

# PypeServer for the Vernon Mini

This is a user’s manual for using PypeServer with the Vernon Mini. It covers configuring both PypeServer and the Vernon Mini so they work together.

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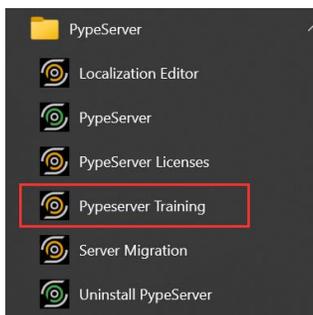
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## 1 Training Materials

This document only covers items specific to the Vernon Mini. Please review PypeServer’s training materials built into PypeServer:



And installed as a separate program when PypeServer is installed.



## 2 Vernon Mini Machine Controller Settings

This section describes recommended and required settings to be made on the Vernon Mini machine itself (not PypeServer).

### 2.1 Set the M0 GCode to pause

In the Vernon Mini machine configuration software, you may have the option to automatically bypass the GCode pause command “M0”. This should be turned off so that when PypeServer uses an M0 (pause) command in the .nc file (G-Code) for the mini, the machine will in fact pause. The ability to pause enables a number of PypeServer features.

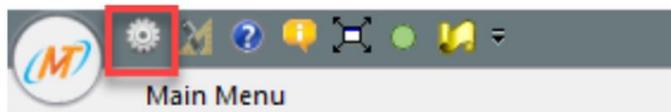
### 2.2 Set the X rotation units to distance, not angular

Some versions of the Mini software have this setting. If there is a setting, choose distance (not angle). Also, in the PypeServer machine special settings, the “Pipe Rotation Is Angular” should match.

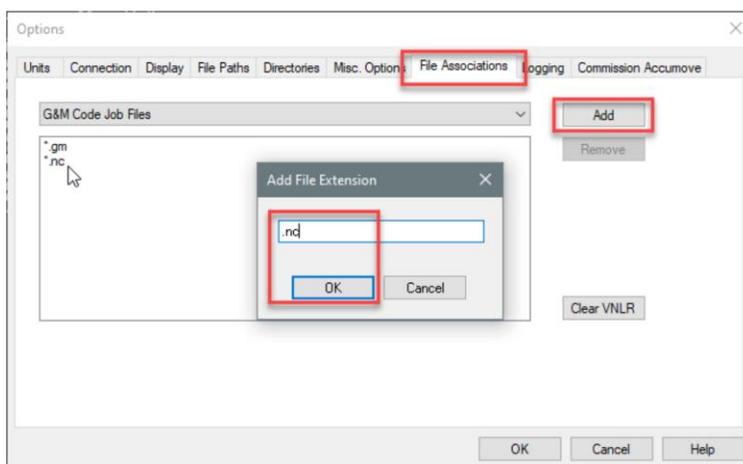
### 2.3 Configure to load and run .NC programs created by PypeServer

In some cases, customers cannot see .nc files when in the Mini Controller. This section explains how to make .nc files visible so they can be selected for loading to the machine.

- When VMD is connected to the controller, log on as Admin, password 1234
- Once logged-on, press the “Options” button in the upper left corner of the screen:



- In the options window,
  - Click on the “File Associations” tab
  - Click the Add Button
  - Type .nc and press OK



Once you have completed this you should see the \*.nc file extension in the associated “G&M Code Job Files” and will be able to view \*.nc files when selecting a job.

### 3 PyeServer Settings

NOTE: Most machine, torch and system settings are set by PyeServer when first configuring the machine. The settings shown here are those most commonly set or adjusted by the user. These properties are seen in the Machine Settings tab. Some of the settings are only seen after entering the Admin password, which by default is "Admin". Please contact PyeServer to change the password.

#### 3.1 Machine General Properties

Firmware Revision	1
Machine Name	VernonMini
Cutting Dead Zone	20.000
Machine Zero to End of Pipe	0
Folder or IP Address	C:\MachineOutput\VernonMini
Data Transfer Mode	DumpToFile
Data Reporting Mode	SystemWatchesFiles
Local Connection Required	<input type="checkbox"/>
Min Cut Steps	2
Max Cut Steps	3000
Leadin Min Distance	0.2
Lead In-Out Arc Radius	0.2
Leadin Steps	8
Machine Positioning	111
Machine Capabilities Filter	1111111111000000
Is Metric	<input type="checkbox"/>
Default Cutter Type	Plasma

See training document "Load With Last Cut In Chuck"

A shared location where PyeServer can write NC files, and the Mini can see these files.

See the training video "NC File Management and Sync"

Check this if you want the units in the GCode to be metric.

Set items in yellow as shown. They should be set this way by default

See the PyeServer training video "NC File Management and Sync" to understand how .nc files are used by both PyeServer and the Mini.

#### 3.2 Machine Specific Properties

Name	Value
NC File Tag	.nc
Stagger Staight Cut Start Rotation Dist	1.000
Pipe Rotation Is Clockwise	True
Pipe Rotation Axis Is Angular	False
Gantry Travel Is To Right	True
Torch Bevel Ang Is Clockwise	True
Feedrate Scalar	10
Pause After Pieces Shorter Than	0.000
Process Running Machine	unspecified
Friendly Name For Machine App Tab	unspecified
Show Machine App In Tab	False

The file suffix you prefer for your .nc files.

Machine axes configurations. PyeServer will assist with these settings.

When nesting, the start of the next part's straight cut will be rotated by this distance on the pipe to prevent the previous cut's leadin and leadout from crossing paths with this cut's leadin and leadout.

Pause the machine after any pieces shorter than this fall off the pipe. This includes scrap pieces between parts.

Set values in yellow as shown

### 3.3 Torch Properties

Torch Name	T1
Cutter Beam Divergence Ang	0
Kerf	0.050
Leadin	0.250
Leadout	<input checked="" type="checkbox"/>
Leadout Start Distance	0.150
Early Off Dist	0.000
Torch off lag time (msec)	0
Tab Length	0.125
Max Bevel Angle U	45.00
Max Bevel Angle V	45.00
Admin Configs	
For Machine	^
Torch ID	600
Torch Type	Plasma
Cut Step Increment	0.100
Torch Swirl CW	<input checked="" type="checkbox"/>
- Use Cut Direction Controls	<input type="checkbox"/>
Right Endcut CW	<input type="checkbox"/>
Hole Cut Direction CW	<input type="checkbox"/>
Left Endcut CW	<input type="checkbox"/>
XOffset From Pivot	0
YOffset From Pivot	0
Axis U is Manual	<input checked="" type="checkbox"/>
Axis V is Manual	<input checked="" type="checkbox"/>
Pause For Torch Change	<input type="checkbox"/>
Manual Head Pivot Height	0.000

Set items in yellow as shown

See the PypeServer training video "Beam Divergence". For this machine it is used for the endcuts.

The torch will turn off for this length to make a tab. Actual tab lengths will vary per torch settings, feedrate, bevel angle, etc.

Same name as you see in your PMP .nc file samples. T1 is default.

The width of the torch plasma cut

See PypeServer training "Torch end of cut leadout and tuning"

Tilt your torch to the max tilt and enter the angle minus the cutter beam divergence angle here.

The height of the pivot point of the torch relative to the top of the pipe. Up is positive. Down is negative.

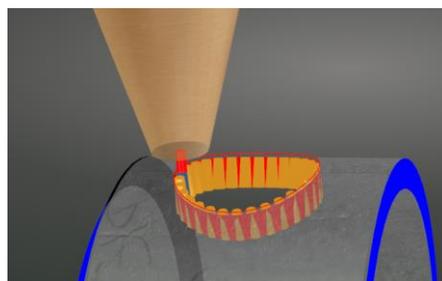
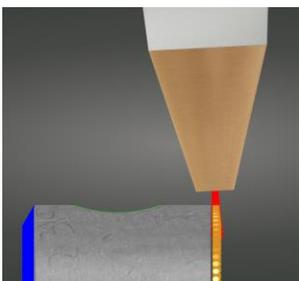
#### 3.3.1 Beam Divergence for manual axis

Note that in most cases for the Mini, the Beam Divergence is set to zero to remove the need to adjust the torch for straight cuts.

See the training video "Beam Divergence" for more information on beam shape (divergence).

You can use beam divergence for manual tilting torches. This will compensate for torch shape for end-cuts only. It cannot compensate for holes because as a hole is cut, the entire circumference of the torch is used such that there is no single tilt angle.

Here you can see a torch with a beam divergence of 3 degrees cutting both an endcut and a hole. In GCode the user will be instructed to rotate the torch by + or - 3 degrees (direction depending on the markings on the torch head). However, for a hole, the beam will be straight. Note however that PypeServer displays the torch "cones" with their actual shape so that the user can see what is really going to be happening when the hole is cut. In this case the expanding torch will be slightly over-cutting the ID of the hole.

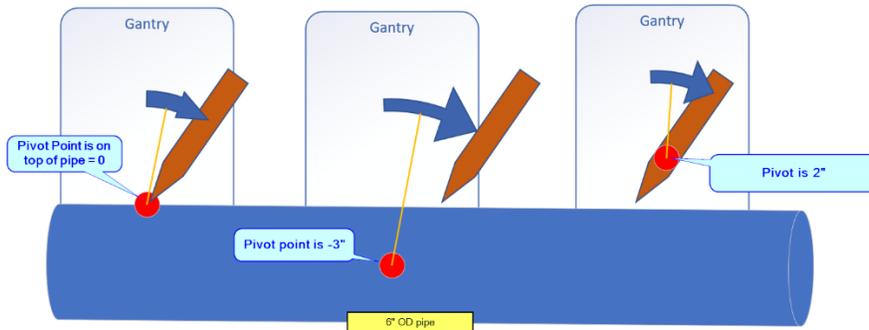


### 3.3.2 Manual Head Pivot Height

If your mini's torch can be manually tilted, you will need measure the rotation pivot point from the top of the pipe. If mechanically possible, it is recommended that you move the rotation point to be even with the top of the pipe, and set the Manual Head Pivot Height to zero.

A pivot point below the top of the pipe is a negative number. A pivot point above the top of the pipe is a positive number.

Here are examples.



If you can mechanically adjust this pivot point on your machine, it is advised that you move this pivot point to the top of the pipe and set the Manual Head Pivot Height to zero.