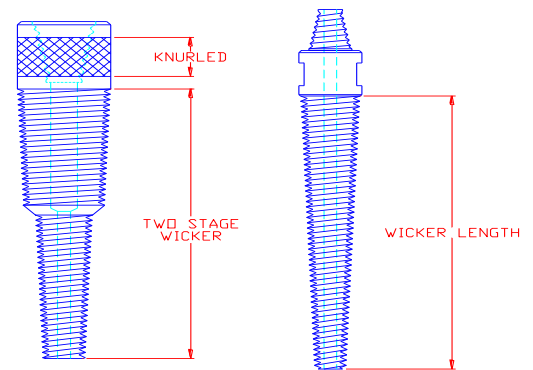


Fishing Tools

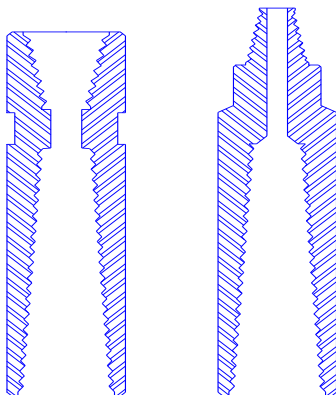
Taper Taps: Mills Machine stocks a variety of **casehardened, heat-treated taper taps designed to thread into the ID of the object (fish) lost down the hole.**

These tools are stocked with standard tool joints to meet your specific requirement. Our experience has taught us that when a taper tap is required it's needed immediately. We are prepared to meet your emergency requirements. We also, stock a variety of subs to adapt our taper taps to your drill string.



Our standard stock sizes are designed to pick up most standard small to large drill rod sizes. We also offer a quick turnaround for **custom manufactured tools to meet your specific requirements** with options consisting of breakout flats, right-hand or left-hand wickers, any thread, special lengths, oversize guides, mill guides or wall hooks.

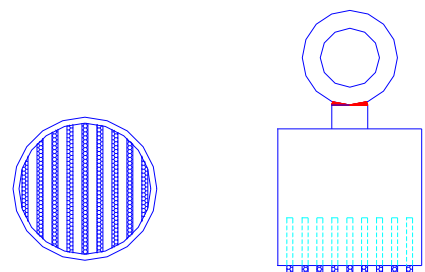
Information of taper taps is on page 5-13 and an application questionnaire on taper taps is at the back of this section.



Overshots: Overshots (rotary die collar) are manufactured like taper taps except they are **made to go over the OD of the object lost down hole** (pages 5-14). Like taper taps, overshots are **stocked in a variety of sizes** and connections so we are able to **ship immediately**. Overshots and taper taps share the same options.

Information of overshots is on page 5-14 and an application questionnaire is at the back of this section.

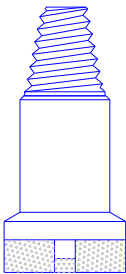
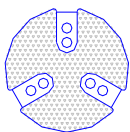
Fishing Magnets: When taper taps and overshots cannot be used fishing magnets may be the answer to getting your fish out of the hole. Several sizes are carried in stock for your emergency needs. We need to know the ID of the pipe or open hole and the approximate weight of the object. Magnets can lift a specific weight only if there is full contact with the magnet surface. Round or dirty objects reduce the pulling capacity of the magnet. **Circulating magnets that flush the cuttings out of the way are quoted upon request.**



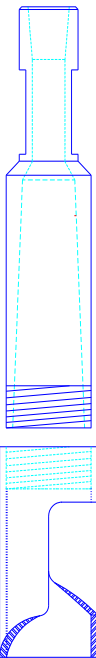
Sizes of fishing magnets are listed on catalog page 5-15 of this section.

"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"

Fishing Tools



Junk Mills: Our junk mills, described in detail on catalog page 5-16, are **designed to eliminate steel objects that cannot be fished** by milling them up with a special carbide coated face.

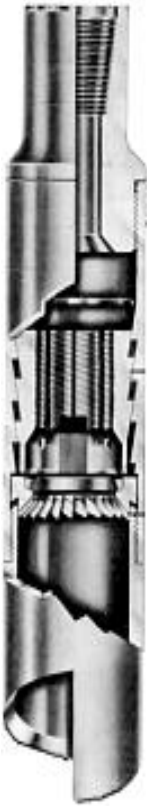


OVERSHOT W/ WALL HOOK

We also offer a variety of other fishing tools and accessories that range from simple to complex fishing tools and their accessories. The releasing and circulating overshot is the strongest external catch fishing tool designed to let go of the fish if it becomes stuck in the hole. When the pipe is imbedded into the sidewall of the hole, a wall hook may be used to catch and guide it into the overshot. If the hole is larger than the fish an oversize guide may be required to center the overshot or taper tap in the hole. Multi-step fishing tools can catch different sizes.



Internal releasing spears are available and work just like the releasing overshot designed to release the fish if it becomes stuck in the hole. These spears are sized to the specific pipe being used and normally require a little longer lead-time.



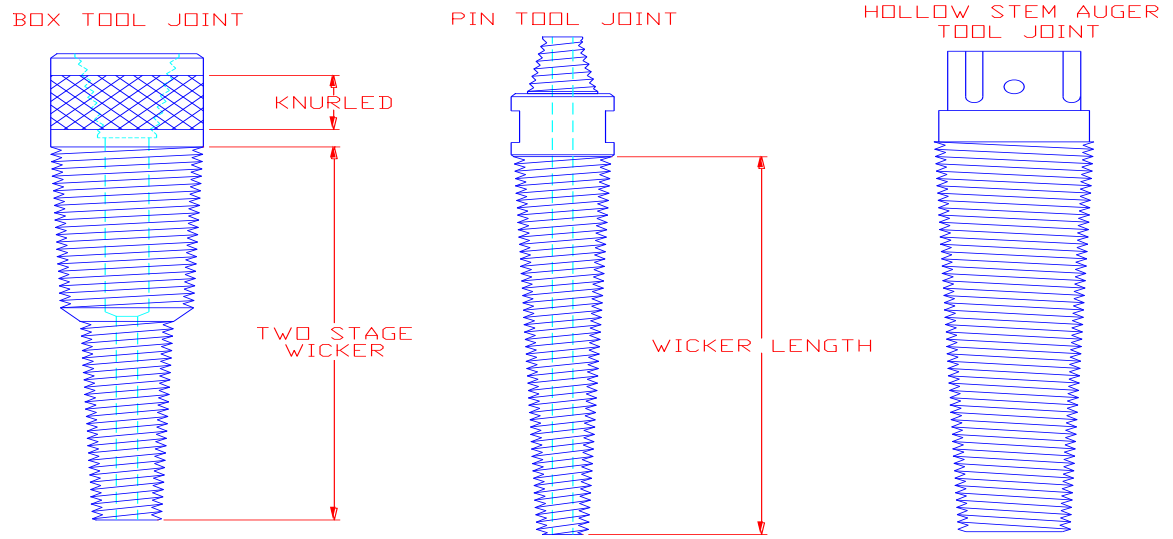
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Taper Taps



Mills stocks a variety of **casehardened, heat-treated** taper taps with standard tool joints to meet your specific requirement. Heat-treating toughens the taper tap making it difficult to damage and easier for you to use. When it takes a special sub to match your tool joint with the taper tap we have in inventory, we can make that sub immediately.

We **stock** several different sizes with standard connections. We also manufacture to your **special requirements** with options of breakout flats, right-hand or left-hand wickers, any thread, special length, oversize guides, mill guide or wall hooks.

Also carried in stock are **Internal Auger Fishing Tools** (A taper tap with left-hand wicker for retrieving hollow stem augers).

Due to the variety of auger tool joints, we stock the heat-treated tap without tool joints and add the tool joint when your order is received.

The carbonized threads on taper taps are extremely hard and brittle. Be extra careful to avoid impact. In use slowly lower the tool down the hole until the fish is engaged. Then slowly rotate the tool while applying some down pressure. Mark the drill rod to tell how far into the fish you have penetrated.

Taper taps can be reworked by annealing, re-threading the tap and then heat treating the re-threaded area. We will quote you pricing as necessary.

Please use the application questionnaire for Taper Taps at the back of this section.

"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"

Die Collar Overshot

The Mills Machine Overshot is a **rugged, external catch, fishing** tool that is economical and simple to use. Overshots are manufactured like taper taps except they go over the OD of the fish. Like taper taps, overshots are **stocked** in a variety of sizes and standard connections so we are able to get something to you rapidly.

To build an overshot from scratch takes four to six days due to the heat treat process necessary to harden the teeth. It is speedier to build a sub to fit a stocked overshot and match your needs than to build the entire product.

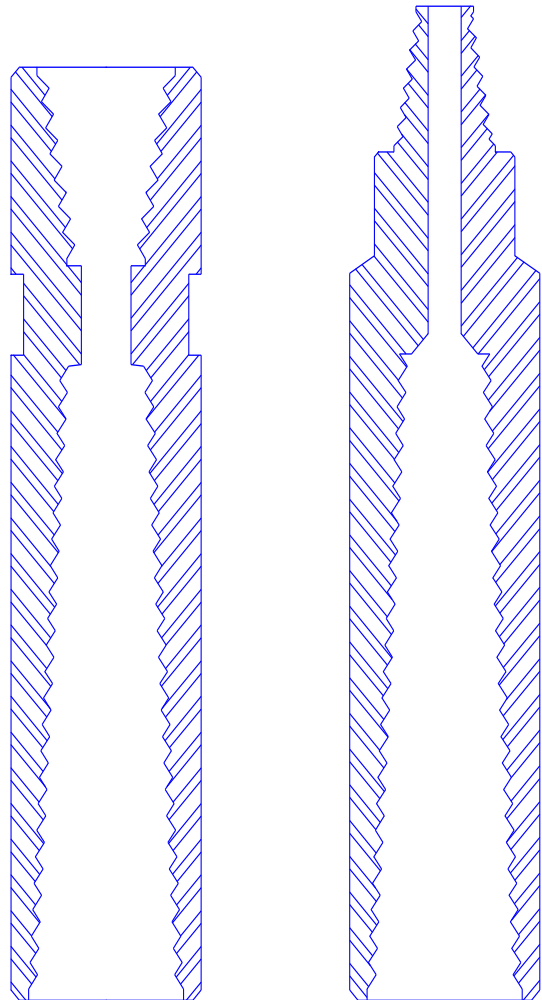
We can build the overshot with oversize guides to more easily catch the fish or with a wall hook to snag behind a fish leaning against the drill hole wall.

Your Mills sales representative will work with you to get the fastest solution to your problem at the lowest cost.

The carbonized threads on overshots are extremely hard and brittle. Be extra careful to avoid impact. In use, slowly lower the tool down the hole until the fish is engaged. Then slowly rotate the tool while applying some down pressure. Mark the drill rod to tell how far into the fish you have penetrated

Overshots can be reworked by annealing, re-threading the overshot and then re-heat treating the re-threaded area. We will quote you pricing as necessary.

Please use the application questionnaire for overshots at the back of this section.



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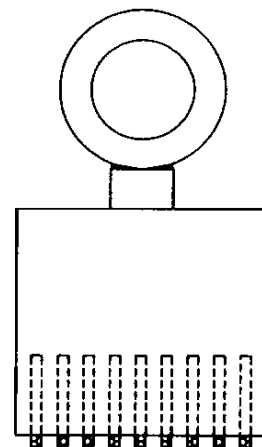
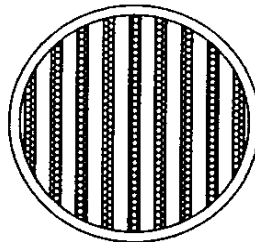
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Fishing Magnets

This **Magnetic Fishing Tool** is an Alnico permanent magnet (never needs recharging) that can be lowered into the hole and magnetically latch onto the fish. We recommend this tool for retrieving small objects only! To achieve maximum lift requires a flat clean surface, which is rarely found down the hole.



Magnet sizes that we normally keep in stock are listed below but other sizes are available upon request.

3 1/2 Diameter	150 # lift*
4 1/2 Diameter	350 # lift*
5 1/2 Diameter	600 # lift*
6 1/2 Diameter	800 # lift*

The magnet is lowered into the hole with wire cable or rope. The inside diameter of the eyebolt is 1 1/4.

*** A guaranteed lift capacity is not feasible except on a flat, clean magnetic surface at least 1/4 thick.**

The magnet is shipped with a flat steel plate on the magnetic surface. This protection plate must be removed for use and returned to the magnet for storage.

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Junk Mills

If you cannot fish it out or if you run into concrete and rebar, it is time for the Junk

Mill. Mills Machine manufactures these rugged mills from 4142 heat treated steel and a **composite matrix of large chunks of cutting grade or milling grade, crushed tungsten carbide** rod 1 1/2 to 2" thick on the face.

With this mill you can eliminate anything in your way - rock, drill pipe, casing, tool joints, reamers, and rock bits. To order please specify:

Size O.D. _____

Object to be Milled _____

Footage to be Milled _____

Tool Joint _____

Flats or Knurl _____

Face Structure: Flat, concave, convex, tapered or pilot reamer face.

Circulation _____

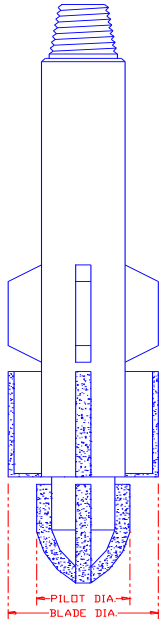
Stabilizer ribs _____

Fishing neck dimensions _____

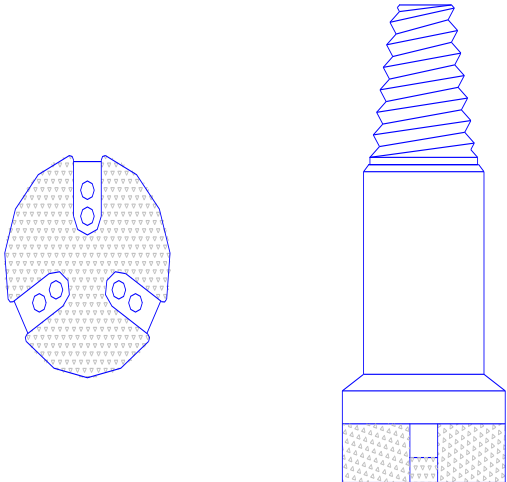
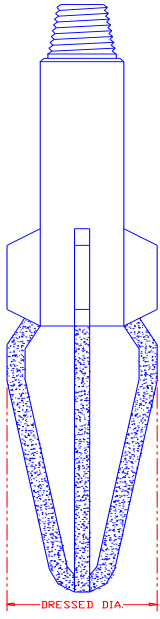
Hole size or if inside casing, casing size _____

These mills can be reworked several times to lengthen their life. Please call for rework prices. If its down hole and you need to get rid of it, the Junk Mill is the tool to use.

PILOT MILL



TAPER MILL



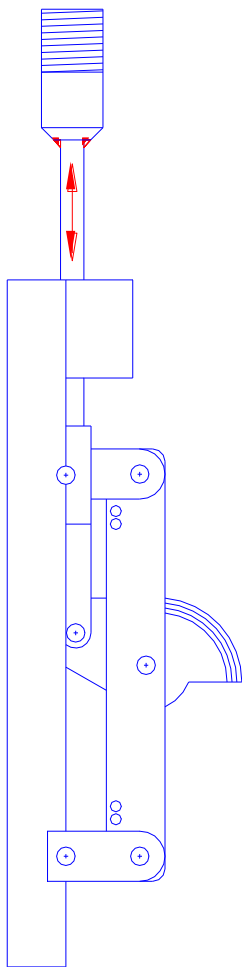
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Casing Perforators



The casing perforator (known as a Mills Knife) is used to perforate pipe or casing by punching vertical slots through the casing wall. This tool is designed to cut through steel casing with a maximum wall thickness of .300 and requires a two-line rig. The main wire line is for holding the tool in the hole and plumbing black pipe is used to lower the knife into the hole and trip the perforator blade. The secondary line is a wire line or bailer line to support the knife while the pulling rods are lifted.

As the knife is lowered into the hole the pulling rods are added by joint until the desired depth is reached. A location mark is made on the pipe to show the position of the punched hole. The rod is pulled up with a 3000 to 4000 pound force to extend the knife blade and pierce the pipe. The blade penetration of the steel is felt as a slight jerk through the rod. Lowering the rod releases the knife. The pipe is then rotated the desired degrees if a series of holes is required at that depth.

It is recommended that you practice near the surface to see and feel the operation of the knife before going down hole. Pulling too hard or pulling after penetration can split the pipe. After the perforations are made at the lowest level the drilling rod is raised to the next desired level. This prevents fowling of the wireline.

The top connection is a 2 inch NPT pin. The standard perforator is for 6 inch I. D. casing with no more than .300 wall thickness. Backing Shoes are available that expand the 6" perforating knife to 8" or 10". The 12" perforator can handle a .375 wall and also has backing shoes to expand out to 14 or 16 inches. Other sizes can be quoted upon request.

"PLEASE CALL FOR CUSTOM OPTIONS AND OTHER ACCESSORIES"

Application Questionnaire

Taper Tap

Taper Tap

Company _____ Date _____
Address _____ Phone _____
City, State Zip _____ Fax _____
Contact _____

Sketch:

Quantity **: _____
Object to be Retrieved **: _____
Object ID** & OD _____
Top Connection **: _____ Pin Box

****Must fill out these items. Fill out more if possible or custom product requested.**

Depth to fish _____ Weight of fish _____

Length: Shoulder to Shoulder _____

OR Overall _____

Top Neck: OD _____ ID _____ Length _____

Knurl

Breakout Flats:

Two Sided Four Sided

Flat Length _____ Location _____

Dimensions: Flat to Flat _____

OR Depth per Side _____

Wicker: Large OD _____

Small OD _____

Length _____

RH (Standard) OR LH

Special: Oversize Guide _____

Wall Hook _____

Other _____

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Application Questionnaire

**Die Collar Overshot
Overshot**

Die Collar

Date _____

Company _____

Phone _____

Address _____

Fax _____

City, State Zip _____

Contact _____

Quantity **: _____
Object to be Retrieved** _____
Object ID & OD** _____

Sketch:

Top Connection **: _____ Pin Box

**** Must fill out these items. Fill out more if possible or custom product requested.**

Depth to fish _____ Weight of fish _____

Length: Shoulder to Shoulder _____

OR Overall _____

Top Neck: OD _____ ID _____ Length _____

Knurl

Breakout Flats:

Two Sided Four Sided

Flat Length _____ Location _____

Dimensions: Flat to Flat _____

OR Depth per Side _____

Wicker: Large OD _____

Small OD _____

Length _____

RH (Standard) OR LH

Special: Oversize Guide _____

Wall Hook _____

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Other _____

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