AC35 Magnetic drill press used -

920 watts @ 600 RPM.

Comparisons stopped when no more holes could be bored at the same force.



Diameter	List CT150 1-3/8" Depth of Cut	List CT200 2" Depth of Cut	List CT300 3" Depth of Cut	List CT400 4" Depth of Cut
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	





High Speed Annular Cutters

List No. XL100 / XL200 / XL300



Description: High speed steel annular cutters (M2) feature Champion's exclusive PLUS 20 surface treatment, providing cleaner cuts, positive slug ejection and longer tool life.

Application: Used in conjunction with Champion Magnetic Drill presses detailed on pages 106-108.

PLUS20

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



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

Note: 7/16 thru 2-1/4 cutters have 3/4 shank
2-5/16 thru 4" cutters have 1-1/4 shank





Metric High Speed Annular Cutters

List No. XL100M / XL200M



Description: Metric high speed steel annular cutters (M2) feature Champion's exclusive PLUS 20 surface treatment, providing cleaner cuts, positive slug ejection and longer tool life.

Application: Used in conjunction with Champion Magnetic Drill presses detailed on pages 106-108

Metric Diameter (mm)	List XL100M 1" Depth of Cut	List XL200M 2" Depth of Cut
13	XL100M-13.0	XL200M-13.0
14	XL100M-14.0	XL200M-14.0
15	XL100M-15.0	XL200M-15.0
16	XL100M-16.0	XL200M-16.0
17	XL100M-17.0	XL200M-17.0
18	XL100M-18.0	XL200M-18.0
19	XL100M-19.0	XL200M-19.0
21	XL100M-21.0	XL200M-21.0
22	XL100M-22.0	XL200M-22.0
23	XL100M-23.0	XL200M-23.0
24	XL100M-24.0	XL200M-24.0
25	XL100M-25.0	XL200M-25.0
26	XL100M-26.0	XL200M-26.0
27	XL100M-27.0	XL200M-27.0
28	XL100M-28.0	XL200M-28.0
29	XL100M-29.0	XL200M-29.0
30	XL100M-30.0	XL200M-30.0
31	XL100M-31.0	XL200M-31.0
32	XL100M-32.0	XL200M-32.0

Metric Diameter (mm)	List XL100M 1" Depth of Cut	List XL200M 2" Depth of Cut
33	XL100M-33.0	XL200M-33.0
34	XL100M-34.0	XL200M-34.0
35	XL100M-35.0	XL200M-35.0
36	XL100M-36.0	XL200M-36.0
37	XL100M-37.0	XL200M-37.0
38	XL100M-38.0	XL200M-38.0
39	XL100M-39.0	XL200M-39.0
40	XL100M-40.0	XL200M-40.0
41	XL100M-41.0	XL200M-41.0
42	XL100M-42.0	XL200M-42.0
43	XL100M-43.0	XL200M-43.0
44	XL100M-44.0	XL200M-44.0
45	XL100M-45.0	XL200M-45.0
46	XL100M-46.0	XL200M-46.0
47	XL100M-47.0	XL200M-47.0
48	XL100M-48.0	XL200M-48.0
49	XL100M-49.0	XL200M-49.0
50	XL100M-50.0	XL200M-50.0

Note: All metric cutters have 3/4 shank



HS Titanium Nitride Coated Annular Cutters

List No. XL100T / XL200T



Description: High speed steel annular cutters with Titanium Nitride coating for higher speeds and longer tool life.

Application: XLT Series cutters are recommended for materials with a Brinell hardness number (BHN) of up to 325.

Diameter	List XL100T 1" Depth of Cut	List XL200T 2" Depth of Cut
7/16	XL100T-7/16	XL200T-7/16
1/2	XL100T-1/2	XL200T-1/2
17/32	XL100T-17/32	XL200T-17/32
9/16	XL100T-9/16	XL200T-9/16
5/8	XL100T-5/8	XL200T-5/8
11/16	XL100T-11/16	XL200T-11/16
3/4	XL100T-3/4	XL200T-3/4
13/16	XL100T-13/16	XL200T-13/16
7/8	XL100T-7/8	XL200T-7/8
15/16	XL100T-15/16	XL200T-15/16
1	XL100T-1	XL200T-1
1-1/16	XL100T-1-1/16	XL200T-1-1/16
1-1/8	XL100T-1-1/8	XL200T-1-1/8
1-3/16	XL100T-1-3/16	XL200T-1-3/16
1-1/4	XL100T-1-1/4	XL200T-1-1/4
1-5/16	XL100T-1-5/16	XL200T-1-5/16

Diameter	List XL100T 1" Depth of Cut	List XL200T 2" Depth of Cut
1-3/8	XL100T-1-3/8	XL200T-1-3/8
1-7/16	XL100T-1-7/16	XL200T-1-7/16
1-1/2	XL100T-1-1/2	XL200T-1-1/2
1-9/16	XL100T-1-9/16	XL200T-1-9/16
1-5/8	XL100T-1-5/8	XL200T-1-5/8
1-11/16	XL100T-1-11/16	XL200T-1-11/16
1-3/4	XL100T-1-3/4	XL200T-1-3/4
1-13/16	XL100T-1-13/16	XL200T-1-13/16
1-7/8	XL100T-1-7/8	XL200T-1-7/8
1-15/16	XL100T-1-15/16	XL200T-1-15/16
2	XL100T-2	XL200T-2
2-1/16	XL100T-2-1/16	XL200T-2-1/16
2-1/8	XL100T-2-1/8	XL200T-2-1/8
2-3/16	XL100T-2-3/16	XL200T-2-3/16
2-1/4	XL100T-2-1/4	XL200T-2-1/4

Note: 7/16 thru 2-1/4 cutters have 3/4 shank





Cobalt Stack Cut Annular Cutters

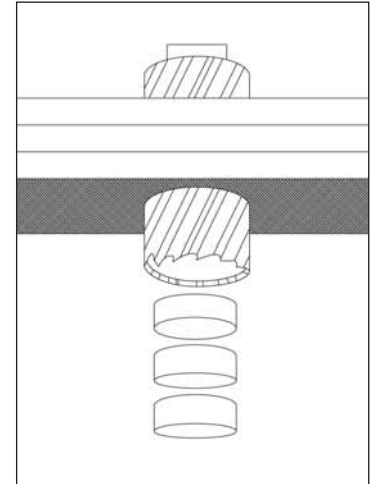
List No. XL200STK

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: Used in conjunction with Champion Magnetic Drill presses detailed on pages 106-108.



Diameter	List XL200STK 1" Depth of Cut
7/16	XL200STK-7/16
1/2	XL200STK-1/2
17/32	XL200STK-17/32
9/16	XL200STK-9/16
5/8	XL200STK-5/8
11/16	XL200STK-11/16
3/4	XL200STK-3/4
13/16	XL200STK-13/16
7/8	XL200STK-7/8
15/16	XL200STK-15/16
1	XL200STK-1
1-1/16	XL200STK-1-1/16
1-1/8	XL200STK-1-1/8
1-3/16	XL200STK-1-3/16
1-1/4	XL200STK-1-1/4



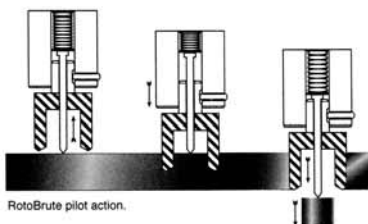
Note: 7/16 thru 1-1/4 cutters have 3/4 shank



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



Carbide Tipped Annular Cutter Pilot Pins

EDP No.	Description
CT150P	5/16 diameter pilot pins for CT150 cutters
CT150-PIN	Pilot pins for CT150 9/16 and 5/8 cutters
CT200P	5/16 diameter pilot pins for CT200 cutters
CT200-PIN	Pilot pins for CT200 9/16 and 5/8 cutters
CT300P	5/16 diameter pilot pins for CT300 cutters
CT400P	5/16 diameter pilot pins for CT400 cutters

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

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
CM6-3/16	5/32	3
CM6-7/32	5/32	4
CM6-1/4	1/4	4
CM6-9/32	1/4	4

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

PROLINE

Rotary Masonry Drills

List No. CM66

6" Length / Fast Spiral / Long Length / 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
CM66-1/4	1/4	6
CM66-9/32	1/4	6
CM66-5/16	1/4	6
CM66-3/8	1/4	6
CM66-7/16	1/4	6
CM66-1/2x1/4	1/4	6
CM66-1/2x3/8	3/8	6

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

PROLINE

Masonry Drills

List No. CSC4

Short Length / Carbide Tipped / Deep Flute



Description: Contractor Series 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
CSC4-1/8	1/8	3
CSC4-3/16	3/16	4
CSC4-7/32	7/32	4
CSC4-1/4	1/4	4

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

PROLINE

Masonry Drills

List No. CSC6

6" Length / Carbide Tipped / Deep Flute



Description: Contractor Series 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 / Long 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

CHAMPION

PROLINE**List No. CM86 continued**

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

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

PROLINE**12" Rotary Masonry Drills**
List No. CM12

Deep Flute / Long 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
CM12-3/16	3/16	12
CM12-1/4	1/4	12
CM12-5/16	5/16	12
CM12-3/8	5/16	12
CM12-7/16	7/16	12
CM12-1/2	3/8	12
CM12-9/16	3/8	12
CM12-5/8	1/2	12

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

PROLINE**18" Rotary Masonry Drills**
List No. CM18

Deep Flute / Extra Long 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
CM18-1/4	1/4	18
CM18-5/16	5/16	18
CM18-3/8	5/16	18
CM18-1/2	3/8	18
CM18-9/16	3/8	18
CM18-5/8	1/2	18
CM18-3/4	1/2	18

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

PROLINE

24" Rotary Masonry Drills

List No. CM24

Deep Flute / Extra 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

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
TCB-3/16 X 7-1/2	3/16	7 1/2

Note: TAPCON® is a registered trademark of ITW Buildex and ITW Illinois Tool Works

PROLINE

Tapcon® 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	Drill Point Diameter	Overall Length
CM95T-3/16 X 2 X 5	3/16	5
CM95T-3/16 X 4 X 7	3/16	7
CM95T-5/32 X 2 X 5	5/32	5
CM95T-5/32 X 4 X 7	5/32	7

**CHAMPION**

PROLINE

Rotary Rebar Cutters

List No. CM79

1/2" Shank / Carbide Tipped



Description: Easy 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

Percussion Masonry Drills

List No. CM85

Heavy Duty / Straight Shank / Carbide Tipped



Description: For use in rotary percussion tools and in drill motors 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
CM85-9/32X6	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

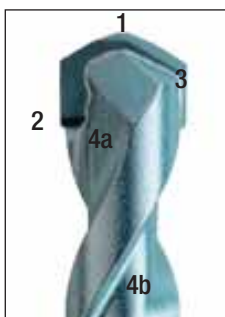
Multi Purpose Rotary Bits List No. CM-MPB

Description: Multi material rotary drill bit with a unique carbide tip consisting of specially designed for purpose geometry and centering tips.

Application: For use in a huge variety of materials and applications including concrete, stone, plastics, cement board granite and much more.



1. Unique carbide geometry & centering tips - fast start up and drilling
2. Modern heat-treatment and brazing processes ensuring proper combination of product hardness, toughness and durability resulting in maximum life
3. BC20 grade of carbide, diamond ground - designed specifically for relevant materials
4. Perfect balance between tip (4a) and flute (4b) geometry allows fast and immediate debris removal. Allowing smoother, faster drilling



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

- No center punch needed - eliminates "walking"
- Ideal for cordless drills, corded drills & drill presses

APPLICATIONS

- Highway rails
- Structural supports
- Pipe mounts
- Electrical mounts
- Bridge construction
- HVAC mounts
- Machinery mounts
- Door frames
- Window frames
- Roofing
- Brackets

MATERIALS

- Concrete & stone
- Masonry
- Ceramic Tile
- Marble
- Brick
- Granite
- Plastics
- Fiberglass
- Plexiglass
- Glass
- Cast Metals
- Hardened Steel
- Wood

CM-MPB-SET5

5 Pc. Plastic Set

EDP No. / Diameter
CM-MPB-1/8
CM-MPB-5/32
CM-MPB-3/16
CM-MPB-1/4
CM-MPB-5/16



Material Type	Cutting Speeds (rpm)
Tile	750
Metals	1,000
Masonry	1,500
Plastics	1,750
Wood	2,000

CHAMPION

PROLINE

SDS Plus Hammer Bits

List No. CM95



List No. CM9



Description: Versatile slot drive system hammer bits fit most rotary hammers. Vacuum brazed with pure copper at 1900°F. Vacuum heat treated tool body to 50RC. BC20 grade carbide.

CM95 has reinforced flutes and chisel shaped carbide tip.

CM9 has standard tip and flute geometry.

Application: For use in concrete and hard masonry materials.

EDP No./ Diameter	Usable Length	Overall Length
CM95-5/32X2X4*	2	4
CM95-5/32X4X6†*	4	6
CM95-3/16X2X4†*	2	4
CM95-3/16X4X6†*	4	6
CM95-3/16X6X8†*	6	8
CM95-3/16X10X12	10	12
CM95-7/32X4X6†	4	6
CM95-7/32X6X8†	6	8
CM95-7/32X8X10†	8	10
CM95-7/32X9x11†*	9	11
CM95-7/32X12X14	12	14
CM95-7/32X14X16	14	16
CM95-1/4X2X4†*	2	4
CM95-1/4X4X6†*	4	6
CM95-1/4X6X8†*	6	8
CM95-1/4X8X10	8	10
CM95-1/4X9X11	9	11
CM95-1/4X12X14	12	14
CM95-1/4X14X16	14	16
CM95-5/16X4X6†*	4	6
CM95-5/16X10X12	10	12
CM95-3/8X4X6†*	4	6
CM95-3/8X8X10	8	10

EDP No./ Diameter	Usable Length	Overall Length
CM95-3/8X10X12*	10	12
CM95-3/8X16X18	16	18
CM95-3/8X22X24	22	24
CM95-7/16X4X6	4	6
CM95-7/16X10X12	10	12
CM95-1/2X4X6†*	4	6
CM95-1/2X8X10	8	10
CM95-1/2X10X12*	10	12
CM95-1/2X16X18	16	18
CM95-1/2X22X24	22	24
CM95-9/16X4X6*	4	6
CM95-5/8X6X8*	6	8
CM95-5/8X10X12*	10	12
CM95-5/8X16X18	16	18
CM95-11/16X6X8	6	8
CM95-3/4X6X8*	6	8
CM95-3/4X10X12*	10	12
CM95-3/4X16X18	16	18
CM95-27/32x6X8	6	8
CM95-7/8X6X8*	6	8
CM95-7/8X10X12*	10	12
CM95-1X8X10*	8	10
CM95-1X16X18	16	18

† Available in 25 piece bulk pack. Specify CM95B.

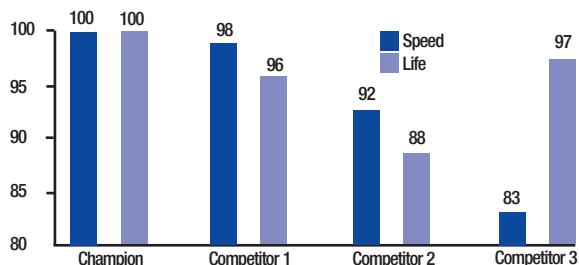
* Available in both individual (CM9) and 25 pc. bulk pack (CM9B) - Please specify when ordering

CM95 ATTRIBUTES

- Aggressive, durable carbide tip (1) allows easy centering and fast drilling
- Dynamic, chisel shaped bit head (2) ensures swift penetration
- Patented, reinforced flute geometry reduces vibration, transfers more impact energy to the cutting face and quickly channels debris from the hole
- Balance of tip and flute geometry ensure perfectly round holes giving superior anchoring
- 4 cutter CM95X range has a solid tip giving added strength

SDS Plus Bit - 1/4x6 (CM95)

MACHINE - BOSCH GBH2-20 / MATERIAL - Concrete C45/55
RPM - 750 min-1 / PRESSURE - 100-120 N / DRILLING DEPTH - 3 inch



MAIN USES

- Highway rails
- Structural supports
- Pipe mounts
- Electrical mounts
- Bridge construction
- HVAC mounts
- Machinery mounts
- Door & window frames
- Roofing
- 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.



CM95X Solid Tip Cross Head
Side View



CM95X Solid Tip Cross Head
Plan View

- Made in Germany - world renowned for quality of product
- "Solid-Tip" Technology cuts through rebar (1)
- 4 Cutter head cuts faster and lasts longer (2)
- Modern heat treat and brazing processes ensuring proper hardness, toughness and durability for maximum life
- Centering point for improved positioning
- Shortened conical shaped dust tracks for fast debris removal (3)
- Reinforced core and special flute for maximum energy transfer and reduced vibration



EDP No./ Diameter	Usable Length	Overall Length
CM95X-3/16X2X4	2	4
CM95X-3/16X4X6	4	6
CM95X-3/16X6X8	6	8
CM95X-3/16X8X10	8	10
CM95X-3/16X10X12	10	12
CM95X-1/4X2X4	2	4
CM95X-1/4X4X6	4	6
CM95X-1/4X6X8	19	21
CM95X-1/4X8X10	6	8
CM95X-1/4X10X12	10	12
CM95X-5/16X4X6	4	6
CM95X-5/16X10X12	10	12
CM95X-5/16X16X18	16	18
CM95X-3/8X4X6	4	6
CM95X-3/8X10X12	10	12
CM95X-3/8X16X18	16	18
CM95X-7/16X4X6	4	6
CM95X-7/16X10X12	10	12
CM95X-7/16X16X18	16	18
CM95X-1/2X4X6	4	6
CM95X-1/2X10X12	10	12
CM95X-1/2X16X18	16	18
CM95X-9/16X4X6	4	6
CM95X-9/16X10X12	10	12
CM95X-9/16X16X18	16	18
CM95X-5/8X10X12	10	12
CM95X-5/8X16X18	16	18
CM95X-7/8X16X18	16	18
CM95X-3/4X16X18	16	18
CM95X-1X16X18	16	18
CM95X-1-1/4X16X18	16	18

MAIN USES

- Highway rails
- Structural supports
- Pipe mounts
- Electrical mounts
- Bridge construction
- HVAC mounts
- Machinery mounts
- Door & window frames
- Roofing
- Brackets

MATERIALS

- Concrete & stone
- Masonry
- Grout filled block
- Hollow block
- Solid brick
- Hollow brick
- Cement board
- Granite

CHAMPION

PROLINE

SDS Max Hammer Bits

List No. CM96

4 Cutter Cross-Head



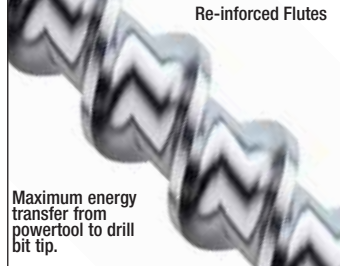
Description: Innovative 4-Cutter cross head design SDS Max hammer bits. Unique carbide geometry and centering tips for easy start up and drilling.

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

4 Cutter SDS-Max / Spline



Re-inforced Flutes



Maximum energy transfer from power tool to drill bit tip.

- 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 cuts faster and lasts longer
- Centering point for improved positioning
- Shortened conical shaped dust tracks for fast debris removal
- Patented, reinforced core and special flute for maximum energy transfer and reduced vibrations

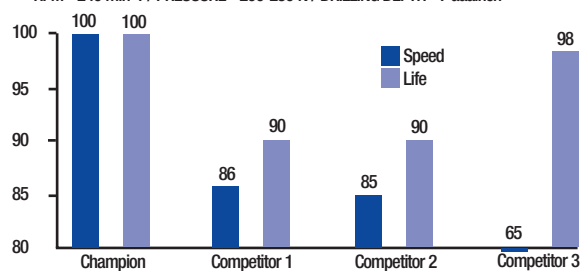


EDP No./ Diameter	Usable Length	Overall Length
CM96-1/2X8X13*	8	13
CM96-1/2X16X21*	16	21
CM96-9/16X8X13*	8	13
CM96-9/16X16X21*	16	21
CM96-5/8X8X13	8	13
CM96-5/8X16X21	16	21
CM96-5/8X31X36	31	36
CM96-11/16X16X21	16	21
CM96-3/4X8X13	8	13
CM96-3/4X17X21	17	21
CM96-3/4X31X36	31	36
CM96-7/8X8X13	8	13
CM96-7/8X17X21	17	21
CM96-7/8X31X36	31	36
CM96-1X8X13	8	13
CM96-1X17X21	17	21
CM96-1X31X36	31	36
CM96-1-1/8X10X15	10	15
CM96-1-1/8X12X17	12	17
CM96-1-1/8X17X21	17	21
CM96-1-1/4X10X15	10	15
CM96-1-1/4X18X23	18	23
CM96-1-1/4X31X36	31	36
CM96-1-3/8X18X23	18	23
CM96-1-1/2X18X23	18	23

SDS-Max Bit - 1x21 (CM96)

MACHINE - MAKITA HR4500 / MATERIAL - Concrete C45/55
RPM - 240 min-1 / PRESSURE - 200-250 N / DRILLING DEPTH - 7 aaainch

* 2 Cutter Heads



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
CM97-SDS-PLUS

SDS-Max to SDS-Plus Power Bit Adaptor
Spline to SDS-Plus Power Bit Adaptor

CHAMPION

PROLINE

Spline Shank Hammer Bits

List No. CM97

Single Point



Description: Splines 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	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	Usable Length	Overall Length	EDP No./ Diameter	Usable Length	Overall Length
CM98-5/8X5X10	5	10	CM98-1-18X11X16	11	16
CM98-5/8X11X16	11	16	CM98-1-18X17X22	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			
CM98-1X17X22	17	22			
CM98-1X31X36	31	36			
CM98-1-1/8X11X16	11	16			

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 fatigue

CHAMPION

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.

SHANK TYPES

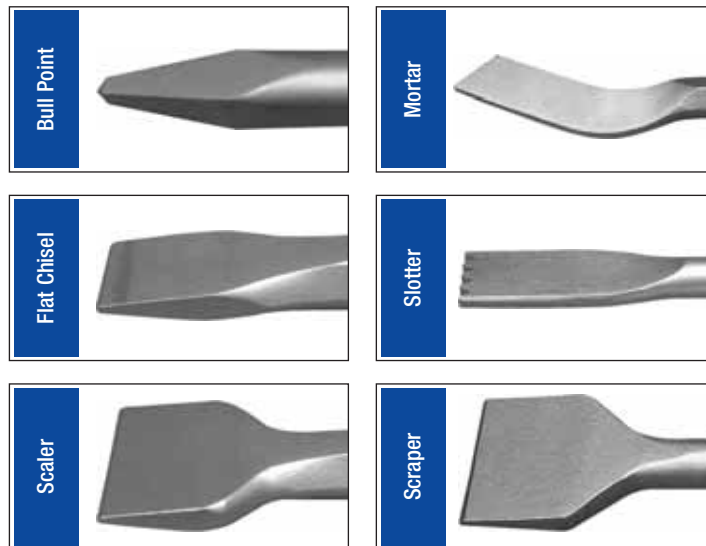
CM96 SDS Max-Chisels: For large rotary hammers with SDS-Max drive.

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./	Description	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./	Description	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./	Description	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./	Description	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./	Description	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	Scaler 2" 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./	Description	Qty.
CM99-01	Scraper Complete 2.0mm	Each
CM99-02	Scraper Replacement Blade 2.0mm*	Each
CM99-03	Repair Kit for Scraper 18Pc*	Each

* CM99 Floor Accessories may be used with the following shanks:
SDS-MAX-CM96-19 / Spline - CM97-15 /
Hex Demolition 3/4" - CM91-14



PROLINE

Hammer Core Bits

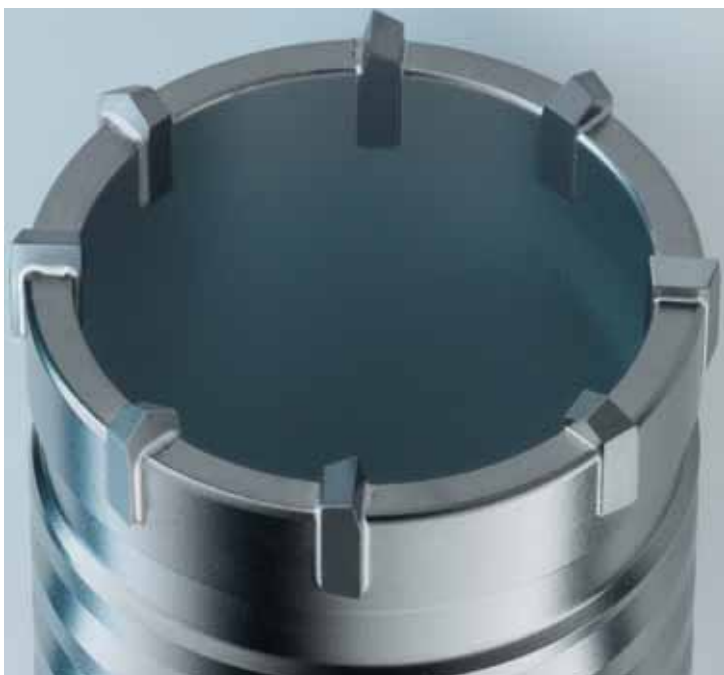
List No. CM89HC

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 & debris evacuation from cutting path
- Teeth set with negative and positive rake to cut concrete and screening
- Tooth edges faced to act as secondary cutter area to reduce snagging
- Centering bit is recommended for best results.

Shank Adaptors & Extension for Core Drills



EDP No.	Description	Overall Length
CM96-HC7	SDS Max Adaptor	7
CM97-HC7	Spline Adaptor	7
HC11-EXT	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

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

PROLINE

Porcelain Tile Carbide Drills

List No. PTC

P100 Grade Carbide

For Fastener Range - Small Diameter 3/16"-5/16"



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

CHAMPION

Easy Start Up & Rapid Penetration



Accurate Holes

PROLINE

Diamond Core Drills for Porcelain Tile

List No. PTC2

Description: Made of high density thin walled diamond particles and are designed to produce rapid penetration without excessive force.

Application: The toughest industrial and residential wall and floor tile. For drilling pipe holes 3/4" to 1-3/4". A constant flow of water must be used.



EDP No./ Diameter	Shank Diameter	Overall Length	EDP No./ Diameter	Description
PTC2-3/4	1-5/8	3/8	PTC2-ARBOR	Arbor adaptor
PTC2-1	1-5/8	3/8	PTC2-PUMP	Water pump
PTC2-1-3/8	1-5/8	3/8	PTC2-TUBE	Water feed tube
PTC2-1-3/4	1-5/8	3/8	PTC2-KIT	Includes PTC2 3/4, 1-3/8, 1-3/4, 1" and 5 pieces of PTC-1/4, 5 pieces CSC4-1/4 masonry drills, PTC2-TUBE and PTC2-ARBOR

PROLINE

Bellhanger Drills

List No. 8048

12", 18", 24" & 30" Lengths

Description: Slow spiral wood bits with small hole near the point for attaching fishing wire to be pulled back through the hole.

Application: Used by telephone, burglar alarm and cable TV installers for the drilling of wire feed holes.



EDP No./ Diameter	Overall Length	EDP No./ Diameter	Overall Length
8048-12-1/4	12	8048-12-7/16	12
8048-18-1/4	18	8048-18-7/16	18
8048-24-1/4	24	8048-12-1/2	12
8048-30-1/4	30	8048-18-1/2	18
8048-12-5/16	12	8048-24-1/2	24
8048-18-5/16	18	8048-30-1/2	30
8048-24-5/16	24	8048-18-9/16	18
8048-12-3/8	12	8048-18-5/8	18
8048-18-3/8	18	8048-18-11/16	18
8048-24-3/8	24	8048-18-3/4	18
8048-30-3/8	30		

PROLINE

Electricians Power Drills

List No. 8518

Mono Spur / Double Twist

Description: Clean fast holes produced when used with a standard power tool. Front end spur pulls drill through wood.

Application: All wood applications.



EDP No./ Diameter	Shank Diameter	Overall Length	EDP No./ Diameter	Shank Diameter	Overall Length
8518-5/8	5/16	9	8518-7/8	5/16	9
8518-11/16	5/16	9	8518-1	5/16	9
8518-3/4	5/16	9	8518-1-1/8*	7/16	9
8518-13/16	5/16	9	8518-1-1/4*	7/16	9

* Use 8700 extension

CHAMPION

PROLINE

Auger Drills

List No. 8006

Auger / Single Flute

Description: Single flute auger drills for general purpose boring.**Application:** Most types of wood.

Sizes 1/4 & 5/16 have 1/4" shank; 3/8 thru 1" have 3/8" shank.



EDP No./ Diameter	Flute Length	Overall Length
8006-1/4	5	8
8006-5/16	5	8
8006-3/8	5	8
8006-7/16	5	8
8006-1/2	5	8
8006-9/16	5	8
8006-5/8	5	8
8006-11/16	5	8
8006-3/4	5	8

EDP No./ Diameter	Flute Length	Overall Length
8006-13/16	5	8
8006-7/8	5	8
8006-15/16	5	8
8006-1	5	8

**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.

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 / 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.

Use with 8700 extension except where noted *(Use 8800 extension).



EDP No./ Diameter	Flute Length	Overall Length
8018-3/8*	12	17
8018-7/16*	12	17
8018-1/2	12	17
8018-9/16	12	17
8018-5/8	12	17
8018-11/16	12	17
8018-3/4	12	17
8018-13/16	12	17

EDP No./ Diameter	Flute Length	Overall Length
8018-7/8	12	17
8018-15/16	12	17
8018-1	12	17
8018-1-1/16	12	17
8018-1-1/8	12	17
8018-1-1/4	12	17
8018-1-3/8	12	17
8018-1-1/2	12	17

* 5/16 Shank

CHAMPION

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
8606-1/2	4	6
8606-9/16	4	6
8606-5/8	4	6
8606-11/16	4	6
8606-3/4	4	6
8606-13/16	4	6
8606-7/8	4	6

EDP No./ Diameter	Flute Length	Overall Length
8606-15/16	4	6
8606-1	4	6
8606-1-1/8	4	6
8606-1-1/4	4	6
8606-1-3/8	4	6
8606-1-1/2	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
8001-1/4	7/32	6
8001-5/16	7/32	6
8001-3/8	7/32	6
8001-7/16	7/32	6
8001-1/2	7/32	6
8001-9/16	7/32	6
8001-5/8	7/32	6
8001-11/16	7/32	6
8001-3/4	7/32	6

EDP No./ Diameter	Shank Diameter	Overall Length
8001-13/16	7/32	6
8001-7/8	7/32	6
8001-15/16	7/32	6
8001-1	7/32	6
8001-1-1/8	7/32	6
8001-1-1/4	7/32	6
8001-1-3/8	7/32	6
8001-1-1/2	7/32	6

PROLINE

Wood Boring Bits

List No. 8016

16" Spade Style

Description: General purpose wood boring bits.**Application:** Light to medium hard building materials.

EDP No./ Diameter	Shank Diameter	Overall Length
8016-1/4	7/32	16
8016-3/8	7/32	16
8016-1/2	7/32	16
8016-5/8	7/32	16

EDP No./ Diameter	Shank Diameter	Overall Length
8016-3/4	7/32	16
8016-7/8	7/32	16
8016-1	7/32	16

CHAMPION



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
113CO	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 Contractor Drills
113MT	Empty Case

7 Piece Drill Sets



1/16 thru 1/4 x 32nds

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

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
115CO	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
115-XL5	XL5 Brute Platinum Drills
115-XL28	XL28 Brute Mechanics Drills
115-XL38	XL5 & XL38 Brute 3/8" Shank
P15C	US5 Black Contractor Drills
P15HD	USHD Black Contractor Drills
115-MT	Empty Case

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
120CO	705C Cobalt HSS Drills
120-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
121CO	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
115-XL5	XL5 Brute Platinum Drills
115-XL28	XL28 Brute Mechanics Drills
P21C	US5 Black Contractor Drills
P21C-3/8	US5 & 738 3/8" Shank Drills
P21HD	USHD Black Contractor Drills
121MT	Empty Case

26 Piece Metal Cased Sets



A thru Z

EDP No.	Description
26C	405 Bright HSS Drills
126C	705 Black HSS Drills
126-XL5	XL5 Brute Platinum Drills
126CO	705C Cobalt HSS Drills
126C-SP	705SP Split Point Drills
126-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 Contractor Drills
P29C-3/8	US5 & 738 3/8" Shank Drills
P29HD	USHD Black Contractor Drills

29 Piece Slimline Sets



1/16 thru 1/2 x 64ths

EDP No.	Description
SL29-XL5	XL5 Brute Platinum Drills
SL29-XL28	XL28 Brute Mechanics Drills
SL29-XG0	XG0 BlackGold Drills

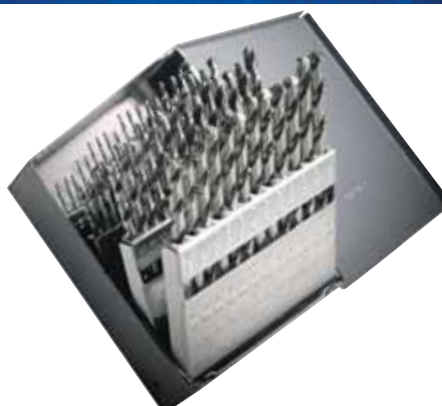
29 Piece Twister Sets



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	US5 General Purpose
TWISTER-USHD	USHD General Purpose Split Point

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
160SP	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
SS-50C	405 Bright HSS Drills
SS-150C	705 Black HSS Drills
SS-150CO	705C Cobalt HSS Drills
SS-150SP	705SP Split Point Drills
SS150-XL5	XL5 Brute Platinum Drills
SS150-XG0	XG0 BlackGold Drills
SS-150-MT	Empty Case

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



16 Pc. Taper Shank Drill Set



EDP No.	Description
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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

8 Piece S&D Drills



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 Contactor Drills
712-8-MT	Empty Case

8 Piece S&D Drills



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 Contactor Drills
712-8P-MT	Empty Case

33 Piece Silver & Deming Sets



33/64 thru 1 x 64ths (includes 1/2" jobber drill)

EDP No.	Description
712-33	712 HSS Drills
XL12-33	XL12 Brute Platinum Drills
712-33-MT	Empty Case

LH Drill & Screw Extractor Sets



EDP No.	Description
X1-XL5LH	XL5LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and screw extractors #1-5
X1-705LH	705LH Drills 5/64, 7/64, 5/32, 1/4, 19/64 and screw extractors #1-5



Screw Extractor Sets



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-XL	XL5 Drills / 321M 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"x20, 5/16"x20, 3/8"x16, 7/16"x14, 1/2"x13
DT22HEX-SET10	5 Piece - 6-32, 8-32, 10-24, 10-32, 12-24, 1/4"x20, 5/16"x20, 3/8"x16, 7/16"x14, 1/2"x13
DT22HEX-SET-NF5	5 Piece - 1/4"x28, 5/16"x24, 3/8"x24, 7/16"x20, 1/2"x20



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: 13 lbs.

Dimensions: 18"L x 7-1/2"D x 1-1/2"H

EDP No.	Description
S32JR	302 carbon Taps & 327 carbon dies
S32-LTD	308 HS Taps & 327 carbon dies
S32-ULTRA	308 HS Taps & 328 HS Dies

S32 Series Metric Tap & Die Sets 6 - 24mm

S32M-LTD 32 piece metric tap & die sets contain the following: 324-1/8 NPT pipe tap: plug taps/round dies: 6.0x1.0, 7.0x1.0, 8.0x1.25, 10.0x1.5, 12.0x1.75, 14x2.0, 16x2.0, 20x2.5, 22x2.5, 24x3.0.

Accessories: 3305 1, 1-1/2 & 2 hex adaptors for round dies, 3002-2 "T" handle tap wrench, 3291 1, 1-1/2 & 2 round die stocks, 3001-7 bar handle tap wrench and screwdriver.

Weight: 13 lbs.

Dimensions: 18"L x 7-1/2"D x 1-1/2"H

EDP No.	Description
S32M-LTD	308M HS taps & 327M carbon Dies



S40 Series Tap & Die Sets #4 - 1/2

Champion 40 piece tap & die sets contain the following: 1/8 NPT pipe tap; plug taps / round dies: 4-40, 6-32, 8-32, 10-24, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, and 1/2-20.

Accessories: 3305-1 hex adaptor for round dies, 3002-1 "T" handle, 3002-1 die stock and screwdriver.

Weight: 23 lbs.

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

EDP No.	Description
S40-JR	302 carbon taps & 327 carbon dies
S40-LTD	308 HS taps & 327 carbon dies
S40-ULTRA	308 HS taps & 328 HS 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: 25-1/2"L x 11-3/4"D x 2"H

EDP No./	Description
S40M-LTD	308M HS taps & 327M carbon dies



S51 Series Tap & Die Sets 1/4 - 1

Champion 51 piece tap & die sets contain the following: 1/8 NPT pipe tap; taps/dies: 1/4-20, 1/4-28, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14.

Accessories: 3305-1, 1-1/2 & 2 hex adaptor for round dies, 3002-2 "T" handle, 3291-1, 1-1/2 & 2 die stocks, 3001-7 bar handle tap wrench and screwdriver.

Weight: 34 lbs.

Dimensions: 28-1/2"L x 14-1/2"D x 2-1/2"H

EDP No.	Description
S51-JR	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.



Contractor 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, 7/16-20, 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

SpeedThreader Sets



EDP No.	Description
ST-SET-NC5	1/4, 5/16, 3/8, 7/16 & 1/2 Coarse (NC)
ST-SET-NF5	1/4, 5/16, 3/8, 7/16 & 1/2 Fine (NF)
ST-SET-MS5	6-32, 8-32, 10-24, 10-32, 12-24
ST-SET-MET7	M3x.5, 4x.7, 5x.8, 6x1, 8x1.25, 10x1.5, 12x1.75 & Fluid

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

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

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



CT3 Hole Cutter Set



EDP No.	Description
CT3P-SET-1	5/8, 3/4, 7/8, 1, 1-1/8 and QCD in plastic case
CT3-SET-1	5/8, 3/4, 7/8, 1, 1-1/8 and QCD in metal case
CT3P-SET-2	7/8 (2ea.), 1-1/8 (2ea.), 1-3/8 and QCD in plastic case
CT3-SET-2	7/8 (2ea.), 1-1/8 (2ea.), 1-3/8 and QCD in metal case
ELEC-KIT	MSD-HEX-13, CT3-7/8, CT3-1-1/8, CT3-1-3/8 and QCD in metal 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
CT5-SET-1	7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in metal 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
CT7-SET-1	5/8, 3/4, 7/8, and 1 in metal case
CT7-SET-2	11/16, 13/16, 15/16 and 1-1/16 in metal case
CT7-SET-3	7/8, 1-1/8, 1-3/8, 1-3/4 and 2 in metal case
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-SPRINKLERSET	5 Piece Sprinkler Valve 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	12 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

Deburring Tool Sets



EDP No.	Description
DCB-SET	60° DCB6, DCB8, DCB14, DCB18, DCB26, DCB36
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
XL100T-SET	1 inch depth of cut TiN coated
XL200-SET	2 inches depth of cut
XL200T-SET	2 inches depth cut TiN coated

Porcelain Tile Cutter Set



EDP No.	Description
PTC2-KIT	16 Pc. PTC / PTC2 / Accessories PTC2 Diamond Crowns : 3/4, 1, 1-3/8 & 1-3/4 Drills : 5 x PTC1/4 & 5 x 1/4 masonry Accessories : Water feed tube, adaptor & connection tube

Multi-Purpose Bit Set



EDP No.	Description
CM-MPB-SET5	5 Piece Rotary Multi-Purpose Bits Includes: 1/8, 5/32, 3/16, 1/4, 5/16

SDS Plus Bit Set



EDP No.	Description
CM95X-SET5	Solid tip, cross head bits
CM95-SET5	Reinforced flute, chisel shaped tips
CM9-SET5	Standard tip and flute geometry



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	126 Piece Fractional 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 Contractor Drills
DIS-TOOLBIT	Carbide Tipped Tool Bits
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

CHAMPION ROLLFLEX MERCHANDISING SYSTEM



The new merchandising system from Champion offers an innovative solution to product presentation. Distributors gain sales value while making the best use of showroom space. Champion's displays are designed for total flexibility and versatility.

- Ability to be surface mounted or suspended
- Can be used with existing peg boards
- Attractive and high impact at the point of sale
- Easy product selection
- Product configurations based on customer demand
- Clear concise presentation of information
- Durable steel construction
- Convenient literature holders available
- Baskets for larger stock items also available
- Available with TV and DVD player with a vast range of supporting Champion product videos

Some of the many modules available as separate units are listed below:

EDP No.	Description
DIS-XL5M	210 Piece XL5 1/16 thru 1/2 Brute Platinum Jobber Drills
DIS-XL28M	210 Piece XL28 1/16 thru 1/2 Brute Platinum Mechanics Length Drills
DIS-XL12M	26 Piece XL12 17/32 thru 1 Brute Platinum Silver & Deming Drills
DIS-XG12M	33 Piece XG12 17/32 thru 1 BlackGold Silver & Deming Drills
DIS-712M	33 Piece 712 17/32 thru 1 Silver & Deming Drills
DIS-XG0M	210 Piece XGO 1/16 thru 1/2 BlackGold Heavy Duty Jobber Drills
DIS-CT150M	14 Piece CT150 9/16 thru 1-1/16 Carbide Tipped Annular Cutters and Pilot Pins
DIS-RBM	24 Piece XL100 and XL200 1/2 thru 1-1/16 HSS Annular Cutters and Pilot Pins
DIS-CT3M	14 Piece CT3 5/8 thru 1-3/8 Carbide Tipped Hole Cutters (Sheet Metal) and Pilot
DIS-CT5M	16 Piece CT5 9/16 thru 2 Carbide Tipped Hole Cutters (Thin Steel) and Pilot
DIS-CT7M	15 Piece CT7 5/8 thru 2 Carbide Tipped Hole Cutters (Thick Steel) and Pilot
DIS-BURM	42 Piece Double Cut Flute, Titanium Nitride Coated Carbide Burs (SA, SC, SD, SF, SG, SL and SM)
DIS-SA80M	15 Piece SA80 3/8 thru 1 Car Reamers
DIS-TWISTER-XL5	12 Piece XL5 Twister Sets
DIS-LUBE	48 Piece Brute Lube & Brute Wax
DIS-MINI-BURM	63 Piece Titanium Nitride Coated Carbide Miniature Burs
DIS-L6-BURM	36 Piece Titanium Nitride Coated Carbide Long Series Burs
DIS-NF-BURM	32 Piece Titanium Nitride Coated Non-Ferrous Carbide Burs
DIS-CM-MPB	90 Piece Multi-Purpose Drill Bits
DIS-CM95X	54 Piece Solid Head SDS Plus Hammer Drill Bits
DIS-CM95	95 Piece SDS Plus Hammer Drill Bits
DIS-SPEEDTHREADER	48 Piece Combination HSS Die and Diestocks





Single and Combination Tool Packaging

MERCHANDISING SYSTEM



iPac Single & Twin Packs



iPac Combination Packs



iPac Merchandising

The Champion iPac system provides you with professional grade cutting tools in individual packs. The iPac range includes twist drills, taps, and screw extractors.

Twist Drills

Brute Platinum XL5 and XL28 mechanics length twist drills outperform standard twist drills. You will get faster hole penetration, and more holes per drill. Provided with a unique combination of premium high speed steel, geometries and NOMO[®] surface treatment. BlackGold XGO drills also available in iPac.

Individual and twin packs available in 29 sizes from 1/16" thru 1/2".

Combination Taps and Drills

Create new threads and clean up damaged threads. Achieve close tolerances for secure fastening. A range of sizes are available from machine screw #6-32 to 1/2-13. Taps are plug chamfered with 3-5 threads for easy starting. Champion high speed hand taps (Series #308) are professional grade threading tools. Made from industrial grade high speed steel and properly heat treated. The iPac solution matches each tap with the correct twist drill. No more time wasted hunting for the right size twist drill. With iPac the drill and tap are perfectly matched.

Combination packs available in 10 separate application packs from tap size 6-32 thru 1/2-13 with corresponding drill size.

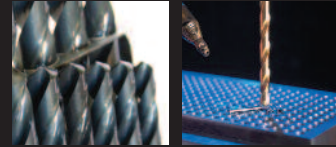
Combination Screw Extractors and Left Hand Drills

For removing broken bolts, screws and studs. Industrial quality extractors are paired with the perfect twist drill. By pre-drilling using a left-hand mode, the frozen bolt is often loosened for easier removal. Combination screw extractor/twist drill packs available from #1 thru 5.

EDP No.

Cutting Tool Merchandisers

06450	144 Piece XL5 Brute Platinum Jobber Drill Merchandiser
06510	144 Piece XL28 Brute Platinum Mechanics Drill Merchandiser
06480	144 Piece XGO Black Gold Jobber Drill Merchandiser
06540	180 Piece XL5/308 & X1/XL5LH Merchandiser
06565	180 Piece XGO/308 & X1/XL5LH Merchandiser



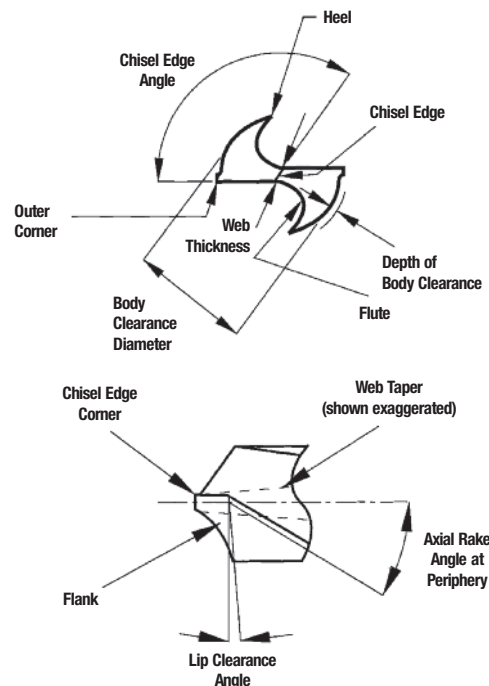
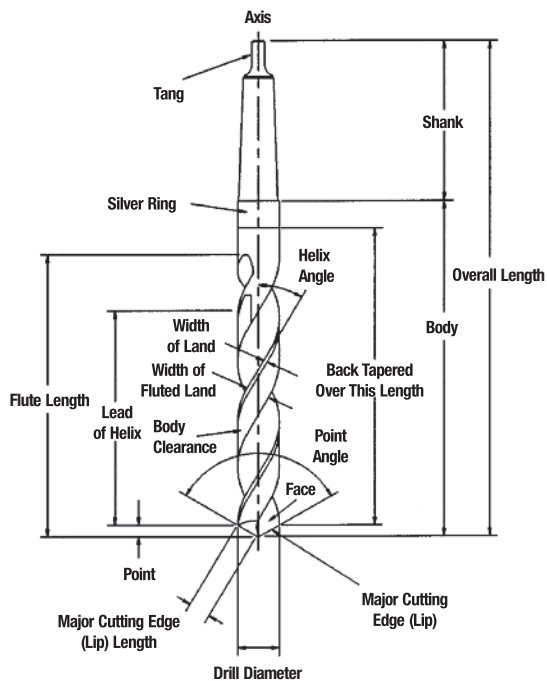
Technical Tips / Drills

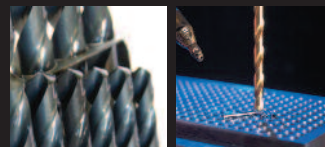
1. The most common mistake when drilling is to over-speed and under feed the tool. This will generate excess heat at the cutting edge, prematurely dulling the drill. Brute drills are designed to be fed heavily. If speed is increased an increase to feed is also appropriate. This will ensure that a "healthy" chip is being formed, and you will achieve good drilling results.
2. The workpiece must be held rigid and the machine spindle should have no play.
3. The chuck in which a straight shank drill is held must be good quality. If the drill slips in the chuck and the feed is automatic, breakage of the drill may occur.
4. Use recommended lubricants to enhance the life of the drill and ensure that the lubricant always reaches the drill point.
5. Do not allow the flutes of a drill to become choked with chips, especially in the holes. When drilling deeper than 4 x diameter, withdrawal of the drill to clear chips may be required.
6. When the drill is reground ensure that all wear is removed and check that the correct point geometry is produced. Always keep drills sharp; frequent regrinding is good economy.

When drilling a particular material at a given speed and feed, the drill's performance is governed by its quality and the following other important factors:

- MATERIAL BEING DRILLED
- DEPTH OF HOLE
- THROUGH OR BLIND HOLE
- COOLANT USED
- CONDITION OF THE MACHINE
- MACHINE POWER CAPACITY
- CHOICE OF TOOL HOLDING
- STABILITY OF WORK HOLDING
- 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

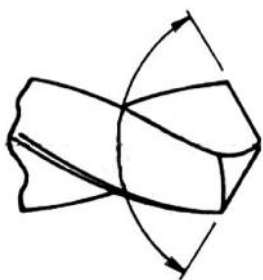
12. CHIP SHAPE CHANGES WHEN DRILLING

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



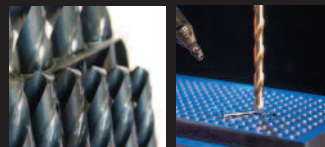
118° Conventional Point

- General use
- Not self centering
- For stationary drills
- performs better in softer materials than hard metal



135° Split Point

- Self centering (won't walk)
- For portable drills
- For harder materials
- Requires less force than 118°



Material Application Chart

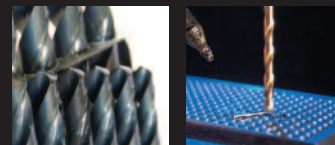
Material	Carbon Steel			Alloyed Steels			Steel Drop Forgings Heat Treated			Grey Cast Iron		
Level	Low	Medium	High							Soft	Medium	Hard
Hardness Brinell	85-125	125-175	175-225	<200	200-300	>300	330-370	370-420	>420	85-125	125-175	175-225
Hardness RC	-	1-9	9-22	<16	16-39	>39	35-40	40-44	>44	-	1-9	9-22
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 - (LEFT HAND)	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												

CHAMPION

TECHNICAL Drills

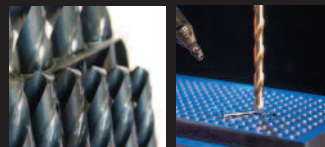


Material Application Chart

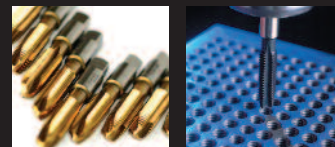
Material Level	Titanium			Stainless Steel			Steel		Steel		
	Ti75A	Ti150A-RS120	140A-RC-130B & Ti 6AL 4V	300	400	Matenistic 416, 420, 416 PlusK, 400F, 416SE 440F	Heat Resisting	Nimonic Alloys	Manganese	Spring Steels	Armor Plate
Hardness Brinell	300-440	300-440	300-440	120-220	200-300	135 thru 450	175-225	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 -	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 - (LEFT HAND)	Best						XL5	XL5		XL5LH		
	Better	XL5LH	XL5LH	XL5LH	XL5LH	XL5LH				705LH	XL5LH	XL5LH
	Good	705LH	705LH	705LH	705LH	705LH				705LH	705LH	
MECHANICS -	Best									XM28		
	Better	XL28	XL28	XL28	XL28	XL28	XL28	XL28			XL28	XL28
	Good	XM28	XM28	XM28	XM28	XM28	XM28	XM28			XM28	XM28
3/8 SHANK -	Best									XL38		
	Better	XL38	XL38	XL38	XL38	XL38	XL38	XM38		XG38	XL38	XL38
	Good	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	.0240	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	.0980	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

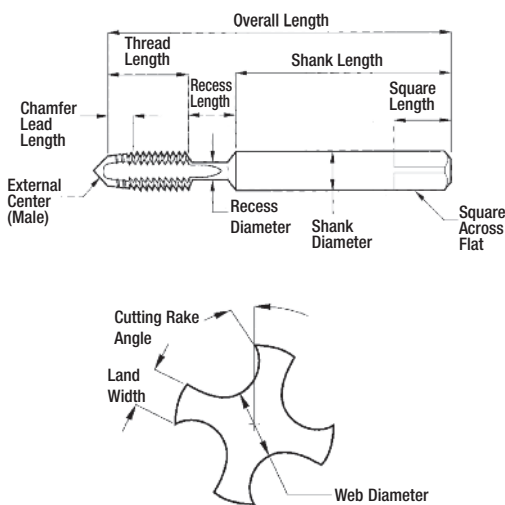
Spiral point taps

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.

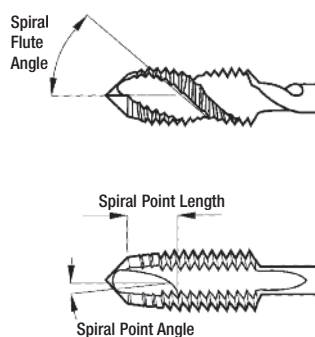
General hints on Tapping

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 moutinging".

Tap Nomenclature

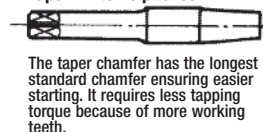


Spiral Tap Nomenclature



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

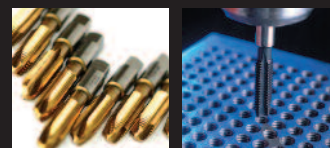


The most common chamfer for use by hand or machine in through or blind holes. This chamfer is more efficient than a bottoming chamfer

Bottom - 1 to 2 pitches

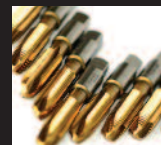


For threading close to the bottom of blind holes, the bottoming chamfer is the least efficient chamfer available.



Trouble Shooting / Taps

TROUBLE	PROBABLE CAUSES	REMEDY
Breakage	Hole too small Tap Hitting Bottom Misalignment Tapping too deep Dull tap Cramped condition	Use correct drill size Consult Tap Drill Chart Correct adjustment Exercise more care Use positive reverse Drill hole deeper 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	5/8-11	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
	O	69	1-1/2-12	1-13/32"	80
				1-27/64"	66

Metric Tap Drill Sizes

Tap Size	Tap Drill Size	Prob % of Thread	Tap Size	Tap Drill Size	Prob % of Thread
1.6x.35	1.25mm	69	9.0x1.25	7.75mm	73
1.8x.35	1.45mm	69	10x1.5	8.50mm	71
2.0x.4	1.60mm	69		Q	75
	52	66	10x1.25	8.70mm	73
2.2x.45	1.75mm	70		11/32"	71
2.5x.45	2.05mm	69	11x1.5	9.50mm	70
	46	67		3/8"	71
3.0x2.5	2.50mm	68	12x1.75	10.20mm	74
	40	70		Y	71
3.5x6	2.90mm	68	12x1.25	10.80mm	67
	33	72		27/64"	72
4.0x.7	3.30mm	69	14x2.0	12.00mm	72
	30	73		15/32"	76
4.5x.75	3.70mm	74	14x1.5	12.50mm	71
	26	70	16x2.0	14.00mm	72
5.0x.8	4.20mm	69		35/64"	76
	19	68	16x1.5	14.50mm	71
5.5x.9	4.60mm	68	18x2.5	15.50mm	73
	14	67		39/64"	74
6.0x.75	5.30mm	74	18x1.5	16.50mm	70
	4	73	20x2.5	17.50mm	73
6.0x1.0	5.00mm	70		11/16"	74
	9	71	22x2.5	19.50mm	73
7.0x.75	6.30mm	74		49/64"	75
	D	72	24x3.0	21.00mm	73
7.0x1.0	6.00mm	70		53/64"	72
	15/64"	73	27x3.0	24.00mm	73
8.0x1.25	6.70mm	74		15/16"	78
	17/64"	71	30x3.5	26.50mm	74
8.0x1.0	7.00mm	69		1-3/64	73
	J	66	33x3.5	29.50mm	74
				1-11/64"	72

Pipe Tap Drill Sizes

Tap Size	NPT Tap Drill	NPS Tap Drill
1/16-27	D	1/4"
1/8-27	Q	11/32"
1/4-18	7/16"	7/16"
3/8-18	9/16"	37/64"
1/2-14	45/64"	23/32"
3/4-14	29/32"	59/64"
1-11-1/2	1-9/64"	1-5/32"
1-1/4-11-1/2	1-31/64"	1-1/2
1-1/2-11-1/2	1-47/64	1-3/4
2-11-1/2	2-13/64"	2-7/32
2-1/2-8	2-5/8"	2-21/32"

TECHNICAL

Carbide Burs

Carbide Tipped Hole Cutters



Carbide Bur Application & Speed Recommendations

SOLID CARBIDE BUR APPLICATION INFORMATION

Material Check List	Suitability	
	Double Cut	Non Ferrous
Aluminum		YES
Brass	YES	YES
Bronze	YES	
Cast Iron	YES	
Copper		YES
Carbon Fiber		YES
Fiberglass	YES	
Inconel	YES	
Magnesium		YES
Plastics	YES	
Hard Rubber	YES	
Steel - 45-55Rc	YES	
Steel - 55-60Rc	YES	
Steel - Carbon	YES	
Steel - Nickel Chrome	YES	
Steel - Stainless	YES	
Steel - Weldments	YES	
Titanium	YES	
Zinc		YES

SOLID CARBIDE BUR SPEED RECOMMENDATIONS

Bur Diameter	Recommended Cutting Speed (RPM)	Maximum Cutting Speed (RPM)
1/16	60,000 - 90,000	100,000
1/8	40,000 - 70,000	90,000
3/16	35,000 - 60,000	80,000
1/4	30,000 - 50,000	70,000
5/16	20,000 - 40,000	68,000
3/8	20,000 - 40,000	66,000
7/16	15,000 - 40,000	58,000
1/2	15,000 - 40,000	50,000
5/8	12,000 - 25,000	40,000
3/4	10,000 - 20,000	33,000
1	7,500 - 20,000	25,000
1-1/8	7,000 - 13,000	20,000
1-1/2	5,000 - 10,000	17,000
1-3/4	4,500 - 9,000	14,000
2	4,000 - 8,000	12,500

General Information on Bur Use

1. Do not use carbide burs in a portable drill motors. Portable Drill motors run at much lower speeds.
2. It may be recommended to adjust the bur speed as shown under maximum recommended operating speeds for optimum performance.

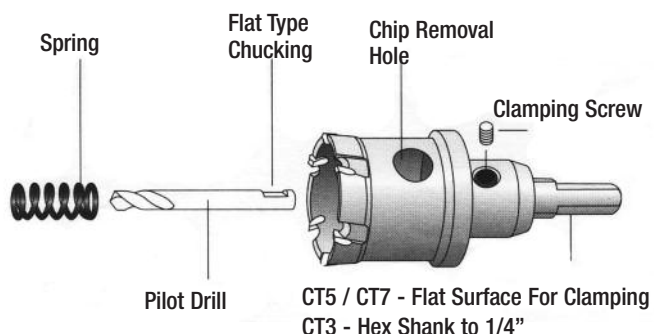
Use slower speeds for harder materials.
Use higher speeds when using small burs.
Use slower speeds when using long series burs.

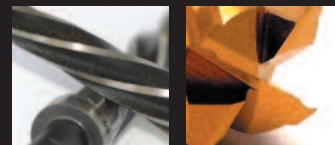
3. Running burs below recommended speeds may cause chipping.
4. Do not use worn out tools and collets as they will also cause chipping.
5. Running burs too fast will cause teeth to wear prematurely.
6. Apply constant pressure and movements when in use.

Carbide Tipped Hole Cutters - CT3 / CT5 / CT7

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



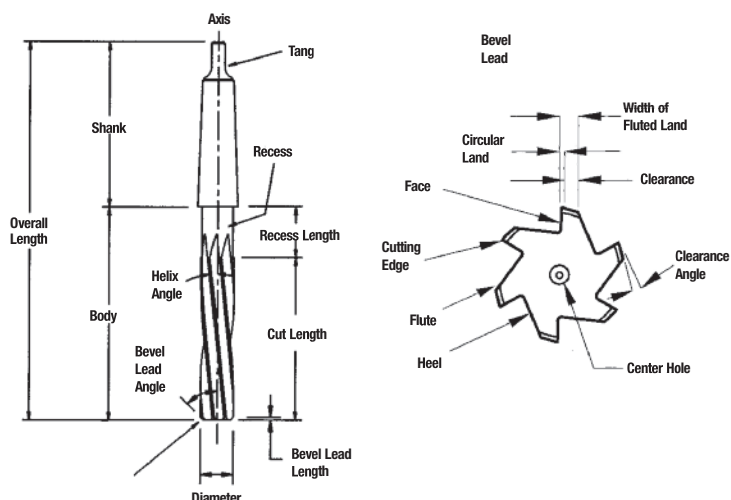


Technical Tips / Reamers

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 / End Mills

General Hints on Milling

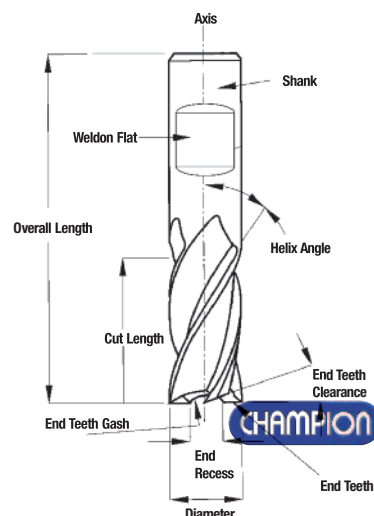
A liberal supply of cutting liquid (emulsion) should be used.

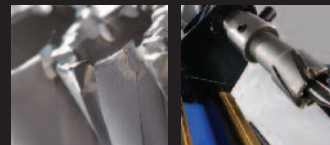
Adaptation to the machine tool

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 $< 3/8"$.





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 (sfm)	Cutter Dia. Inches	Surface Feet per Minute									
					10	20	30	40	50	60	70	80	90	100
Aluminum	Wrought & Cast	*30-150	500-1000		Revolutions per minute (RPM)									
	Die Cast	*40-125	450-600	.7500	51	102	153	204	255	306	357	407	458	509
	360.0, 380.0	*40-125	450-600	.8750	44	87	131	175	218	262	306	349	393	437
	383.0, 413.0	*40-125	75-100	1.0000	38	76	115	153	191	229	267	306	344	382
Brass & Bronze		-	300-600	1.1250	34	68	102	136	170	204	238	272	306	340
Cast Iron	Soft	120-150	75-125	1.2500	31	61	92	122	153	183	214	244	275	306
	Medium Chilled	160-220	50-100	1.3750	28	56	83	111	139	167	194	222	250	278
Malleable Iron	Pearlitic	110-160	100-130	1.5000	25	51	76	102	127	153	178	204	229	255
	Temperature Martensite	160-220	75-100	1.6250	24	47	71	94	118	141	165	188	212	235
		200-320	30-60	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	200-230	80-170	60-80	2.0000	19	38	57	76	95	115	134	153	172	191
	Monel 400-404	115-240	35-50	2.1250	18	36	54	72	90	108	126	144	162	180
	Monel K500, 502	150-330	20-40	2.2500	17	34	51	68	85	102	119	136	153	170
Steel Free Machining	Resulphurized/Leaded	-	105-130	2.3750	16	32	48	64	80	96	113	129	145	161
Carbon Steel	10xx, 12xx, xx10, xx20	125-160	90-110	2.5000	15	31	46	61	76	92	107	122	138	153
Steel Alloys Soft		170-210	65-90	2.6250	15	29	44	58	73	87	102	116	131	146
Steel Alloys Medium		220-250	55-75	2.7500	14	28	42	56	69	83	97	111	125	139
Steel Alloys Hard		260-300	35-50	2.8750	13	27	40	53	66	80	93	106	120	133
		325-400	30-40	3.0000	13	25	38	51	64	76	89	102	115	127
Tool Steel		210-250	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	40-55	3.3750	11	23	34	45	57	68	79	91	102	113
		250-300	30-45	3.5000	11	22	33	44	55	64	76	87	98	109
Stainless Steel Ferritic	430/405 430F	135-185	90-125	3.6250	11	21	32	42	53	63	74	84	95	105
Stainless Steel Austenitic	Lower BHN	135-185	55-75	3.7500	10	20	31	41	51	61	71	81	92	102
	Higher BHN	225-275	40-70	3.8750	10	20	30	39	49	59	69	79	89	99
Stainless Steel Nitronic (Low Alloy)		275-325	25-35	4.0000	10	19	29	38	48	57	67	76	86	95
Stainless Steel Matensitic	By Hardness Range	135-185	70-125											
		185-240	45-110											
		275-325	35-55											
		375-425	30-55											
Stainless Steel Hardening	Precipitation	150-200	45-55											
	By Hardness Range	275-325	40-50											
		17-4 PH	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.

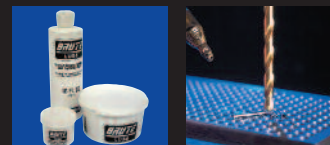
Machine Maintenance

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



BruteLube Material Data 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.

NOTE: CONTENTS OF BRUTELUBE ARE NOT LISTED AS A CARCINOGEN BY NTP OR IARC. CONTENTS ARE NOT OSHA REGULATED.



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
 516-536-8200
 Emergency phone number
 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