

VERSABUILT ROBOTICS



UR Lathe Automation System Safety Manual

Safety Warnings

Validity and Responsibility

The information in this manual does not cover all equipment that can influence the safety of the complete system. The complete system must be designed and installed in accordance with the safety requirements set forth in the standards and regulations of the country where the system is installed. The integrator of VersaBuilt products are responsible for ensuring that the applicable safety laws and regulations in the country concerned are observed and that any significant hazards in the complete application are eliminated. This includes, but is not limited to:

- Performing a risk assessment for the complete system
- Interfacing other machines and additional safety devices if defined by the risk assessment
- Setting up the appropriate safety settings in the software
- Ensuring that the user will not modify any safety measures
- Validating that the total system is designed and installed correctly
- Specifying instructions for use
- Marking the system installation with relevant signs and contact information of the integrator
- Collecting all documentation in a technical file; including the risk assessment and this manual

**Before implementation and use of system, read and understand the Universal Robot manuals.*

Limitation of Liability

Any safety information provided in this manual must not be construed as a warranty, by VersaBuilt, that the system will not cause injury or damage, even if the system complies with all safety instructions.

Safety Warnings

DANGER: The VersaBuilt Lathe Automation System is an industrial machine tool designed to be operated by trained personnel only. Devices within the Automation System may move suddenly and without warning. Serious or fatal crushing injuries can occur from contact with the robot, gripper or vises.

Before deploying the Lathe Automation System, a safety risk assessment must be completed in accordance with local, state and/or federal requirements.

The Lathe Automation System should only be used by trained operators.

Safety Warnings

The information, materials, and opinions contained in this content are for general information purposes only and are not intended to constitute legal or other professional advice and should not be relied upon on or treated as a substitute for specific advice relevant to particular circumstances.

VersaBuilt makes no warranties, representations or guarantees, whether express or implied, with respect to the contents of this Safety Manual including, without limitation, as to the quality, accuracy, reliability, currency, completeness, or fitness for any particular purpose of such content. To the maximum extent permitted by law, VersaBuilt expressly disclaims any and all liability arising from your use of the System.

This document is is not meant to be a substitute for the content available in the ISO documents. The ISO standards can be found here: <https://www.iso.org/>

UR Robot Safety Settings

DANGER: Do not operate the Lathe Automation System without first reviewing and validating the safety settings stored in the UR Robot.

Running the Lathe Automation System with the UR Robot safety configuration without sufficient safety limitations may create dangerous conditions for operators that may come into contact with the system.

Specifications

Electrical Requirements

| Device | Voltage | Full Load Max Amp Draw |
|-----------------|--------------------------|------------------------|
| Robot | 120 VAC 1 phase 50/60 Hz | 5 |
| VSC | 120 VAC 1 phase 50/60 Hz | 1 |
| Ethernet Switch | 120 VAC 1 phase 50/60 Hz | 1 |
| VersaWash Pump | 120 VAC 1 phase 50/60 Hz | 2 |

Electrical circuit breaker(s) should be adequately sized for the application. For the above devices a 10A or 15A breaker for all is recommended.

Specifications

MultiGrip Gripper, Clamping Force

| Air Pressure (psi) | Gripper Clamp Force (lbf) |
|-----------------------|------------------------------|
| 20 | 10 |
| 30 | 15 |
| 40 | 19 |
| 50 | 24 |
| 60 | 29 |
| 70 | 34 |
| 80 | 39 |
| 90 | 44 |
| 100 | 49 |
| 110 | 54 |
| 120 | 58 |

Risk Mitigation

VersaBuilt System Controller

The VersaBuilt System Controller includes electronically actuated pneumatic valves for controlling grippers and optionally a pneumatic door. There is addition I/O for controlling Chuck actuations. The VersaBuilt System Controller IOs are not safety rated and may actuate pneumatics unexpectedly. A pneumatic supply valve with lockout provision is provided to remove pneumatic energy from the VersaBuilt System Controller.

DuoGrip Gripper

The DuoGrip Gripper is controlled by the Robot IO signals. The pneumatic configuration of the Lathe Automation System includes an option to remove pneumatic energy from the gripper using the VersaBuilt System Controller pneumatic supply valve.

Risk Mitigation

CNC Door Interlock

A CNC Door Interlock is required for the system to operate safely and without risk of damage to equipment and personnel. Insure proper functionality of interlock before installation of automation.

Safety Warnings

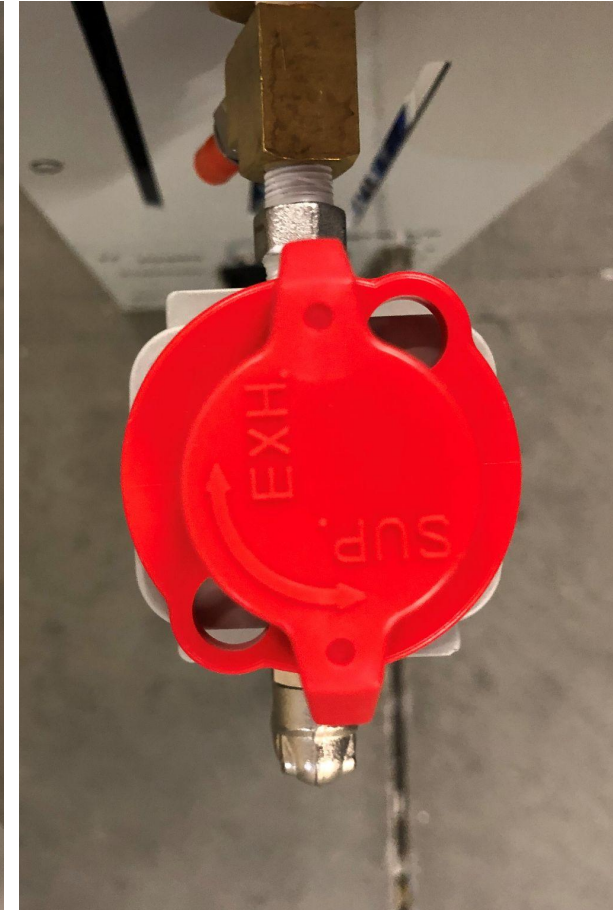
The pneumatic supply valve should be turned to the off position when the system is not in use

Lock-Out-Tag-Out procedure:

In the OFF position, the lock holes will line up in order to allow operator to lock pneumatic supply valve closed. We suggest cycling the vise via hand valves until all compressed air is expressed after closing the valve.



OFF Position



ON Position