

CNC Compatibility & Pre-installation Guide: **VBX Series**



Table of Contents

Table of Figures.....2

CNC Compatibility.....3

Pre-installation Summary4

AWR Responsibility4

Customer Responsibility.....4

VBX-160 Placement5

Gate and Pivot Posts.....6

Robot Controller Placement7

Electrical Requirements7

Air Supply Requirements.....8

VBXC/CNC Door Interlock Information.....8

CNC Compatibility9

Table of Figures

1 - VBX-160 Pivoted from CNC2

2 - Top View of VBX-160 in Front of CNC3

3 - Top View of VBX-160 Pivoted Away from CNC.....3

4 - Gate & Pivot Posts4

5 - Robot Controller Shown on Both Sides of CNC4

6 - Power Receptacle (L1520R)7

CNC Compatibility

These CNC options are required for compatibility with the VBX Series Load & Go.

FANUC

1. Fanuc FOCAS 2 control version:
 - Series 30i /31i /32i-MODEL A
 - Series 31i-MODEL A5
 - Series 30i /31i /32i /35i-MODEL B
 - Series 31i-MODEL B5
 - Power Motion i-MODEL A
 - Series 0i-MODEL D/F
2. Push button for cycle start (very common)
3. Automatic Door

HAAS

1. Haas CNC machine built after 2004 with a Legacy or NGC next generation control
2. User-Definable Macros
3. Automatic Door

OKUMA

1. Okuma THINC API version 1.18 or later
2. Automatic Door

OTHERS

- The VBX Series Load & Go automates other CNC's using limited communication, including Hardinge, Doosan, Mazak, and DMG Mori.
- With this driver, the vise will stay clamped at a constant pressure once the machining program starts. For example, Y or Z push tools are not used.
- Please email info@automationwithinreach.com for more details.

Pre-installation Summary

The purpose of this document is to provide complete information, to both AWR customers and authorized dealers, for a smooth and efficient machine installation. Contact AWR or your authorized dealer if you have questions beyond the scope of this guide.

Please complete or validate the following prior to delivery of the VBX Series Load & Go.

1. Floor-space for VBX-160 positioned in front of the CNC
2. Floor-space for VBX-160 pivoted away from the CNC
3. Floor-space and location for drilling holes in concrete to anchor 2 posts
4. Floor-space and location for Robot Controller/PLC
5. Provide 230 VAC, 1 phase electrical power receptacle
6. Provide a connection of 90-120 psi compressed-air for VBX-160 system

AWR Responsibility

1. Ensure that the customer is provided with this document containing correct VBX-160 Load & Go location as well as electrical and air requirements.
2. Provide the customer with the date the machine will be shipped from the factory, the expected arrival date at their facility and the planned installation date.
3. Make sure that the customer has access to information on coolant, lubrication, anchoring, and certifications as required.
4. Schedule an AWR authorized service technician to be on site for the duration of the installation.

Customer Responsibility

VBX Series

1. Before your new VBX-160 arrives, you should review the machine dimensions and site requirements, and prepare your shop for the VBX-160 delivery.
2. Ensure that all electrical and air requirements are met and installed prior to VBX-160 delivery.

Part Process

3. Install the vises and machine the MultiGrip workholding in the CNC. This will be shipped prior to VBX delivery.
4. Manually machine a part using the MultiGrip workholding. This part will be tested during installation.

Installation

5. Installation will be scheduled by AWR and/or your dealer **after** the above steps are completed.
6. If the customer responsibility steps are not completed upon arrival of the AWR service tech, an additional \$4,000 installation charge will occur and the install will be rescheduled.

If, after reading the guide, you have any questions or you are unsure of what is required, contact Automation Within Reach for clarification (support@automationwithinreach.com).

VBX-160 Placement

Ensure that there is adequate space in front of your CNC to locate your VBX-160 and space to pivot the VBX-160 away from the CNC for access to both the VBX-160 and your CNC machine. The following images show the VBX-160 pivoted away and engaged with the CNC.

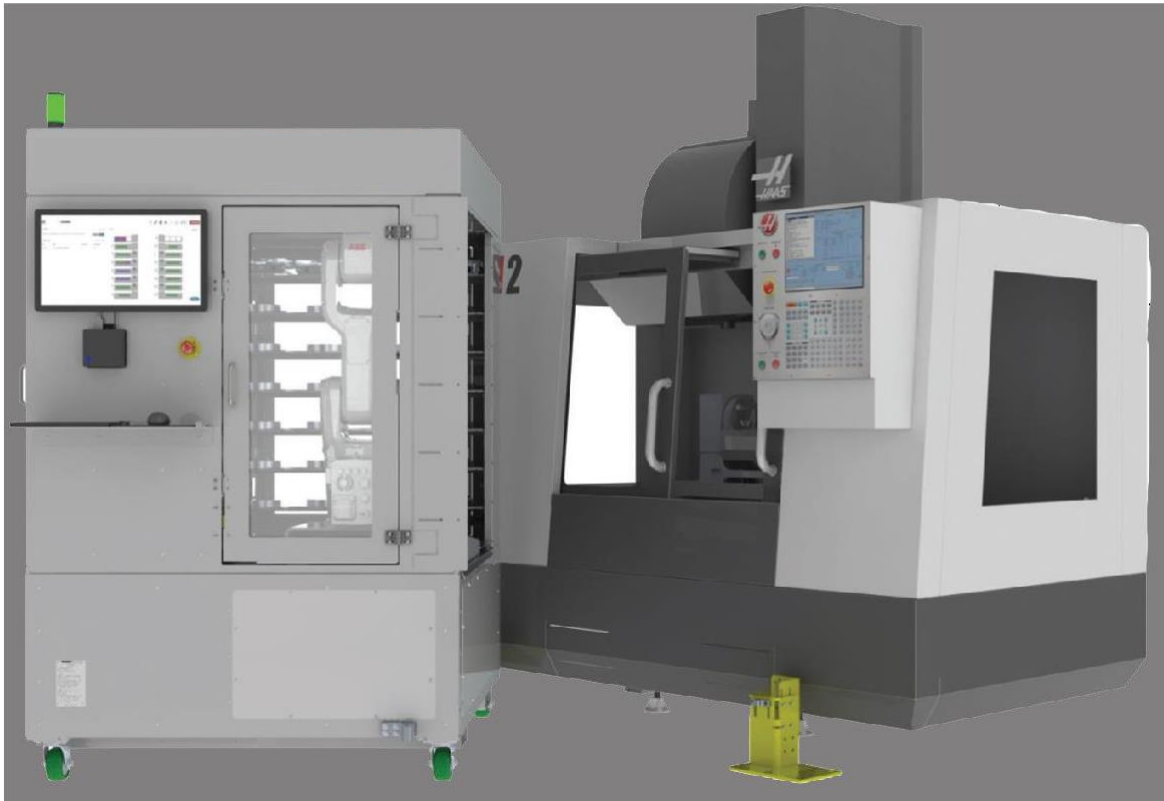


FIGURE 1. VBX-160 PIVOTED FROM CNC

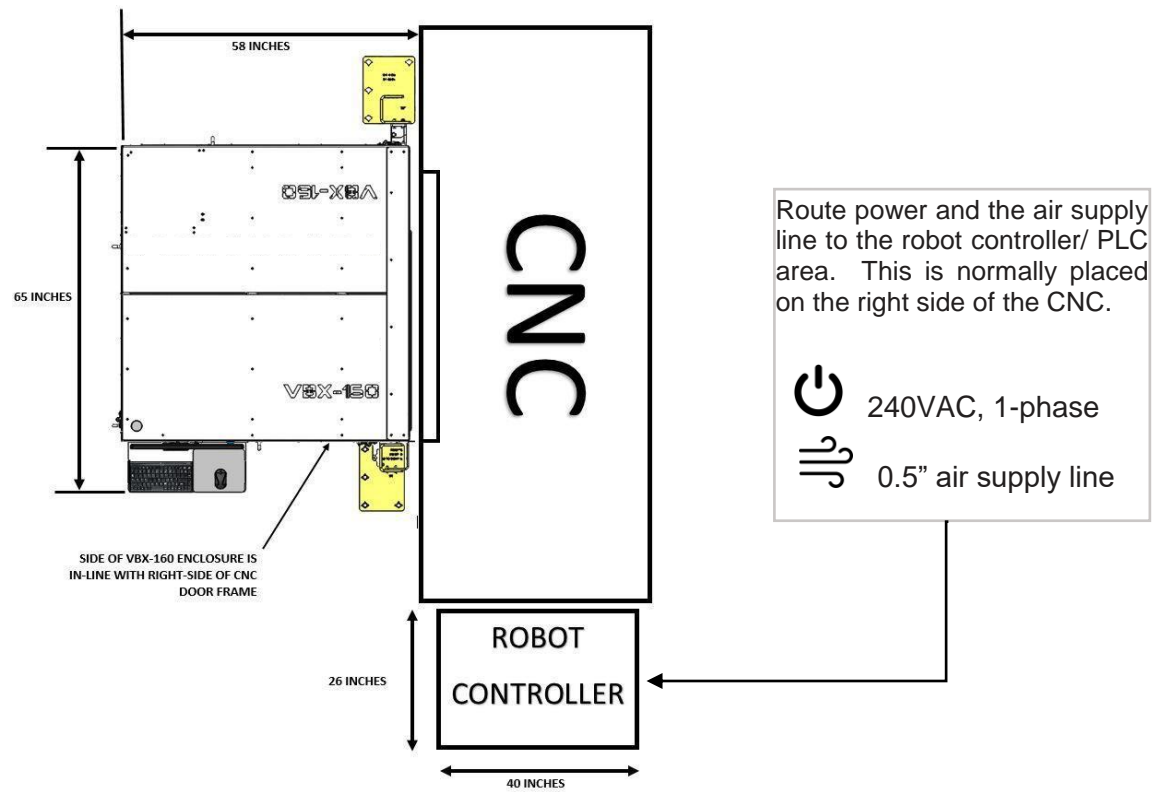


FIGURE 2. TOP VIEW OF VBX-160 IN FRONT OF CNC

Use caution when moving or pivoting the VBX-160. Risks to personnel may include severe bodily injury. Pay particular attention when pivoting the VBX-160 to prevent pinching between the VBX-160, your CNC machine and other objects in the vicinity.

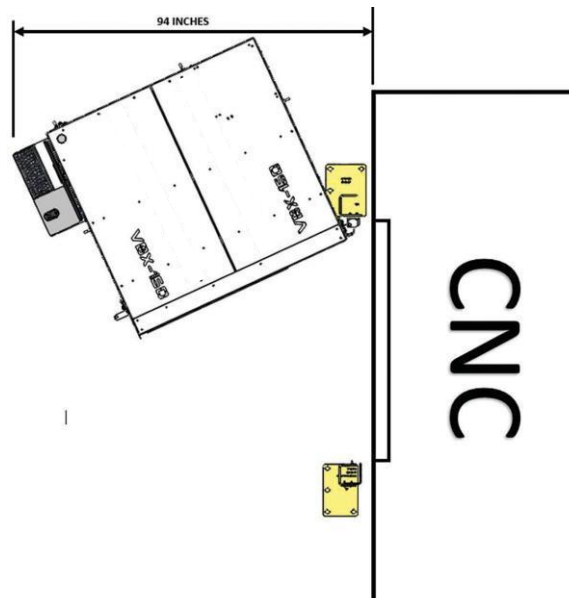


FIGURE 3. TOP VIEW OF VBX-160 PIVOTED AWAY FROM CNC

Gate and Pivot Posts

Gate and pivot posts are installed into the concrete in front of your CNC by AWR or an authorized dealer/service provider. These posts maintain proper position of your VBX-160 with respect to the CNC it is tending. Four (4) holes are drilled into the concrete for each post, with -13 UNC drop-in concrete anchors inserted into the holes for attaching the posts to the floor. The Gate and Pivot Posts attach to the VBX-160 via steel quick-release pins. To pivot the VBX-160 away from the CNC, the gate post pin is removed and then the cell is rotated away via the pivot post. To get it back to the 'locked' position in front of the CNC simply push the cell back into position against the gate post and reinsert the pin.

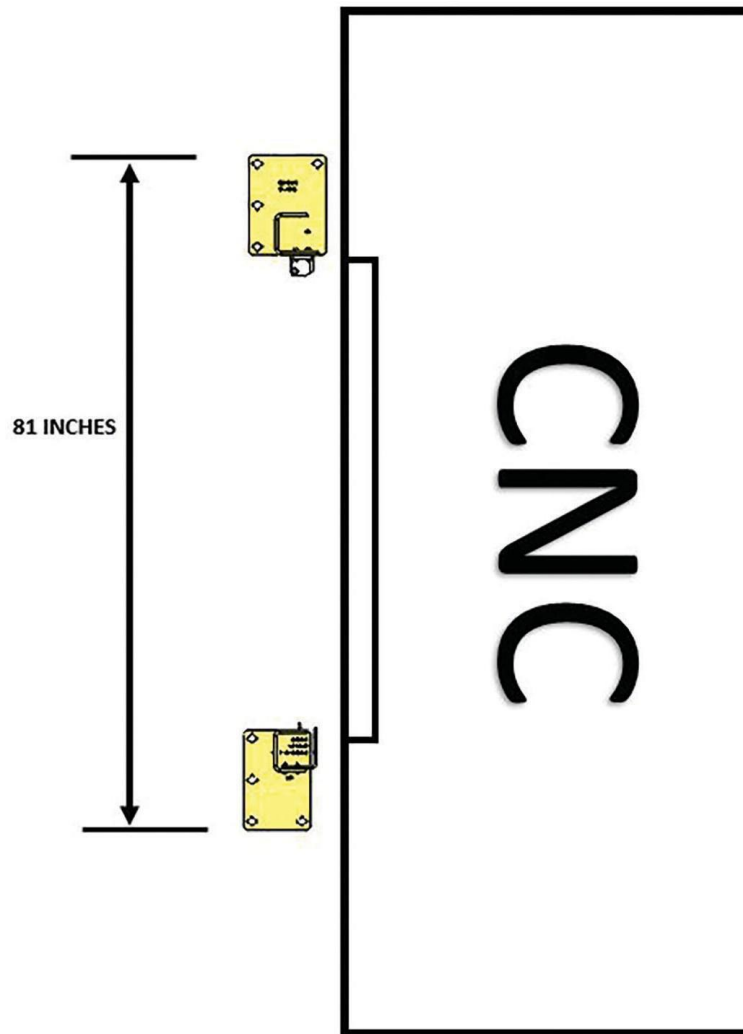


FIGURE 4 - GATE & PIVOT POSTS

VBX-160 Robot Controller Placement

This unit is 40" wide x 26" deep x 61" tall. It is typically located on either side of the CNC which gives it access to both the VBX-160 cell and the CNC the system is tending. It can be located just about anywhere less than 5 meters (16.4-feet) from the system.

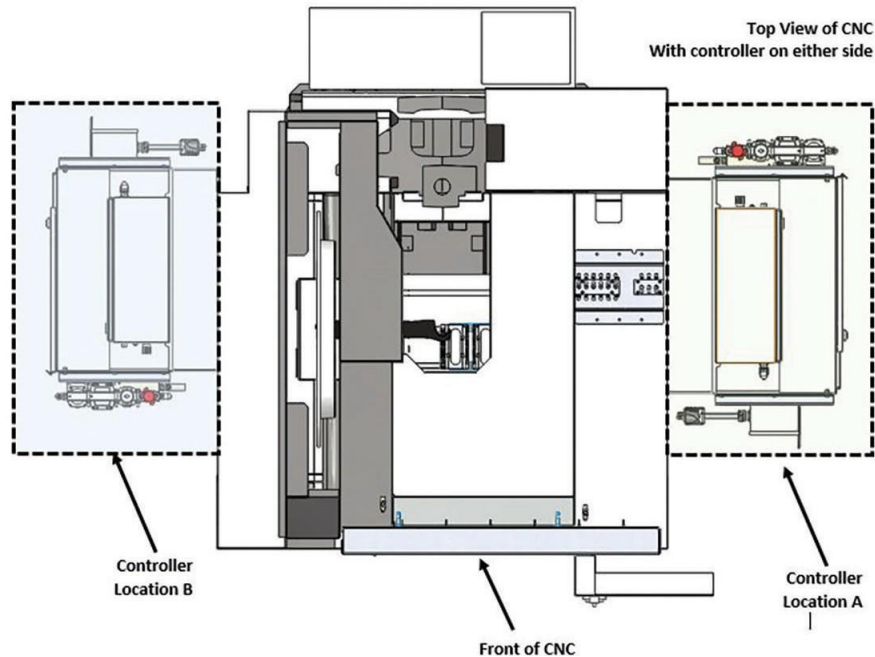


FIGURE 5. ROBOT CONTROLLER SHOWN ON BOTH SIDES OF CNC

VBX-160 Customer Electrical Requirements

The electrical power supplied to the machine must comply with all local codes and ordinances.

Electrical Supply to VBX-160:

208-240VAC, 1-phase 50/60Hz 20A Max Load

Recommended Electrical Service:

1. Circuit breakers are UL489 compliant 20A, 1phase
2. Customer to provide electrical service via NEMA connectors, twist lock style (see Figure 6):
 - a. Receptacle for 208-240VAC -L1520R, VBX-160 comes with Plug-L1520P
 - b. Distance: within 10 feet of VBX equipment
3. Wire size for this electrical service should be AWG #10 or larger



FIGURE 6. POWER RECEPTACLE (L1520R)

Compressed Air Supply Requirements

The VBX-160 requires air supply at a minimum pressure and volume for proper operation. The minimum requirements are:

1. Minimum Flow Requirement: 8.8 cfm at 100psi (60 scfm)
2. Air Pressure: 90-120psi
3. For connections to the VBX-160, please provide the following:
 - The required input air supply line size is 1/2"
 - If you plan to use a quick coupler, use a 1/2" coupler for the 1/2" air hose

<p>Note: If you make auxiliary air connections, they must be on the input (unregulated) side of the air filter/regulator or air shutoff valve. If incoming air pressure is higher than 145 psi, AWR requires the customer to provide regulated air below 145 psi.</p>

VBXC/CNC Door Interlock Information

The VBX-160 and the CNC machine both have safety circuits that are intended to protect humans while allowing necessary communications to occur between the two systems for robotic processing.

CNC machines have a door interlock safety circuits preventing operation when the CNC door is open. When the CNC is processing, there is an interlock device locking the CNC door to prevent them from being inadvertently opened.

The VBX-160 has a safety circuit that connects sensors on the rack 1 door, rack 2 door and the gate post where the VBX-160 can be pivoted away from the CNC. If any of these sensors are interrupted, the 'motors on' light on the robot arm will go out and robot motion will be stopped.