



# 4"/5" Trim Saw



INSTRUCTION MANUAL

# SAFETY INSTRUCTIONS

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**IMPORTANT! READ FIRST**



For your own safety be sure to read, understand and follow all warnings, safety rules and instructions in this instruction manual before using this machine. Failure to do so can result in serious injury. This instruction manual is intended for machine model 22-227.

## Save these instructions

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### SETUP

- **Intended for indoor use only.**
- **Avoid dangerous environments.** Do not use this machine near gasoline or other flammable liquids.
- **Make sure machine is securely placed on a sturdy, level surface with ample working area and away from open electrical outlets.**
- **Check for damaged parts.** Before use of this machine, always check for any damaged parts to determine that it will operate properly and perform its intended function. Check for proper alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A part that is damaged must be properly replaced through the manufacturer of this machine to avoid risk of injury.

- **Use only identical 4"/5" Trim saw parts for replacement parts.** Use of any other parts not originally intended for the 4"/5" Trim saw machine may create a hazard or cause product damage.

- **Know your power tool.** Read this instruction manual carefully. Learn the correct applications and limitations as well as specific warnings and hazards related to this machine.

### USAGE

- **Always wear proper apparel.** Do not wear any loose clothing, gloves, neckties or jewelry that can get caught in the machine's moving parts. Secure long hair with a rubber band or hair tie.
- **Always wear proper eye protection** to protect you from any debris that may fly out while sawing. We recommend wearing safety goggles or safety glasses with side shields. Everyday glasses

# SAFETY INSTRUCTIONS

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are not safety glasses. If anyone is around the machine while it's in use, they must also wear safety glasses.

- **Keep work area well lit and clean.** Make sure your work area is not cluttered.
- **Do not operate unattended.** Adult supervision is required at all times. Never leave the machine running unattended.
- **Do not operate this machine while under the influence of drugs, alcohol or any medication.**
- **Never run saw blades dry.** Saw blades are designed to be used with a lubricant, such as oil or water, and will be ruined immediately if used dry. Always make sure you are using adequate oil or water while sawing so that rock dust doesn't form. This dust contains chemicals that can be hazardous to your lungs if inhaled and is known to cause cancer, birth defects or other reproductive harm. To reduce your exposure to these chemicals, work in a well ventilated area and wear a face or dust mask if the sawing operation is dusty.
- **Never attempt to cut curves with the saw blade.** Saw blades are designed to cut straight lines only. Ignoring this warning may result in a damaged saw blade and possible injury.
- **Never cut more than one workpiece at a time.**
- **Some rocks contain poisonous elements.** Avoid sawing rocks that contain uranium, mercury, lead, arsenic, etc. Make sure you know the material you are sawing.

- **Allow your trim saw to cool.** By ignoring this warning, the 4"/5" Trim saw can overheat and deform the saw housing. We recommend cutting on the 4"/5" Trim saw for 30 minutes on, then allow 30 minutes off so the machine can cool down.
- **Do not force the tool** or attachment to do a job it is not designed to do.
- **Saw blades continue to spin after turn off,** eventually slowing to a stop.
- **Avoid awkward operations and hand positions.** Make sure you have good balance while working on this machine. A sudden slip could cause your hand to move into the disc.
- **Always stay alert.** You must be focused while working on this machine. Stones can catch on the saw blade and eject out of the sawing area.

## MAINTENANCE

- **Always disconnect from power before servicing.** Disconnect machine from power source before making any adjustments and when not in use.
- **Do not abuse the power cord.** Never carry the machine by the cord or yank it to disconnect from receptacle. Keep cord away from heat, oil and sharp edges.
- **Do not open the saw housing.** There are no user serviceable parts inside.
- **Clean and dry machine after use.**

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## REGISTER YOUR PRODUCT

Register your Hi-Tech Diamond 4"/5" Trim saw at [hitechdiamond.com/register](http://hitechdiamond.com/register) to help facilitate any warranty related requests. You can also register your 4"/5" Trim saw by completing and mailing us the enclosed registration form. Complimentary mailing envelope is included for your convenience.

# ONE-YEAR LIMITED WARRANTY

This 4"/5" Trim saw is warranted by the manufacturer to be free from defect for the period of one full year from the date of purchase.

## What does this warranty cover?

This warranty covers all structural and electrical parts of the Hi-Tech Diamond 4"/5" Trim saw such as the motor, rectifier, speed controller, etc.

## What does this warranty not cover?

This warranty does not cover any consumable goods such as saw blades, diamond abrasives and/or polishing products. This warranty also does not cover any abuse, misuse, intentional damage, incorrect usage, failure to adequately take care of the machine, improperly following the instructions, servicing by someone other than Hi-Tech Diamond personnel, theft or loss and/or any act of nature.

## Who is covered under this warranty?

This warranty only covers the original purchaser of the equipment. It is non-transferable.

## What is the warranty period?

This warranty service is in force for one full year from the date of your purchase. **Please retain the original invoice of your machine for proof of warranty or register your 4"/5" Trim saw.**

## Need our warranty service?

Contact us directly by phone at (630) 596-9909 or by email at [sales@hitechdiamond.com](mailto:sales@hitechdiamond.com) and we will assist you. **You must prove that you are under warranty by providing us with the original invoice of your machine or by registering your 4"/5" Trim saw to receive our warranty service.**



## Extended warranty program

You've made a smart investment by purchasing this Hi-Tech Diamond 4"/5" Trim saw so protect it by extending this manufacturer's warranty another 1-2 years! For purchase and more details, visit [hitechdiamond.com](http://hitechdiamond.com) or call (630) 596-9909. *Important note: You have up to 45 days from the purchase date of this Hi-Tech Diamond machine to add this extended warranty.*

# MACHINE DETAILS

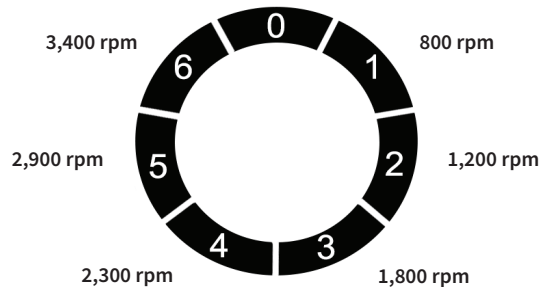
This image shows parts and accessories included with your 4"/5" Trim saw machine.

1. 4"/5" Trim saw base unit (1/4 hp variable speed motor)
2. On/off power switch
3. Trim saw blade guard
4. Trim saw table
5. 5" thin notched diamond saw blade (included with instruction manual)
6. 4" thin notched diamond saw blade (included with instruction manual)
7. 3/32" Allen wrench (included with instruction manual)
8. Trim saw spray shield (included with instruction manual)



## SPEED CHART

The motor installed in this trim saw is variable speed, delivering speeds of 800 rpm - 3,400 rpm. Use this speed chart as a guide so you can work at the speed you desire. These values are approximate. Actual speeds may vary.



# OPERATING INSTRUCTIONS

**1** Carefully unpack the trim saw from the box and remove all loose foam and accessories. Set the packaging aside should you need it in the future. Check to make sure all parts are present on both the machine and in the instruction manual. **If you find any missing or damaged parts, call us immediately at 1 (630) 596-9909 or email us at sales@hitechdiamond.com.** Place the trim saw on a table or flat surface that is in a well lit location. Make sure the machine sits level.

**2** Carefully remove the black saw table from the machine. Use both hands and even pressure to slowly pry the saw table upwards. *Note: The saw table is held in place by four small, tapered pins. Be careful when removing the saw table, as the tapered pins may break if not removed properly.*

**3** The removed saw table sits above the water reservoir. Inside the water reservoir, there is an aluminum arbor that the saw blade fits on (Fig. A). Remove the saw knob (Fig. A) that is screwed into the arbor, turning counter-clockwise. Place one of the two included saw blades on the end of the arbor, making sure the 5/8" arbor hole in the saw blade fits onto the lip. Replace the saw knob by screwing it back into the arbor, turning clockwise. The domed washer on the saw knob secures the saw blade. Do not over tighten, the saw knob should be slightly tighter than finger tight. *Note: Only use 4" or 5" saw blades with 5/8" arbor holes on this trim saw machine.*



**Aluminum arbor**



**Saw knob**

*Fig. A*

**4** The trim saw is designed to operate with oil or water. What you use is your preference. Never run the saw blade dry. Fill the reservoir with oil or water until the bottom of the saw blade is 1/8" deep (Fig. B). Do not overfill the reservoir or there will be excessive oil or water spraying from the saw blade while you cut.



*Fig. B*

# OPERATING INSTRUCTIONS

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**5** Replace the saw table, making sure all four tapered pins are secured. Insert the black spray shield (part #7) into the slot located at the front of the saw table (Fig. C). The spray shield can be inserted in either direction.



Fig. C

**6** Before turning your trim saw on, manually spin the saw blade towards you to make sure the blade is not in contact with the saw table. If there is contact, see page 11 for instructions on how to position the saw blade for clearance. *Note: Thin saw blades tend to wave side to side as you spin them. While this is the nature of thin saw blades, the wave can also be caused by over-tightening the saw knob.*

**7** Put on safety goggles (not included), then turn on the machine by turning the power knob clockwise. Adjust the speed of your saw blade using the speed chart on page 6 as a guide. Never exceed the saw blade's maximum rpm.

**8** There should be a fine mist coming from your saw blade while it spins. If there isn't, pour additional water over the blade until there is a mist. *Note: In use, always make sure the saw blade is properly lubricated. Never run dry.*

**9** After each use, turn off the machine, then unplug your trim saw from its power source. Drain the water reservoir. Dry the machine and saw blade with paper towels or a cloth. You may also spin dry the saw blade by running it on the trim saw until it is completely dry. *Notes: Always dry your saw blade after each use to prevent rusting. Keep out of reach of children.*



# CUTTING TIPS

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**1** Before you make the first cut, line up your rock or glass properly with the saw blade. Lightly slide the material into the saw blade until a groove forms, then push the material firmly through the saw blade. Do not attempt to cut curves with the trim saw, it is designed to cut straight lines only. As you near the end of the cut, reduce pressure to avoid a sudden “break-through”. Reducing pressure also gives you a cleaner cut. *Note: Never force a saw blade, let the blade do the work.*

**2** This trim saw is to be used for trimming smaller material. The rocks and glass you are cutting should never exceed more than 2/3 the size of the visible cutting area of the saw blade. The blade height of the 4" saw blade is 1". The blade height of the 5" saw blade is 1-1/2". These measurements are taken from the saw table to the top of the saw blade (Fig. D).

**3** Some saw blades are sintered, continuous rim blades that may require a “dressing”. This means that the diamonds embedded into the sintered matrix of the saw blade are wearing down, and the metal, sintered matrix surrounding the diamonds are deforming over them. The metal, sintered matrix needs to be abraded away to expose the diamond surface. Dress and sharpen your sintered saw blades with aluminum oxide, a silicon carbide stone, dressing stick or brick. Simply run 3-4 times through the saw blade for a quick fix. *Note: Always abide by the instructions that come with your saw blade. Not all saw blades should be dressed or sharpened, as it can ruin the saw blade.*



Fig. D

# MAINTENANCE

## OILING

The only parts you need to oil on the trim saw machine is the inside of the aluminum arbor and the motor shaft (Fig. E). This is required because the motor shaft and arbor are made of different materials. Over time, they can seize together, making it impossible to remove the arbor from the shaft. Every two months or so, remove the arbor from the motor shaft by loosening the two set screws using the included Allen wrench, turning counter-clockwise. Once loosened, slide the arbor off the motor shaft. Apply a few drops of motor oil, way oil, lithium or water pump grease inside the arbor where it fits onto the shaft. Also apply a few drops of oil or grease onto the motor shaft, rubbing to coat the shaft lightly. Make sure there is no excess oil so that oil doesn't drip down the motor shaft and get into the motor. This will cause an instant motor burn-out. Replace the arbor onto the shaft, using the Allen wrench to tighten the two set screws.

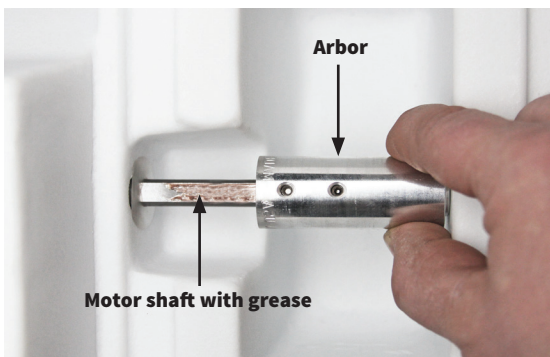


Fig. E

## CLEANING

After each use, drain the water reservoir. Any used water must not be disposed down a sink, as rock sediment can harden like cement, closing off the drain. Dry the machine and saw blade with paper towels or a cloth. You may also spin dry the saw blade by running it on the trim saw until it is completely dry. *Notes: Always dry your saw blade after each use to prevent rusting. Keep out of reach of children.*

## FUSE DETAILS

The fuse is installed in the back of the trim saw machine. It is a 250V, 3AMP slo-blo cartridge fuse. If you need a replacement, this fuse can be found at your local hardware store. See Fig. F for how to change the fuse.



Fig. F

**Push in with a flat head screwdriver, then turn to the left (counter-clockwise)**

# SAW BLADE ADJUSTMENTS

## BLADE POSITIONING & CLEARANCE ADJUSTMENTS

Follow these four steps to adjust the position of the saw arbor and saw blade so that the blade does not make contact with the saw table.

**1** Carefully remove the saw table and loosen the two set screws located in the saw arbor using the Allen wrench, turning counter-clockwise (Fig. G). Once loosened, the saw arbor can slide side to side.



*Fig. G*

**2** Replace the saw table and position the saw blade so that it is not in contact with the saw table. Your blade should spin freely.

**3** Manually rotate the saw blade until you see one set screw exposed under the saw table (Fig. H). Tighten this exposed set screw using the Allen wrench, turning clockwise. Carefully remove the saw table to tighten the other set screw. Both set screws at this point should be tightened.



*Fig. H*

**4** Replace the saw table and manually rotate the saw blade, making sure the blade is not making contact with the saw table, before turning the trim saw on.

## NEED A REPLACEMENT SET SCREW?

The two set screws located in the saw arbor are available at your local hardware store. The size of the set screws are 18-8 stainless steel, cup point, 10-32 thread, 3/16" long.



# ACCESSORIES

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The saw blades featured on this page are compatible with the Hi-Tech Diamond 4"/ 5" trim saw machine. For a listing of all Hi-Tech Diamond products, visit [hitechdiamond.com](http://hitechdiamond.com).



## Thin notched diamond saw blades

Our silver, thin notched diamond saw blades are economical blades that create efficient cuts. They are manufactured using premium diamond grit (120#) that is pressed into the edge of a solid steel core. Thin rims make these blades suitable for cutting and trimming material such as turquoise, aqua, garnet, corundum, emerald and ruby.

### Available sizes for this trim saw

4" diameter X .006" core X .009" kerf  
4" diameter X .010" core X .013" kerf  
5" diameter X .006" core X .009" kerf  
5" diameter X .010" core X .013" kerf

*Note: The 4" X .010" X .013" and 5" X .010" X .013" saw blades are included with this saw machine.*



## Thin sintered diamond saw blades

Our red, thin sintered diamond saw blades are extremely durable and create clean cuts. They are manufactured using premium diamond grit (325#/400#) that is secured into a metal bond, extending the full depth of the rim. These blades use sintered technology, which increases their life span compared to notched rim saw blades because diamonds are continuously exposed as the edge of the blade wears away, cut after cut. Thin rims make these blades suitable for cutting and trimming material such as quartz, topaz, glass and fine agates.

### Available sizes for this trim saw

4" diameter X .016" core X .023" kerf  
5" diameter X .012" core X .015" kerf

# ACCESSORIES

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The saw blades featured on this page are compatible with the Hi-Tech Diamond 4"/ 5" trim saw machine. For a listing of all Hi-Tech Diamond products, visit [hitechdiamond.com](http://hitechdiamond.com).



## **Super Slicer electroplated diamond saw blades**

Our Super Slicer electroplated diamond saw blades are designed to cut twice as fast compared to other blades. They are manufactured using premium diamond grit (120#) that is nickel electroplated along the rim onto a strong spring core. Thin rims make these blades suitable for cutting and trimming material such as sapphire, emerald and ruby.

### **Available sizes for this trim saw**

4" diameter X .004" core X .007" kerf

4" diameter X .012" core X .016" kerf

# FAQS

## What lubricants can I use with this trim saw?

This trim saw machine is designed to be operated with oil or water. We recommend water because it is less messy to work with than oil. If you are using water as a lubricant, we suggest adding a coolant to reduce heat buildup between the saw blade and stone. Some stones, such as tourmaline for example, fracture with too much heat. No one likes a fractured stone!

## How large should the material be that I'm cutting?

This trim saw is to be used for trimming smaller material. The rocks and glass you are cutting should never exceed more than 2/3 the size of the visible cutting area of the saw blade. The blade height of the 4" saw blade is 1". The blade height of the 5" saw blade is 1-1/2". These measurements are taken from the saw table to the top of the saw blade (see below).

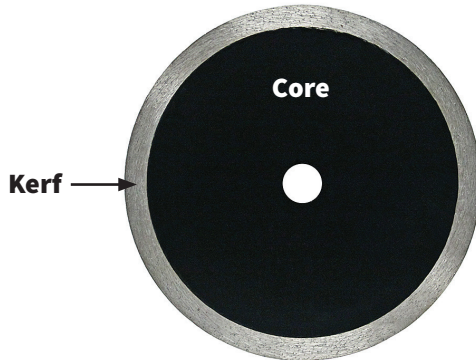


## What size saw blades can I use on this trim saw?

You can use either 4" or 5" diameter saw blades on this trim saw machine. The saw table fits both 4" and 5" blades to accommodate the size of the material you are cutting. Please note that only saw blades with 5/8" arbor holes fit onto the saw arbor.

## In regards to saw blades, what do "core" and "kerf" mean?

Core is the thickness of the inside of the saw blade (the core), while kerf is the thickness of the saw blade's rim. When purchasing a saw blade, the dimension of the kerf is what matters most because the kerf determines how thick of a cut you will get. FYI - the kerf gets thinner over time as the saw blade wears away with continuous cutting.



## What is the recommended RPM for this trim saw?

The RPM speed depends on the type of saw blade you are using and the saw blade's maximum RPM. Remember to never exceed the maximum RPM of your saw blade.

# TROUBLESHOOTING

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## Why is there excessive oil or water spraying from the saw blade?

If there is excessive oil or water spraying from the saw blade while you're cutting, this means you have over-filled the water reservoir. Fill the reservoir with water (or oil) so that just the bottom of the saw blade is sitting in it, about 1/8" deep (see below).



## My saw blades keep rusting. How can I prevent this?

Rusting occurs when the saw blade is not properly dried off after each use or if the saw blade is left sitting in the saw machine's water reservoir when not in use. The best solution to prevent rusting is to remove the saw blade from your trim saw after each use and dry with a paper towel or cloth. Remember to always keep saw blades away from children.

## What happens if my saw machine overheats?

The housing that the trim saw is made out of is polyethylene, which can deform if the machine is run too long, causing the machine to overheat. To prevent this from happening, you must take time to cool your machine. We suggest running your trim saw for 30 minutes on, 30 minutes off to cool.

## I can't remove the arbor from the motor shaft.

If you can't remove the arbor from the motor shaft using the Allen wrench, it is most likely because the arbor and motor shaft seized together. This is a result from not oiling the inside of the arbor according to the oiling instructions on page 10. If it is impossible to remove, please contact Hi-Tech Diamond at 1 (630) 596-9909 and one of our specialized technicians will help you over the phone for correct removal.

## Do you sell electrical spare parts for my trim saw? Whom do I contact if I need a repair or replacement for my trim saw?

Due to the technical nature of our machines, we do not offer electrical spare parts for you to install yourself such as motors, speed controllers, rectifiers, etc. Instead, we offer a repair service that is done in-house by our qualified technicians. For more information about our repair service, visit [hitechdiamond.com/repairs](http://hitechdiamond.com/repairs).



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