

TS150e™ Mill

Instructions for Use

ENGLISH

Product Description

The TS150e™ mill is a 3.5-axis Computer Numerically Controlled (CNC) grinding/milling machine used for producing dental restorations. The mill enables dentists to produce inlays, onlays, full and partial crowns in the office for single-visit “same-day dentistry.”

Indications for Use

The TS150e mill produces computer-aided dental restorations from dental materials including glass ceramics, sintered zirconia and composites.

System Components

TS150e Mill

Computer

Computer Monitor, Mouse and Keyboard

Glidewell Dental Mill Coolant Concentrate

TS150e Mill Accessory Kit

- Tubing (air supply)
- Power Cord
- USB Cable
- TS150e Torque Wrench (red-handled)
- Allen Wrench
- Brushes

Basic Setup

1. Locate the TS150e mill near the office air supply in a spare room. Place the mill on a sturdy table, desk or countertop capable of supporting 150 lbs.
2. Set up the computer components: monitor, keyboard and mouse close to the mill.
3. Connect the office air supply to the air inlet on the back of the unit.
-  Air consumption requirement = 0.9 CFM or greater with a psi range of 50–80 psi.
4. Connect the power cord to the system and to a grounded power outlet.
5. Connect the computer to the mill with the USB cable.
6. Switch the power on at the power inlet on the back of the mill.
7. Fill the coolant trough with 240 mL of Glidewell Dental Mill Coolant Concentrate and 2.4 L of distilled or reverse osmosis water. (See Routine Maintenance for further instructions.)

 Carefully read and follow the instructions provided in this document before operating the mill. Please refer to the TS150e Quick-Start Guide for more information.

Milling Process

1. Once the computer system is on, the CloudPoint™ Mill Control Panel will open on to the computer screen. The TS150e will start a self-check sequence which will verify that the motion control and other systems are working correctly.
2. After the FastDesign™ software sends the cases to the Mill Control Panel, the cases will be loaded automatically on to the screen. Once initialized, select the case and press the RUN button.
3. At the material selection prompt, load the correct material for the particular case (if it is not already loaded).
4. Loading the Material
 - a. Position the slot on the mandrel toward the rear of the mill so the retaining screw hole is visible above the retaining screw. Push the mandrel down until fully seated.
 - b. Using the allen wrench, tighten the retaining screw clockwise.

- c. As the fit of the screw becomes tight, gently align the retaining screw hole with the screw. **Fully seat and firmly tighten** the retaining screw into the hole until the block sits flat against the screw.

5. Once the material is loaded, press YES to confirm the correct material is loaded.
6. If prompted to load a new tool, press YES.

 The Mill Control Panel will prompt tool replacement whenever the tool life has expired or BruxZir NOW material is loaded.

7. Removing and Loading a tool:

 The spindle contains a spring-loaded lock mechanism that prevents spindle rotation during the installation or removal of the milling tool. Once the spindle is locked in place, pressure on the lock mechanism must be maintained throughout the process.

- a. To remove a tool from the collet, rotate the spindle while pressing the lock mechanism until the spindle locks into place. Then, rotate the nut counter-clockwise using the TS150e torque wrench while pressing the lock mechanism. Remove the tool.
- b. Insert the new tool completely into the collet. Rotate the spindle while pressing the lock mechanism until the spindle locks into place. Then, rotate the nut clockwise using the TS150e torque wrench while pressing the lock mechanism. When the red-handled torque wrench yields during tightening, tool installation is complete.

 **Release the lock mechanism BEFORE running the milling program to prevent mill damage.** Make sure the spindle rotates freely and the lock mechanism is disengaged.

- c. After loading the new tool and closing the mill door, press YES.

 Each tool should mill 5 glass ceramic or composite restorations. The software will calculate the tool usage and prompt a tool change when the tool life has expired.

 BruxZir NOW material (only) requires a new single-use diamond bur for every restoration. The software will prompt a tool change after each BruxZir NOW material is loaded.

Materials	Tool Replacement
Sintered Zirconia (BruxZir® NOW)	After Every Restoration (BruxZir NOW is shipped with a green-striped BruxZir NOW tool for each block.)
Glass Ceramics (Obsidian®)	After 5 Restorations
Composite or Hybrid (VITA ENAMIC®, Lava™ Ultimate, GC CERASMART™)	After 5 Restorations

8. If prompted to refresh the coolant, replace the coolant. The Mill Control Panel will prompt coolant changes when the coolant life has expired. (See Routine Maintenance for instructions.)

 Whenever a mill door is open, the Mill Control Panel will prompt door closure. Milling will not begin until the door is closed.

9. A three-minute spindle warm-up cycle may occur.

 Note: the spindle warm-up cycle will only occur if it has been more than 24 hours since the last case ran. If a case runs before 24 hours has elapsed, a spindle warm-up will not occur.

10. With the door closed, the TS150e will automatically begin milling.
11. Pause milling by clicking the PAUSE button on the top right corner of the control panel. Press the RUN button to continue milling.
12. The milling job will be complete when the prompt states, “The job is finished.” Click OK, then remove the restoration.

Routine Maintenance

Cleaning the Coolant Trough

The Mill Control Panel will prompt coolant changes when the coolant life has expired. Click CHANGE COOLANT in order to replace the coolant more often.

 Sharp glass particles may be present on the filters or in the trough. Wear gloves when emptying and cleaning the trough.

1. Press the release button on the side of the mill and carefully remove the trough using the trough handle.
2. Remove the main filter from the top of the trough. Discard any large particles on the filter. Invert the filter and rinse with water from the underside to remove fine particles.
3. Remove the top rubber drain plug to empty the trough. Empty trough of used coolant and debris.
4. Without unplugging the internal filter, thoroughly rinse the internal filter and trough with water.
5. Reinsert the top rubber drain plug into its original place.

 Make sure the top rubber drain plug is in place before adding fresh coolant and reinserting trough.

Refilling the Coolant Trough

1. Fill the trough with 2.4 L (2.5 quarts) of distilled or reverse osmosis water and 240 mL (8 oz.) of Glidewell Dental Coolant Concentrate. The coolant mixture level should be near the top edge of the handle.

 **Do not use** tap water to make coolant. Tap water use will cause scale buildup and premature seal failure.

 Only use Glidewell Dental Mill Coolant Concentrate. Use of other fluids may damage the machine and void the warranty.

2. Place the main trough filter on top of trough.
3. Carefully reinsert trough until it clicks into place.

Cleaning the TS150e

1. Clean the external surfaces of the TS150e with a mild detergent.
2. Clean the internal surfaces of the machining chamber on a **weekly basis** with a lint-free cloth and distilled water.

 Sharp particles may be present in the drain cover. Wear gloves. Use care when handling the drain cover and disposing of the contents.

- a. Remove the lower drain cover by pulling it to the front of the unit. Discard glass fragments from the drain cover, rinse with water and reinsert into the machining chamber.

Preventive Maintenance

Cleaning the Spindle Collet and Nut

Clean the spindle collet and nut threads **periodically** or when loading tools is difficult.

1. Unscrew the nut and remove the nut and collet from the machine. Pull the collet from the nut.
2. Use a spindle brush and a cotton swab to remove any debris from the inside of the nut. Use white mineral oil on the cotton swab to help clean the threads.
3. Clean any debris from both the collet and the threaded portion of the spindle with a clean cloth.
4. Reinstall the collet and nut back into the machine.

 **DO NOT** tighten at this step.

5. Install a new tool. (See Removing and Loading a tool section for details.)

Cleaning the Fan Filter

Clean the fan filter of dirt and lint **every six months**.

 **DO NOT** breathe dust. Wear appropriate personal protective equipment including mask and gloves.

1. Power down the system. Remove the AC cord from the rear of the unit.
2. Unsnap the fan filter cover from the fan filter housing and remove the filter.
3. Rinse the filter with warm water and a small amount of dishwashing detergent.
4. Dry the filter completely.
5. Reinsert the dry filter into the filter housing and snap the fan filter cover into place.
6. Reattach the power cord to the AC supply and turn on the system.

Repair

 Do not attempt to repair or disassemble any part of the system. Any such action may void the product warranty.

For scheduling maintenance or in the event of a TS150e system malfunction, contact your dealer for Technical Support.

Symbols	
	WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
	CAUTION: Indicates a possibility of instrument damage or data loss if instructions are not followed.
	Note: Provides helpful information.
	Manufacturer
	Certified to U.S. and Canadian Standards
This device conforms to UL 61010-1, IEC/EN 61326-1:2006, CAN/CSA C22.2 No. 6095-1 2nd. Ed., ISO 15233 and IEC 60601-1.	
This device conforms to Part 15 of the FCC Rules. Operation is subject to the following conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.	

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