

## **Increment Borers**

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. They are 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 cleaner and extends the life of the bit.

### **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. For general forestry use, 0.169" is commonly used, 0.200" is used for wood preserving testing, and 0.500" is used for large amounts of wood for quantitative analysis.

Two 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 will engage the wood faster and easier than the 2-thread borer. A 3-thread borer will also turn easier inside the

tree. For each 360° turn of the handle, a 2-thread borer will penetrate deeper and come out of the tree faster than a 3-thread borer.

**To take an increment core, follow these simple steps:**

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 inside the handle, and then
  - c. returning the locking latch completely around the borer bit "collar".

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

3. Align the borer bit and the handle so that the bit will penetrate through or towards the center of the tree 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, preferably in a bark fissure where the bark is the 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.
5. Then place both hands, palms open, on the ends of the handle and turn the handle clockwise until the bit reaches the desired depth.

6. With the bit at the desired depth insert the full length of the extractor, concave side up. Then turn the handle one-half turn counterclockwise to break the core from the tree and also to turn the extractor concave side down.
7. Pull the extractor from the borer bit. The core will be resting in a 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 of Increment Borers**

Here are a few suggestions that will be helpful in maintaining the efficiency and extending the life of increment borers.

#### **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 and inside 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.

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