
INCREMENT BORERS BY

Increment borers have been used for age and growth control for over 100 years and in a variety of working areas. This borer has been optimized for growth and quality control in trees and you can use it for a number of scientific studies, such as:

- Age determination by reading annual tree rings
- Increment speed control by measuring the distance between annual tree rings
- Environmental control and fertilization effects when analyzing growth
- Disease, insects and other defects can be examined in the tree
- Quality control by examining wood density
- Control of the outside environment, such as water quality, by laboratory analysis of the tree core
- Controlling chemical penetration when working with impregnated wood and poles

USER'S INSTRUCTIONS FOR INCREMENT BORERS

1. Remove the borer bit and the extractor from the borer handle by unscrewing the end cap.

2. Open up the mechanical lock on the borer handle. Insert the borer bit in the lock and fasten with the lock. The borer bit has a mark in the material showing where to lock the bit in the handle.

3. Press the borer tip against the tree stem in a straight 90 degree angle. Turn the handle and press the borer firmly against the stem, using moderate power, and turn at the same time. It is important not to turn the handle with a crooked angle or to put weight on the handle while drilling. It is also recommended to use a borer starter to get a straight angle when drilling into the wood.

4. When the borer has penetrated the tree stem approx. 2-4 cm or 0.8-1.5" it is recommended to stop putting pressure and instead simply turn the handle full circles with open palms, until the borer has reached required depth for the core. The drilling depth is normally reached when in the centre of the tree stem. Remember to maintain a straight line for the drilling throughout the process!

5. If the process described in above point 3 fails, it is recommended to change place for the drilling.

6. When the required depth is reached, insert the extractor upside down into the borer bit. The edges on the extractor should be facing downwards. Press the extractor inside the bit. Turn the borer handle half turn back. By doing this half turn backwards, the tree core breaks off and the extractor edges are now facing upwards.

7. Pull out the extractor with the tree core inside firmly kept in place by the toothed end of the extractor. If you experience difficulties removing the tree core this can be caused by the tree's soundness among other factors. It is recommended to change position or if possible sample a different tree if the core is difficult to remove.

8. When boring a tree, the core sample and bit have to be removed from the tree as soon as possible. To delay removal can in many cases lead to breakage of the increment borer. The tree starts an immediate swelling process in an attempt to close the hole in the stem, and the wood will also swell inside the borer bit if left for too long.

9. Clean your borer, and especially the threading of the borer bit and the extractor regularly, and preferably after each working day. Use thin oil, (for example sewing machine oil) to clean with a small soft and clean tissue or rag. Be careful since the threading and the extractor are sharp and can cause damage. It is recommended to apply some bees wax on the borer bit tip for next use.

10. Never store your increment borer wet and dirty.

Never drill with the extractor inserted in the borer bit. The extractor is to be inserted only after the drilling process is ready.

Do not attempt to extend the borer handle with a stick or other tools, or to use a drilling machine or other equipment together with the increment borer or parts of it. All and any product warranties will be cancelled and void if using anything other than the designated borer handle. Increment borers are precision instruments manufactured for manual operation and adjusted to fit exactly its handle and extractor. The proportions have been optimized to reach best results for this purpose.

If you for some reason suspect that a tree may contain nails or other metallic parts, if the tree is rotten, decayed or contains dead wood, it is recommended not to use the increment borer in this tree.

WARRANTY STATEMENT

Haglöf Sweden's® products are guaranteed to be free from defects in material and/or workmanship and to perform as advertised when properly installed, used, and maintained in accordance with instructions. Failure to adhere to and/or comply with operation instructions will void all associated warranty obligations. Should any part(s) prove defective within one year from date of purchase, it (they) will be serviced or replaced without charge provided the defective part(s) is returned to our factory or branch transportation charges prepaid.

Increment borers are designed and engineered for use with the handles supplied with the borers. Failure to operate the increment borer within prescribed limits of operation may cause damage and/or failure of components. Electric drilling equipment, mechanical and/or motor engine drilling equipment, also where furnished with parts of Haglöf Sweden's own manufacture and borer bits, and other non-conformity operation with the instructions for use, will void any expressed or implied warranty from the manufacturer.

The limited warranty does not cover damages caused by misuse, negligence, and normal wear, connection to external unit, negligence, damages inside products, deliberate damages, death or injury. The warranty is automatically void and invalid if changes, repairs or engagement is made by non-authorized persons. This warranty does not apply when damage is caused by sand or abrasive materials, chemical deposits, or corrosion, careless handling, including that by freight companies, and improper installation or use may void all warranties. Haglöf Sweden or any of its subsidiaries will not be responsible for labor charges, loss, or consequential damage of any kind or character caused by defective parts or for charges incurred in the replacement or repair of defective parts by Purchaser.

- The products are covered by a one-year limited warranty. The warranty covers fabrication defects and excludes for example reckless operations, and cosmetic damages. The warranty is valid in the country where the product was originally purchased.
- For a valid warranty, a copy of the original invoice and dated proof of your purchase must be presented. Always fill in the RMA form and await the authorization number prior to expediting a return.
- The return freight is on buyer's expense. After warranty repair or exchange, we will cover shipment back to you. If warranty has expired or is null and void, all freights are on buyer's expense.
- Customs fees and other fees may be added and such fees are beyond our control and on buyers account. We perform repair and service of products where warranty has expired when possible. Cost estimation will be sent to you after evaluating the returned product for cost approval.
- Any signs of misuse or negligence automatically withdraw our warranty commitments. No guarantees of usability and suitability for any special purpose are given. No liabilities for loss (business, profits, savings or alike) or damages are accepted.
- Please do not hesitate to contact us or any Haglöf Sweden AB representative for questions or comments!

For parts that have been repaired/exchanged, the warranty liability is equal as on the serviced product. Any exchanged, defective parts and/or products will be manufacturer's property. Reimbursement claims can, if found valid, never exceed the product purchase price. It is on the buyer's responsibility to send in complaints on faults and problems to the seller, immediately upon discovery, or the warranty rights will be expired. Service of a product is mainly performed at the manufacturer's plant. If a warranty claim is found to be invalid and void, the manufacturer reserves the right to charge any costs involved when examining the product. If no original invoice can be presented upon shipment, and/or if service is not covered by warranty, customs fees will be added by authorities. These fees are on buyers account.

©Haglöf Sweden®AB 2015 Haglöf Sweden, Klockargatan 8, SE-882 30 Långsele, Sweden. Phone: +46 620 25580 Fax: +46 620 20581 info@haglofsweden.com
www.haglofsweden.com