



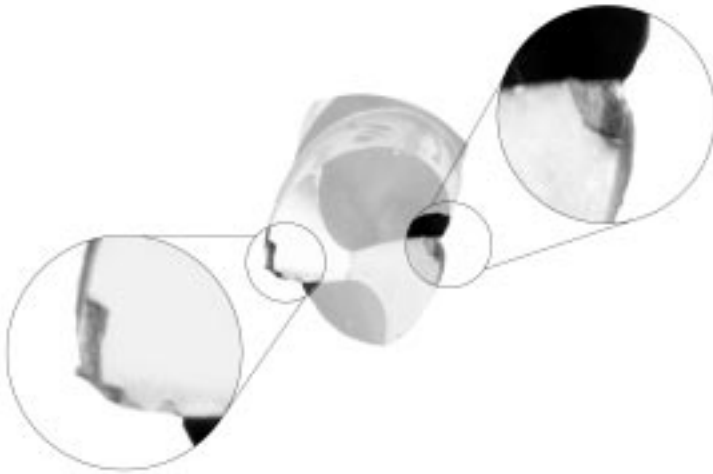
Warranty and Evaluation Procedure

Champion Cutting Tool Corp. Warranty Policy

Champion products are engineered for high production and extended life. Misuse will lead to shortened life and inferior results. Champion Cutting Tool Corporation will replace or issue credit, at our discretion, any product we supply which proves defective in material and/or workmanship.

Please call our customer service department for a Returned Goods Authorization number for any product that failed due to suspected manufacturing defect, at 1 800 645-3957.

Twist Drills are designed to create new holes. Drill geometry is designed to spread the cutting load from the center of the point outward. They are not designed to enlarge pre-existing holes. When force is exerted on just the outer cutting lips, which is the weakest part of the drill, the tool will often chip, and fail. *Champion's SA80 tapered maintenance reamers (also referred to as car reamers) have been engineered exclusively to enlarge existing holes and are the proper tool for this application.* Drills that have been abused will not be warranted.



Chipped outer cutting lips

Most often occur when the twist drill is used to enlarge a hole. A telltale sign of this type of abuse is that little or no wear appears at chisel edge. This is most common with Silver & Deming drills, and large diameter jobber drills.

Common causes of chipped lips

- Drill used to enlarge an existing hole
- Often results from drilling a pilot hole too large.
- Pilot holes should never be drilled prior to using a split point twist drill.

Taps

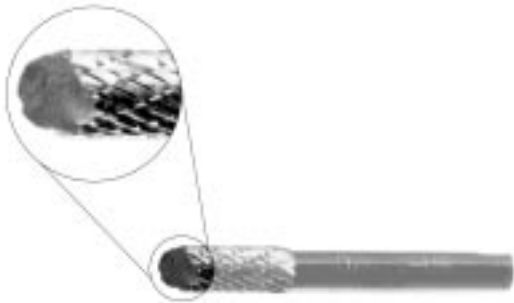
Carbon steel and high-speed taps are designed to cut internal threads. Because only a few teeth do all of the work, and the actual cutting surfaces are very small, it is important that special care be taken when tapping. Chipped teeth are the most common type of tap damage, and occur from a variety of abuses.

Taps that have been abused will not be warranted.

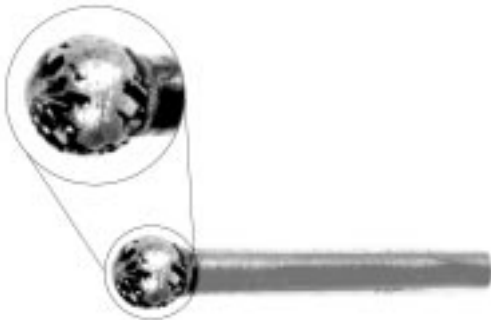


- Lubrication is very important when tapping, and it is critical that the lubricant reach the cutting lands of the tap at all times, especially at the point, or chamfer.
- Spiral point taps are designed for "through holes" and will pack with chips if used in "blind holes", resulting in chipped teeth.
- Drilling a hole that is too small can put undue strain on a tap, and often results in chipping. Drilling a hole with a dull drill will work-harden the material, and can also result in broken or chipped taps.

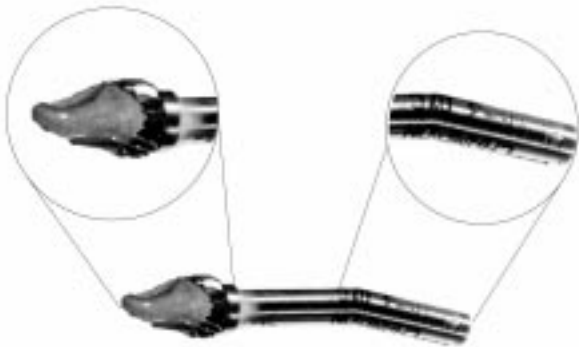
Carbide Burs are designed to smooth welds and rough edges at very high speeds, usually 20,000 r.p.m. and faster! Carbide is used because it is extremely hard. This enables it to cut hard and abrasive steels, cast irons and other materials, such as abrasive resins. The trade-off is that carbide is brittle and can chip if not used carefully. Please consult our Bur Speed Chart below for specific recommendations. Burs that have been abused will not be warranted.



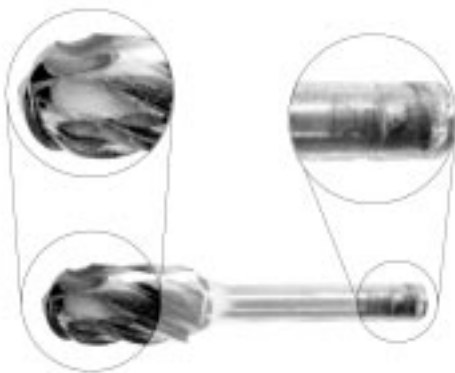
- **Chipped cutting edges, chipped flutes**
Speed (r.p.m.) too slow. Often symptomatic of being used in an electric portable drill, rather than a high speed die grinder. Burs must be used in die grinders. It is preferable to use burs in air grinders which are lightweight. Air die grinders enable the user to use finesse and “touch” when grinding. Electric grinders are heavy, and do not give the user “good feel” for the work. The result is often a broken bur.



- **Clogged flutes**
Clogged flutes often result from using the incorrect bur for the job. Pictured is a standard double cut bur used to smooth aluminum, which is gummy. An NF (non-ferrous) bur should have been used to clear the chips efficiently.



- **Bent shanks**
Grinders which are accidentally dropped will cause shanks to bend. Excessive operator pressure, especially when using heavy electric die grinders, will often cause bent bur shanks. This is generally a good indication that the bur is well-worn, and the operator should use a new bur.



- **Incorrect Tool Selection**
NF burs are designed for use only on non-ferrous materials like wood, plastics, brass, aluminum and lead. They should never be used on steel, iron or sheet metal. Excessive chipping, shown here, indicates these burs were used on the wrong materials.

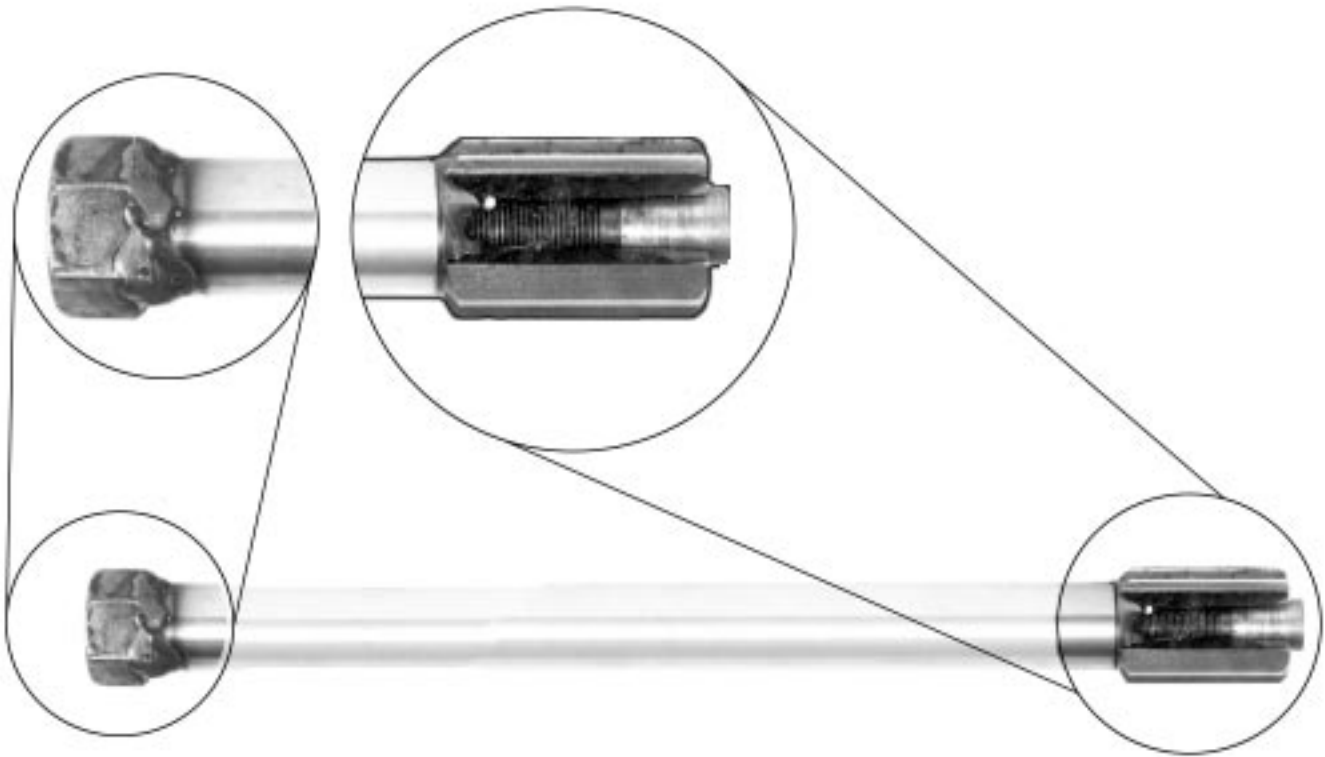
Bur Speed Chart		
Bur Diameter	General Purpose	Stainless Steels
1/16"	30,000 – 50,000	45,000 – 75,000
3/32"	25,000 – 40,000	38,000 – 60,000
1/8"	20,000 – 35,000	30,000 – 53,000
3/16"	16,000 – 25,000	24,000 – 38,000
1/4"	14,000 – 22,000	21,000 – 33,000
5/16"	12,000 – 20,000	18,000 – 30,000
3/8"	11,000 – 18,000	17,000 – 27,000
7/16"	10,500 – 17,000	15,800 – 26,000
1/2"	10,000 – 16,000	15,000 – 24,000

Modified Tools

The user of this expansion reamer welded a structural nut to the shank. The flutes broke when it was used in an impact wrench. Expansion reamers are precision tools and are designed for use in fixed reaming applications, such as lathes and drill presses.

Champion's XL86 series bridge reamers feature an exclusive solid hex shank design, which allows them to be driven with an impact socket when used with pneumatic and electric power tools.

Tools that have been modified will not be warranted.



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