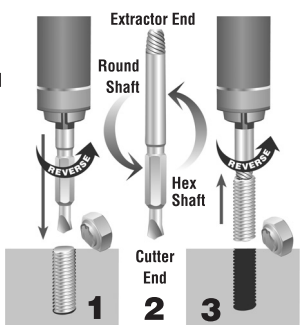


Alden POWER DRIVEN
microGrabit®
 Remove Broken Bolts &
 Damaged Screws



WARNING: To prevent serious eye injury, always use protective eye wear when working with or near cutting tools.

Caution: To prevent personal injury or product damage, read all the following instructions before first use of this tool.



- Obtain a corded or battery powered variable speed reversible power drill (1/4" or 3/8"), and set and keep it in reverse (counterclockwise) for all extractor operations. Note: Impact or high horsepower drills may damage extractors.
- If you are sure of the screw (bolt) size, choose the same size extractor. If you have to measure the screw diameter, use the table below to choose the correct extractor.

OPERATING INSTRUCTIONS

See Figure 1:

1. Unplug drill. Insert round shaft into drill chuck and tighten chuck jaws securely.
2. Plug drill in, make sure drill is set for reverse (counterclockwise).
3. Place tip of cutter on the center of the broken screw (bolt) and begin drilling at very low speed, approximately 70 – 100 rpm. When drilling, never let cutter revolve against the bolt without cutting.
4. After you have started the hole, stop drilling and make sure that you are drilling into the center of the broken screw. If you are not centered, angle the cutter tip toward the center of the screw and drill until the hole is on center. The most important concern in extracting a broken screw is to drill the hole on center and straight.
5. Once you are satisfied you are drilling on center, hold the drill parallel to the axis of the broken bolt and continue drilling at very slow speed. DO NOT drill at medium or high speed.
6. Stop drilling every 10 seconds, or 1/16" (2mm) of depth, to clean out chips and add cutting oil to the hole. Verify each time that you are drilling on center and straight.
7. Stop drilling when you reach the point where hex shaft begins.
8. Clean out chips from hole and apply penetrating oil around the edges of the broken screw to help loosen it.

See Figure 2:

Unplug drill. Remove the extractor from the drill chuck, turn it around, insert hex shaft into chuck jaws and tighten securely.

See Figure 3:

1. Plug drill in. Holding the drill firmly with both hands, place extractor end into the drilled hole. Apply pressure to wedge the extractor end into the hole. Then slightly touch down on the drill trigger while applying pressure toward the broken screw (bolt) – the screw is automatically extracted!

Use only extremely low speed when extracting, approximately 30 to 70 rpm.

2. To remove extractor from extracted bolt, firmly tighten screw in a vise. Using a wrench on the hex shaft, remove the extractor by turning it clockwise.
3. If drill stalls during extraction, hand removal of bolt is possible.
 - a. Leave extractor lodged in bolt, loosen chuck, and remove drill from extractor.
 - b. Look to see if you have drilled exactly on center. If so, use a wrench on the square collet head. Turn it counterclockwise to remove the broken bolt. Do not apply excessive force, or you may damage the extractor.
 - c. If you get a lot of resistance when turning the wrench, you may have drilled off-center, and the extractor cutter is biting into the surrounding metal. You may be in an impossible situation. If so, remove the extractor by turning the wrench clockwise.

Helpful Hints: Before drilling, center punch screw to help loosen the bolt or screw. Use penetrating oil or heat before drilling to help loosen rusted or chemically bonded screws.

	Screws	Bolts
Micro Grabit 1*	No.0 - No.2	No.5 - No.6 (3mm)
Micro Grabit 2*	No.2 - No.4	No.8 (4mm)
Micro Grabit 3*	No.4 - No.7	No. 10 (5mm)
Micro Grabit 4	No. 8 - No. 12	1/4-in. (6mm)

* Recommended for 1/8" rotary power tools & power screwdrivers.

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Patented: USA #6,761,089; 5,251,516; D-340,184.

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