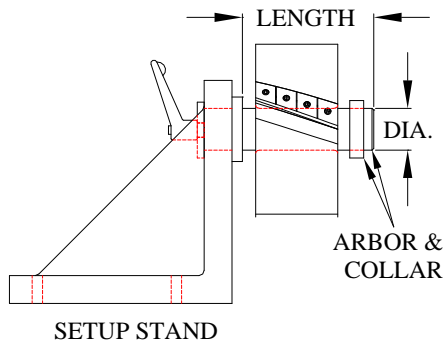


Helicarb® 135mm & 160mm Diameter Straight Bore & 160mm Hydro Sleeve Cutter Blade Replacement

Note: Instructions are for a typical cutter. The cutter shown may not look identical to your cutter.

1. Great Lakes Custom Tool recommends the use of **safety glasses at all times.**
2. When cutter is mounted on the machine, be sure to follow **LockOut/TagOut** procedures and use all appropriate personal protection equipment.
3. Remove cutter from machine.
4. Place Cutter in a setup stand to change blades. Setup stand must be fastened to a solid work bench or table. Setup stand & accessories can be purchased from Great Lakes Custom Tool.
Order: 955-07584-0000 Stand Assy. and proper arbor from the chart on the side. Note: Arbor assembly includes arbor and collar.

ARBOR PART NO.	DIA.	LENGTH
950-07584-0300	1.500	100mm
950-07584-0350	1.500	265mm
950-07584-0400	1.812	100mm
950-07584-0450	1.812	265mm
950-07584-0500	2.125	100mm
950-07584-0550	2.125	265mm
950-07584-0700	40mm	100mm
950-07584-0750	40mm	265mm
950-07584-0800	50mm	100mm
950-07584-0850	50mm	265mm



Blade Removal

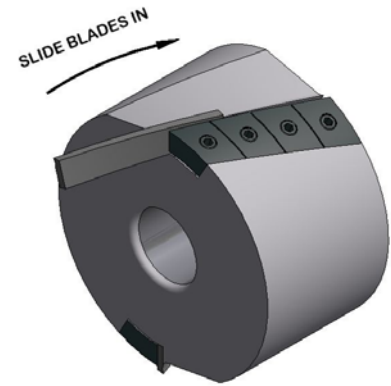
1. Use a M4 hex key to loosen the differential screws in the wedges one turn. It is not necessary to remove the wedges and screws. The differential screws have right hand threads that go into the cutter body and left hand threads that are in the wedges. This combination of both right hand and left hand threads insures for positive release of the wedges when loosening the screws.
2. With the screws and wedges loosened, slide the Helicarb® twisted blade out the end opposite the tool stand.
3. With all the blades removed, clean cutter and blade slots using an air hose to blow out any loose material. Remove wood pitch or “caked on material” using hot water or a cleaning solvent.



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Blade Installation

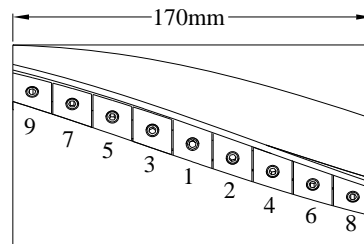
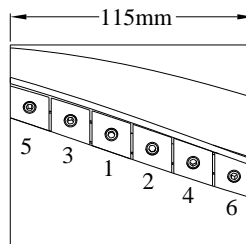
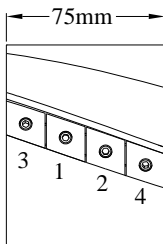
1. Slide the new Helicarb® twisted blade into the slot from the end of the cutter. The blade has a slight taper with the base being wider than the cutting edge. Slide the blade in until the end is flush with the end of the cutter body.
2. Hold the blade flush with the end of the body and down against the cutter body slot. **Be careful the blade is sharp and can cut you.**
3. Applying pressure to hold the blade in place, tighten the screws enough to hold the blade in place. As the differential screws are tightened, the angled wedges will contact the tapered surface of the blade drawing the blade down to the helical bottom surface of the slot for accurate positioning and positive clamping. **Torque the differential screws following the instructions below.**



Helicarb Differential Screw Tightening Instructions

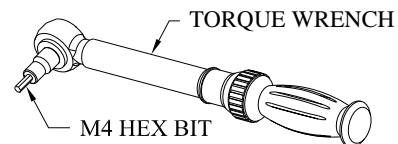
After hand tightening the differential screws with a T-handle allen wrench, **use a torque wrench** (GLCT Part No. 74530) **to tighten each screw to the correct torque value as listed in the chart below.**

Tighten each screw a small amount at a time **following the tightening sequence below.** **Do not** tighten the screw directly to the torque value listed. Tightening each screw a small amount at a time **applies equal pressure** to the wedge and helps keep the blade precisely in place. (Note: The torque values listed are Anti-Seize lubricated torque values. Never torque a screw without Anti-Seize to this amount, false torque and/or failure could occur.)



TIGHTENING SEQUENCE FOR DIFFERENTIAL SCREWS

SCREW SIZE	HEX KEY SIZE	TORQUE VALUE	
		NEWTON METERS	INCH POUNDS
M8	M4 GLCT Part No. M4 HEX BIT	16.9	150



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Differential Screw Maintenance

It is recommended to remove one wedge and differential screw to inspect the condition of the anti-seize at every blade replacement. The anti-seize becomes dried-out due to the heat generated during the cutting operation and from sawdust absorbing the moisture. The anti-seize should be soft and pliable. If it is soft and pliable, the differential screw can be reinstalled and the blades replaced.

If the anti-seize is dry and crumbles, then all the differential screws should be removed and replaced with new ones or cleaned and anti-seize reapplied.

If the hex socket in the screw is stripped or the screw breaks and can not be removed, return the cutter to Great Lakes for removal. Do not attempt to remove broken screws yourself or warranty is void.

When reinstalling a wedge or a differential screw, it is **very important to position the differential screw properly** in the cutter body. The position of the differential screw in the cutter **will affect the balance of the cutter.**

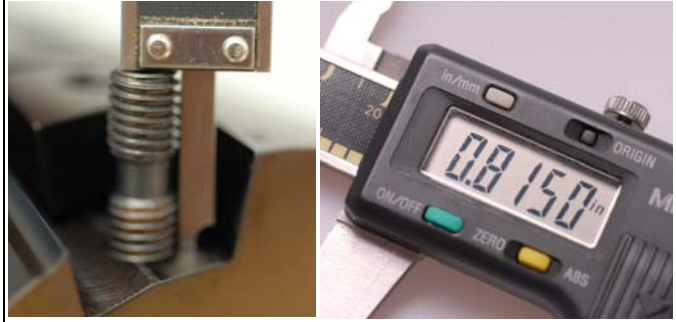
The differential screw has both left and right hand threads. The wedge has left hand threads and the cutter has right hand threads.



Place anti-seize on the right hand threads of the differential screw.



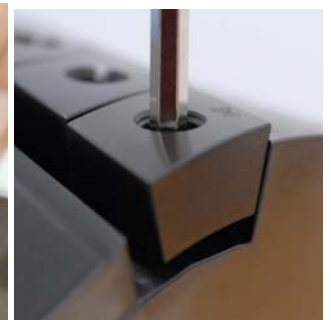
Start the differential screw into the tapped hole in the cutter turning the screw clockwise 1-2 revolutions.



Use a digital caliper to measure the length of the screw extending out of the cutter, this **distance should be .815" to .825" for the M8 differential screws.** Turn the differential screw clockwise or counterclockwise as necessary to achieve this dimension.



Place anti-seize on the left hand threads of the differential screw.

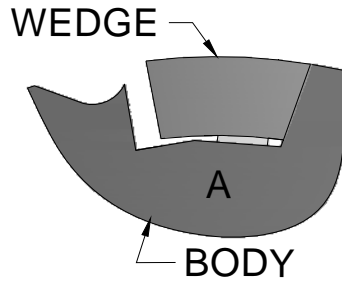


Place the narrow end of the wedge on top of the differential screw. Holding the wedge in place, use a M4 T-Handle hex key to turn the differential screw clockwise to draw the wedge down into position. Turn the screw 5-6 revolutions. Repeat this procedure for all wedges and screws being replaced.



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Helicarb Wedges

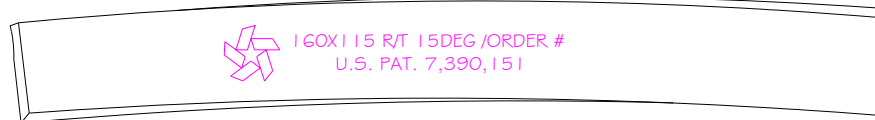


Helicarb wedges are balanced to a weight constant, respective to the wedge part number, so are interchangeable. Reinstall wedges matching the taper of the cutter body. If a wedge is damaged return the cutter to Great Lakes for inspection, refurbishing and rebalancing.

Wedges for 135 & 160 diameter cutters can be replaced in the field. All 100mm diameter cutters must be returned to GLCT for wedge replacement.

When all wedges have been installed onto the cutter, the blades can then be installed.
Follow the instructions on page 2 titled **Blade Installation**.

Helicarb Blades



The individual blades in a Helicarb Cutter are balanced within .2g (grams).
Replacement Helicarb Blade Sets are also balanced within .2g (grams).

Examples: An 8 wing cutter will have all blades balance within .2g.
A 2 wing cutter will have all blades balanced within .2g.

Blades must be replaced in complete sets to insure this degree of balance.

The helicarb blades are laser etched with the Part Number and also an order number. All blades with a common order number will have the blades balanced within .2g.



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Helicarb® 135 mm & 160 mm Diameter Straight Bore & 160 mm Hydro Sleeve Cutter Blade Shimming

Blade Removal

1. GLCT recommends removing the blade and cleaning the blade and cutter body prior to installing the shims.
Follow the “Blade Removal” instructions from sheet 1 of 5.

Blade Installation

1. Slide the Helicarb® twisted blade into the slot from the end of the cutter. The blade has a slight taper with the base being wider than the cutting edge. Slide the blade in until the end is flush with the end of the cutter body.
2. Lift up on the blade and slide the plastic shim in under the blade until the shim is flush with the opposite end of the blade.

***GLCT does not recommend using anything other than the HCS-KIT shim kit that can be purchased from us, due to thickness consistency and balance.**

***Never use more than one .030” thick shim per wing.**

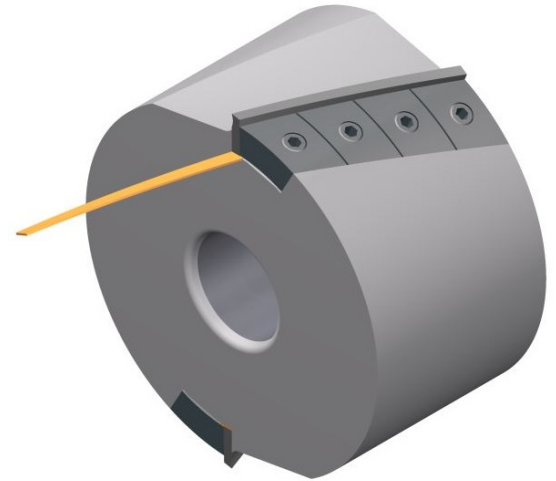
***When using shims ALL wings must be shimmed to insure proper balance.**

3. Hold the blade flush with the end of the body and press both the Blade and shim down against the cutter body slot.
Be careful the blade is sharp and can cut you.

4. Applying pressure to hold the blade and shim in place, tighten the screws enough to hold the blade in place. As the differential screws are tightened, the angled wedges will contact the tapered surface of the blade drawing the blade and shim down to the helical bottom surface of the slot for accurate positioning and positive clamping. **Torque the differential screws following the instructions from sheet 2 of 5.**

5. Carefully cut off any excess shim stock that may be sticking out of the end of the cutter.

6. With the shims installed the blades must be O.D. ground prior to use. **See the “Helicarb Grinding Instructions” (A00154) for the proper grinding procedure.**



Note:

Cutters wider than 235mm or with multiple blades per wing cannot be shimmed.



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