



## Kristall Glass Grinders

KRISTALL 1, KRISTALL 1S, KRISTALL 2000, KRISTALL 2000S

### USER GUIDE

Thank you for buying this Inland product. This booklet contains instructions for set up and use of all the Kristall machines. These machines are intended for grinding and/or polishing glass and minerals. Please take the time to read all the instructions to understand the correct components, set up, and use of the model you purchased.

### SAFETY

- ✓ It is extremely important to wear proper eye protection when using any glass grinder. We highly recommend that you wear safety goggles rather than safety glasses. You can also use the Inland Kristall Shield (#50016) in conjunction with proper eye wear for added protection: A shield alone is not adequate eye protection.
- ✓ **DO NOT** wear loose clothing or any accessories (long necklaces, bracelets, shirts with long fringes, and similar) that might get caught by the grinder head while using any Inland grinder.
- ✓ Use only in a properly grounded and tested outlet. Under NO circumstances should you override the grounding system or modify the plug.
- ✓ Set up your machine on a sturdy, level work surface that is water tolerant and a comfortable height to work on.

### PARTS

Check and make sure that you have all the parts listed for your particular machine before beginning assembly. The following are standard parts and accessories for all the Kristall machines covered by this user guide.

Part Name	Kristall 1 and 1S (Quantity) Color	Kristall 2000 and 2000S (Quantity) Color
Grinder Body*	(1) Grey	(1) Blue
Work Surface for 19mm Bits	(1) White	(1) White
3/4" (19mm) BitSert™	not included	(1) White
1" (25mm) BitSert™	not included	(1) White
Coolant Feed Sponge	(1) White	not included
3/4" (19mm) Bit	(1) Brass	(1) Brass
Allen Wrench	(1) Black	(1) Black
Splash Guard	(1) White	(1) White

\* The 1 and 2000 have a silver band while the 1S and 2000S have a red band.

1. Motor bearings are permanently sealed and lubricated.
2. The motor is protected by a thermal switch which shuts off the motor should it overheat. When the motor cools, the switch deactivates and it will run again.
3. Apply Inland Motor Shaft Lubricant (Inland no. 50022) to the shaft whenever changing or removing diamond bits. Remove the bit if you won't be using the grinder for more than a month
4. Tighten grinding head set screws **ONLY** to the flat side of the motor shaft to prevent scarring the shaft which makes removing the bit nearly impossible. Never force a bit onto the shaft and never pry off a bit. Contact customer service for help.
5. Clean the reservoir often. Ground glass accumulates in the reservoir and can slow down the bit and hardened residue is difficult to remove. Empty water from the reservoir and wipe clean with a rag or sponge.
6. You may find that debris collects under the pump chamber, which ultimately will clog the action. To clean the pump chamber remove the diamond bit. Then remove the pump chamber by clicking it out of the holding flanges in the reservoir. Remove that debris with a rag or sponge. Sometimes you can remove the debris without removing the pump chamber by sliding a toothpick under the pump chamber and dislodging the debris.

### REPLACEMENT PARTS AND POPULAR ACCESSORIES

Part Name	Kristall 1 / 1S	Kristall 2000 / 2000S
19mm Bit Work Surface	50086	----
25mm Bit Work Surface	50087	----
Work Surface for Invisible Sponge	----	50088

**FaceShield™:** A clear shield for added protection against grinding chips and spray. Inland no. 50017.

**MagnaShield™:** A clear shield with built in magnifying lens for added protection against grinding chips and spray. Inland no. 50018

**SecondStory™ WorkSurface:** This elevated work, sits on top of the main work surface to make grinding with 6mm bits easier. Inland no. 50001

**Bit Cooling Pump System:** For use with the Kristall 2000 and 2000S machines. Supplies coolant when using 6mm bits for grinding and drilling. Inland no. 50009

### SERVICE

Questions about your grinder can be answered by visiting our web site at [www.inlandcraft.com](http://www.inlandcraft.com), emailing customer service at [helpdesk@inlandcraft.com](mailto:helpdesk@inlandcraft.com); or by contacting our office at:

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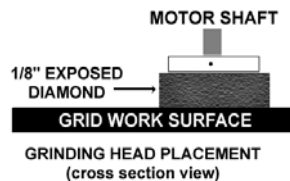
### SET-UP

#### Fill the reservoir with water - All Models

A water/coolant mix prevents airborne glass dust, increases grinding speed, and prolongs the life of the diamond surface. Remove the white grid work surface and fill the reservoir with water to just below the overflow notch in the rear of the machine. Be careful not to overfill! Replace the grid surface. **IMPORTANT: Never pour water directly onto the grinding bit or motor shaft!**

#### Installing the Grinding Bit - All Models

Apply a thin coating of Inland Motor Shaft Lubricant™ (Inland no. 50022) to the motor shaft. Our Teflon based lubricant helps prevent the bit from seizing on the shaft and seals out ground glass particles. In a pinch, you can use a bit of petroleum jelly. Loosen the set screw on the diamond grinding bit by turning it counterclockwise with the allen wrench. Slide the bit down onto the motor shaft, positioning the set screw over the flat side of the motor shaft. Lower the bit down until just over an 1/8" of silver diamond is exposed above the grid work surface. Secure the bit to the shaft by turning the set screw clockwise with the allen wrench. **IMPORTANT: Always secure the bit to the flat side of the motor shaft. Tightening the bit to the rounded side can scar the shaft and prevent bit removal!**



#### Installing the Sponge - Kristall 1 and Kristall 1S

Coolant is fed up to the grinding bit through the sponge. The bottom of the sponge contacts the coolant in the reservoir and the upper portion contacts the diamond surface of the grinding bit. Insert the sponge into the rectangular hole in the back of the bit opening so that the bottom of the sponge contacts the coolant in the reservoir and the top of the bit is in contact with the diamond surface of the bit. You may need to wet the sponge before grinding by pouring a small amount of water onto it. The sponge must remain in contact with the bit while grinding. If a white paste develops on the bit or your glass when grinding, either the sponge is not properly positioned or the water/coolant level in the reservoir is low. Periodically rinse out the sponge to remove accumulated grinding residue. When the sponge becomes worn, replace it.

#### Integrated Coolant Pump - Kristall 2000 and Kristall 2000S

These models have a built in coolant pump in the reservoir that supplies coolant to the diamond grinding bit while in use.

#### Splash Guard - All Models

The splash guard installs into the grid surface directly behind the grinding bit. Simply insert into the two square holes in the back row of the grid surface. The splash guard helps contain water spray from the grinding head.

### GRINDING

Start with a scrap piece of glass to get a 'feel' for the grinding action. Turn on the machine and begin by pushing the glass into the grinding bit using light pressure and moving the glass back and forth across the bit. Slowly increase the pressure until you feel comfortable with the grinding speed and your control. Uniform, gentle pressure of the glass on the grinding bit will produce the best results. Too much pressure will cause bit rotation to slow down and grinding speed will rapidly decrease. You'll quickly learn the optimum grinding pressure for the types of glass you use. When grinding out deep cuts, use intermittent pressure to allow coolant to rinse ground glass from the bit. If you ever have a white paste form on the bit, it is not getting enough coolant. Stop and check the sponge placement and coolant level. Grinding without coolant greatly reduces the life of your diamond bits.

As the diamond surface wears, you will feel it grind less effectively. When this happens, it is time to expose a new portion of the diamond surface.

Loosen the set screw using the allen wrench and move the grinding bit up on the shaft to expose a new 1/8" section of diamond. Secure the bit back in place making sure to tighten against the flat side of the motor shaft. Reposition the sponge if needed. You have up to 5, 1/8" sections of diamond on a standard grinding bit to use before you need to consider replacing the entire bit.

### HOW TO DRILL A HOLE

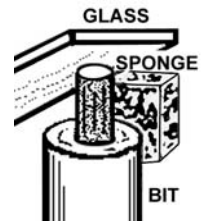
The extended motor shaft allows you to work simultaneously with a smaller, drilling and grinding bit like the Inland 1/4" (6mm) WB-8. This smaller bit is placed onto the motor shaft so it sits on top of the 3/4" (19mm) bit..

#### Installing Drilling Bits

Loosen the set screw and place the bit onto the shaft, securing it to the flat side of the motor shaft like any other bit. You may need to lower the 3/4" (19mm) bit if you are using the bottom section of diamond.

#### Drilling

You will need to apply coolant to the bit while drilling using another sponge soaked in coolant. Begin drilling the hole by holding the front surface of the glass against the upper edge of the bit at about a 45° angle, with the coolant soaked sponge held against both the bit and glass. (You may want to use two hands). Start the machine and slowly move the glass down onto the bit to a horizontal position. Continue to work the glass down and around the bit top in a circular motion, making sure to keep the glass and bit surface wet at all times. You may need to stop and reload the sponge several times. Ease up on the pressure as you begin to see the bit come through the back of the glass to help reduce chipping.



### MAINTENANCE

Maintenance to your grinder is minimal but important to prolonging the life and performance of the machine.