

Location: Building G West Machine Shop

Purpose: To lockout and tagout the Mori Seiki Duravertical CNC Machine #2 for preventive maintenance and repairs.

Hazards:



ELECTRICAL 208 VAC Electrical shock may result in severe injury or death. When opening disconnects, stand to the side in case of energy release. Qualified person(s) must test for the absence of voltage with a voltage-checked meter when electrical work is to be performed.



PNEUMATIC 120 PSI Compressed air is extremely forceful and can dislodge particles from the vessel and enter eyes and damage skin; pressure and sound may also cause hearing damage.



HYDRAULIC 3000 PSI system parts and connections can contain high pressures which if suddenly and unexpectedly released can cause serious injury or death.



PINCH POINTS AND CRUSH HAZARDS Be aware of the potential for bodily injury from crush hazards existing between various components.



ROTATING MACHINERY Be aware of the potential for bodily injury from entanglement with rotating machine parts. Extreme caution is necessary when working in these areas.

Devices Needed:



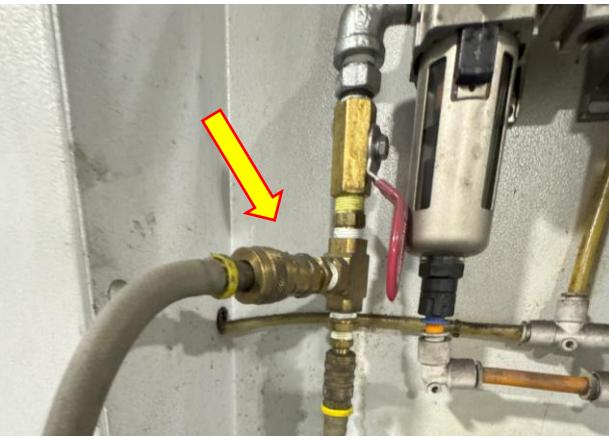
Locks: 2



Quick-Disconnect
Pneumatic Device: 1



Mori Seiki DV CNC Machine #2

| Steps | Key Points |
|--|--|
| Prepare for Shutdown | |
| 1. Notify the affected employees and identify the energy sources. | |
| Shut Down Equipment | |
| 2. Shut down the machine at the control panel. |  |
| Lockout Equipment | |
| 3. Place the main disconnect switch in the OFF position 208 VAC |  |
| 4. Apply lock and tag to disconnect switch. |  |
| 5. Disconnect the compressed air quick disconnect (QD) fitting. 120 PSI |  |
| 6. Apply lock and tag to QD fitting with locking device. |  |

| Steps | Key Points |
|--|---|
| <p>CAUTION: If electrical work is to be performed, an electrical zero energy state needs to be verified by a qualified person. Per NFPA 70E, you shall use PPE and established boundaries to protect against arc flash to verify a zero-energy state.</p> | |
| <p>Remove Stored Energy</p> | |
| <p>7. Vent system pressure by opening the blowdown valve.</p> |  |
| <p>Verify Isolation</p> | |
| <p>8. Attempt to restart the machine at the control panel. The machine should not operate.</p> |  |
| <p>Restore Equipment to Operation</p> | |
| <p>9. Check the Mori Seiki Duravertical CNC machine #2 and the immediate area around it to ensure that nonessential items have been removed.</p> <p>10. Verify that the controls are in proper position prior to re-energizing equipment.</p> <p>11. Remove the lockout devices and reenergize the machine or equipment in the reverse order in which they were applied.</p> <p>12. Notify affected employees that servicing is complete, and the equipment is ready for operational test.</p> | <p>When the servicing or maintenance is completed, and the machine or equipment is ready to return to normal operating condition, these steps shall be taken.</p> |