

# DiscAir

Model 230

Installation  
Instructions



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## Material & Equipment List

Unpack all DiscAir components carefully.

### Verify that you have the following items:

1. DiscAir base assembly
2. Spin window Disk Drive Assembly
3. Flexible polyurethane tubing
4. Manifold
5. Air gun with drop hose (if ordered)
6. Tool kit & small parts bag

## Before You Begin Assembly...

DiscAir installation is straight forward. Determine the best location for the spin window and manifold. Careful attention to instruction details will ensure a successful installation and many hours of trouble free operation.

### Almost all installation problems result from the following:

1. Failure to adequately clean the surface receiving the DiscAir.
2. Contamination of the bonding set adhesive.
3. Attempts to install DiscAir on "siliconized" or hardcoated polycarbonate windows.
4. Failure to apply silicon rubber around the DiscAir base.

## Air Hookup

The manifold must be installed on the outside of the machine, and protected against exposure to coolants, lubricants, and all other shop fluids.

The manifold is ideally installed on the outside face of the machine door frame, using the supplied flexible polyurethane tubing. In locating the manifold, consider aesthetics and ease of installation when positioning the manifold.

Ensure that the DiscAir spin window and the manifold will not interfere with opening and closing of the machine door or window. Make careful measurements and allow enough slack in the flexible tubing so that the door motion will not stretch or pull the tubing out from its connections.

Connect the DiscAir to a standard 90 PSI compressed shop air source. The recommended range for the air supply is from 87 to 102 PSI (6 to 7 Bar). Tooling 2000 Spin Windows are engineered for continuous duty operation. The air supply does not need to be interrupted, unless an operator or maintenance staff is required to enter the machine cabin.

## Installing The Manifold

After determining the optimal manifold location (away from metal working fluids), mark and drill a 25 mm diameter hole in the machine enclosure.

Remove any burrs that would prevent proper seating of the manifold. See connection layout for DiscAir. Secure the manifold through the machine enclosure using the provided nut and "O"-Ring.

## Surface Preparation

Cleanliness is foremost. Avoid touching clean surfaces. Wash your hands to prevent transferring oils or dirt to bonding surfaces.

Bonding sets are factory installed and protected with backing material. Do not touch the bonding set. Even with the backing in place, contamination from the bonding set edges can migrate onto contact surfaces if backing edges are rolled up or wrinkled.

An absolutely clean surface should pass a water break test. Use only clean water for this test. On a clean surface, water will sheet and uniformly adhere to a clean surface without beading or forming rivulets.

### For New Windows:

Clean thoroughly with 50% water and 50% isopropyl alcohol solution.

### For Contaminated Windows:

Wipe off excess contamination

Use detergent and water. Wipe clean with water soaked rags

Wipe window surface with common window cleaner and clean wipes

Prepare surface with 50% water and 50% isopropyl alcohol solution

## Bonding The DiscAir 230

Remove the glass disk. See instructions on page 6.

Use a marker to make a vertical reference line. This line should extend down through the center of the intended installation location, and be located outside on the operator's side of the window, so that it is visible (through the window) from the machine side where the DiscAir will be installed.



Figure 1

Align the Mounting plate as shown in Figure 1 to the vertical reference line on the far side of the window.

Strip off the backing from the bonding set. Do not touch exposed bonding surfaces.

Visually align Mounting plate to reference marks. Hold the Mounting plate by the edges, and slowly press into place with the features oriented as shown in Figure 6.

With pressure applied from the opposite side, press the Visiport firmly into place. You should be able to see areas where the bond has not yet been properly made. Unless the machine window is bowed or twisted, the adhesive will "wet out" properly in 72 hours. (For reference, 50% of final bond strength is achieved in 60 minutes, 90% within 24 hours, and 100% in 72 hours.)

- *Optional Step:* In order to accelerate the wetting out process, T2K offers a hand-held vacuum pump, part no. 2209001. For more information or to order, contact customer service.
  - A. Moisten and place the hand held vacuum pump's suction cup over the vacuum port.
  - D. Pump down by hand to 27 in. (68 cm). Watch for leaks as indicated by the vacuum gage.
  - E. Keep vacuum applied 1 hour. Pump handle periodically as gradual vacuum loss is normal.
  - F. Bleed off vacuum and remove pump.

Important: Apply a small bead of supplied silicon rubber around the entire circumference of the Mounting plate to form a seal between the Mounting plate and the machine window. The silicone provides the bonding interface protection from coolant and oil. Failures in bonding to due to failure to apply the silicon rubber are not covered by the manufacturers warranty.

Reinstall Visiport base to Mounting plate using screws supplied.

Reinstall the Disc Assembly per the instructions on page 6.

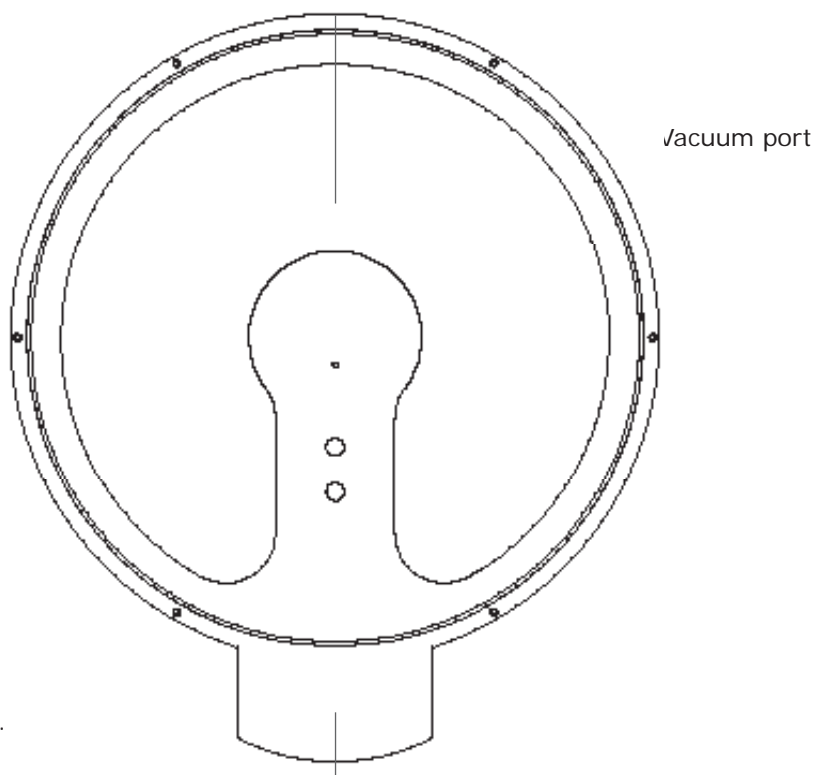


Figure 2.

## Final Assembly

Install the DiscAir spin disc assembly according to the instructions below.

Connect the manifold to spin window using the supplied polyurethane tubing. Secure the tubing firmly into the push-pull connectors at the bottom of the spin window and at the manifold.

Connect the air supply to the manifold. Use the provided ¼ NPT adapter fitting if required. Turn on the air supply feeding the DiscAir spin window manifold. If the disc does not turn, check the supply valve at the manifold to ensure that the supply valve is set to the on (gray) position. The air supply may be closed by depressing the red button at the supply valve.

**This concludes the DiscAir installation.**

## Disc Replacement

The Torx T10 driver and Locking pin from DiscAir tool kit, and a customer supplied Strap wrench are recommended for disc removal and replacement. A torque wrench set to 12 inch pounds is recommended.

Shut off air supply. Use appropriate protection and caution when working with glass!

1. Remove hubcap by restraining the disk assembly with the strap wrench and turning hubcap counter-clockwise.
2. Lock disk assembly to base with lock pin and unscrew the 4 torx screws.
3. Separate the disk assembly from rotor with a straight pull not to exceed 5 pounds force.
4. Clean mating surfaces of rotor and replacement disk assembly.
5. Apply thin film of oil to rotor inside diameter.
6. Orient the replacement disk assembly to the rotor by using screw holes and lock pin as a guide.
7. With the disk assembly parallel to the rotor, slowly press the disk assembly onto the rotor with a force not to exceed 2 pounds. Do not use the screws to draw the disk to the seated position.
8. Seat the 4 screws (about 5 turns) then torque to 12 inch pounds (about 1/6 turn further).
9. Remove the lock pin and rotate the disk assembly several turns by hand to assure that the disk assembly is running true.
10. Install hubcap. Tighten hubcap by hand so that "O"-Ring located under hubcap compresses and the hubcap is snug.  
Do not overtighten.

The DiscAir may now be returned to service.

Deviation from instructions may result in personal injury, damage to the DiscAir and voiding of warranty. Consult your manufacturers representative, distributor, or T2K for technical assistance.

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## Maintenance & Service

### CLEANING — PLEASE READ THIS SECTION CAREFULLY

Under certain conditions, such as high speed machining of aluminum or cast iron, chips, shavings, and metal particles (swarf) will accumulate around the periphery of the spin disc and build up between the spin disc seal ring and the DiscAir base. Large chips may also become trapped between the disc assembly and the base unit. The resulting interference can cause noise, disc wobble, slowing of disc rotation and stall of the spin disc. Daily inspection for swarf buildup is recommended. If not removed, swarf buildup can jam the spin disc. T2K spin window products are not designed for dry machining. Dry machining will only worsen swarf buildup.

Remove the spin disc carefully according to the installation instructions and clean thoroughly, away from the machine. Clean the base surrounding area, labyrinth, and internal cavity with a lint free cloth only. Do not use compressed air. Compressed air may force chips into the exposed assemblies. Clean the disk glass as often as necessary to ensure good visibility.

### Spin Disk

The spin disc is a replaceable item subject to normal wear and tear. DiscAir is not recommended for use when machining materials such as ceramics. Spin disc wear depends on a number of variables, including coolant pressure and volume, type of material machined, spin window location and spindle rpm. Do not drop or strike the spin disk. If DiscAir is installed on a door, open and close the door carefully. T2K provides no warranty, expressed or implied, as to life of the spin disc.

### Bonding

Customers should bond to new polycarbonate or replace scratched polycarbonate before bonding a DiscAir. Do not attempt to bond a DiscAir to "siliconized" polycarbonate. These hard coated windows will not readily accept bonding to closed cell acrylic foam bonding materials such as the ones used in the manufacture of Visiport and DiscAir.

### Safety

- Turn off air supply to the spin window when performing service or entering the machine cabin. Do not touch or otherwise allow any body contact with the spin disk.
- **Do not install a DiscAir spin window into a cutout unless the spin window has been bonded to a substrate at TOOLING 2000.**
- Replace all spin discs that have been struck, cracked, dropped, or damaged in any way. This includes spin discs that show signs of etched metal from acidic or corrosive coolant and disc glass which exhibits unusual wear from chip bombardment.
- **Spin windows augment safety programs! Without the viewing benefits of spin windows, a machine operator may be tempted to bypass an interlock to get a peek inside a machine cabin. Be safe. Install spin windows.**

## Troubleshooting Guide

Problem	Response
Upon initial installation, spin disc is noisy and wobbly	During installation, the spin disc may not have been properly seated, or screws are loose or contamination is trapped under the disc. Remove spin disc, inspect for chips or other contamination. Clean thoroughly using lint free wipes and reinstall.
Spin disc makes noise and/or not rotating at full speed	Review <b>Cleaning</b> on page 6. Check air supply for recommended operating air pressure. See <b>Air Hookup</b> .
Disc will not sling off heavy coolant	Redirect coolant flow and/or turn down coolant pressure.
DiscAir bond is failing	See relevant <b>Surface Preparation</b> and <b>Bonding</b> sections.
Spin window fogs up	Check air supply line for excess water contamination.

## Warranty

DiscAir components are warranted to be free from defects in workmanship for six months. Components which fail within this period of time will be replaced without charge. Abrasion to the spin disk is not covered by this warranty, nor is the failure of components from misuse, improper air supply hookup, or failure to observe restrictions set forth in the installation instructions.

If you need technical assistance, replacement parts, or if you did not receive all the items listed on page 3 of these instructions, please call your distributor.

For more information on Tooling 2000 products, visit our web site at [www.tooling2000.com](http://www.tooling2000.com).

## Replacement Parts

225500	Disc/Drive Assembly
2205005	Hub Cap
225200	Bearing/Rotor Assembly
2108016	ABS Wrench (included in Parts Kit 225900)
225VMPA	Mounting Plate Assembly w/Bondset, Sealant, Coated Screws
220A1020	Bondset (included in Bonding Kit 220ABK)
220ABK	Bonding Kit: Bondset, Sealant
175PFxx.x	PUR (polyurethane) tubing, sold by meter length "xx.x"
2208031	Sealant, for VHB edge to window protection

## Optional Equipment

2209001	Installation Vacuum Pump, tool for installing & rebonding units properly
AG Option	DiscAir Air Gun Kit (contains Silvent 008, 1W3206, swing, fitting)
SIL008	Silvent 008 Airgun
1W3206	PUR Air Hose Coil



# DiscAir

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Please call your distributor or TOOLING 2000 with technical questions or to order spare parts.

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