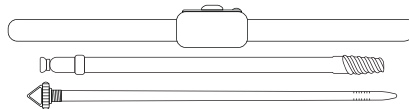


INSTRUCTIONS

▲ Keep this sheet for your records.

Using an Increment Borer

The Increment Borer is essential for extracting a core of wood from trees, logs, poles or timbers. The core extracted is used for many purposes including determination of growth rate, age, tree soundness, penetration of chemicals in the wood treating business, and specific gravity studies of wood.

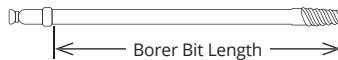


An increment borer consists of three parts: a handle, a borer bit, and an extractor. When not in use, the borer bit and extractor fit inside the handle and form a compact unit. Most increment borers have Teflon® coated bits. This coating helps reduce friction, protects against rust, and keeps the bit clean to extend bit life.

Making the Right Selection

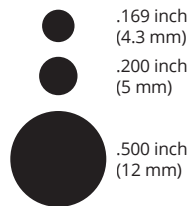
There are three things to consider when you choose an increment borer. They are length, diameter, and style.

Borer bit length depends on the size of the trees you will be boring. Length is



measured from the tip of the threads to the end of the round section of the borer bit. This is the maximum depth the bit will penetrate.

Core Diameter of the wood sample is determined by the inside diameter of the opening at the threaded end of the bit. .169" is commonly used for general forestry use, .200" for wood preserving testing and .500" for large amounts of wood for qualitative analysis.



2- or 3-Thread style is a matter of personal preference. A 2-thread borer has two threads on the cutting edge of the bit, each originating 180° apart.

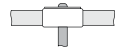
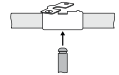
A 3-thread borer has three threads, each originating 120° apart. The 3-thread borer, due to its higher pitch, will penetrate the wood deeper per revolution than a 2-thread and also produce less friction because more

threads are pushing against the wood. It is important to remember, the ease at which a borer penetrates wood depends on wood hardness, friction properties and capability/strength of the user.

Taking an Increment Core

Follow these seven steps to take a core:

1. Remove the borer bit and extractor from inside the handle. Place the extractor in a pocket of your cruiser vest for convenience and protection of the extractor.
2. Assemble the handle and borer bit by:
 - a. Pushing the locking latch away from the handle with your thumb
 - b. Inserting the square end of the borer bit into the handle, then
 - c. Returning the locking latch completely around the borer bit "collar."



You're now ready to start boring. However, we suggest you apply beeswax to the threads and shank before you begin.

3. Align the borer bit and the handle so that the bit will penetrate through or towards the center of the tree and at right angles to the tree. In any other alignment, the annual growth rings seen in the extracted core will be distorted and could result in erroneous growth rate analysis.



4. Place the borer bit threads against the tree (Fig.1), preferably in a bark fissure where

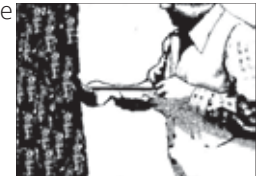


Fig. 1

the bark is thinnest. Hold the threads in place with one hand. With your other hand, push forward on the handle and simultaneously turn it clockwise until the bit threads penetrate the wood enough to hold the bit firmly in place.

PRODUCT SUPPORT

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If you need more information or some expert advice from an experienced professional, call our Product Support team.

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- Place both hands, palms open, on the ends of the handle and turn the handle clockwise



Fig. 2

until the bit reaches the desired depth (Fig. 2).

- With the bit at the desired depth, insert the full length of the extractor, concave side down



Fig. 3

(Fig. 3). Then turn the handle one-half turn counterclockwise to break the core from the tree and also to turn the extractor concave side up like this:

- Pull the extractor from the borer bit



Fig. 4

(Fig. 4). The core will be resting in the channel and held in place by the small "teeth" at the tip of the extractor. Before examining the core sample, promptly remove the borer bit from the tree. Clean it and place it and the extractor back in the handle.

CARE AND MAINTENANCE

Follow these suggestions to maintain the efficiency and extend the life of your increment borer.

Lubricate with Beeswax

A block of beeswax is provided with every increment borer. Penetration and removal of the borer bit will be easier if beeswax is liberally applied to the threads and shank before each boring.

Clean with WD-40

WD-40 is an excellent cleaner and rust preventative for an increment borer. It will also prevent sap acid-etching of the borer. Spray it on as well as inside the bit and on the extractor at the end of each working day. Wipe clean.

Be Quick!

Obtain your core samples as rapidly as possible. It's best to remove the bit from the tree even before examining the core sample. This will reduce the possibility of the bit becoming stuck or locked in the tree.

Avoid Compression & Tension Wood

Never bore into suspected compression or tension wood. To explain: a tree leaning towards the North will have compression wood on the North side. If you bore into compression wood, the bit could be locked into the tree by the force of the "compressed" wood. If you bore into the South side, you are boring into "tension" wood, where the ring width may not be representative. We recommend boring on the East or West side, or if possible, select another tree.

Increment Borer Sharpening

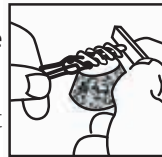
Increment borers become dull or nicked with use. A borer is dull if it does not easily engage the wood and if it will not cut a clean-edged hole when rotated on a sheet of paper.

How to Sharpen Borer Bits

See Increment Borer Sharpening Kit for stones described here.

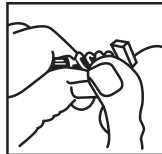
1. True Cutting Edge Using Pocket Stone

If cutting edge is uneven when placed lightly against a flat surface, it needs to be trued up. Place a few drops of oil on wide face of pocket stone. Hold borer bit steady on cork rest and pass stone back and forth across cutting edge, turning bit slightly after each pass. Repeat until true.



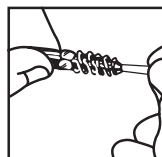
2. Sharpen Cutting Edge Using India Stone

Holding bit in left hand and India stone in right hand, slowly rotate bit away from you and against stone while holding stone parallel to and firmly on beveled edge of bit. Continue until sharp. If nicks are present, use pocket stone to work them out, then follow with the India stone.



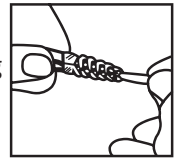
3. Hone Inside of Cutting Edge Using Conical Stone

Put a few drops of oil on conical stone and insert tip of stone into cutting end of bit until it occupies about 3/4ths of core hole. Very lightly rotate stone against inside of cutting edge, keeping the edge of the stone parallel to the long axis of the bit.



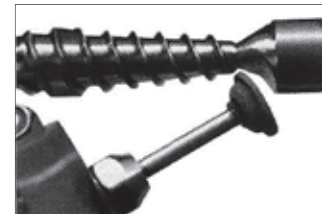
4. Hone Outside Beveled Portion of Cutting Edge Using Conical Stone

Hold borer bit with threads on cork rest and place just the tip of conical stone on and parallel to bevel. Use very light strokes back and forth over a small arc of beveled edge. Turn bit and repeat until entire edge has been honed. To test sharpening, cut circular holes in a sheet of paper.



Increment Borer Sharpening Kit

Includes everything needed to sharpen borers: India Stone to sharpen lead cutting edge; Conical Stone to sharpen inside cutting edge, outside beveled edge; Pocket Stone to "true" cutting edge, remove chips and nicks; can of Sharpening Stone Oil to lubricate, clean stones; and Cork to use as a work rest. To order, specify number 63399, Sharpening Kit.



PROFESSIONAL INCREMENT BORER REPAIR SERVICE

Extend the life of your increment borer. Have the cutting edge sharpened, threads reshaped near cutting tip, and nicks removed. Your bit will be returned to you in "like-new" condition. Nicks, chips and cracks greater than 1/16" deep cannot be repaired. For more information, call (800) 752-8460.