

# Load with last cut in the chuck

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If you have a pipe with a pre-cut, straight end-cut (typically with a ground bevel), you can put that end in the chuck and use that as the last cut of your last part. This also works for a single design part.

This effectively eliminates the “dead-zone” on the pipe.

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## 1 How it works

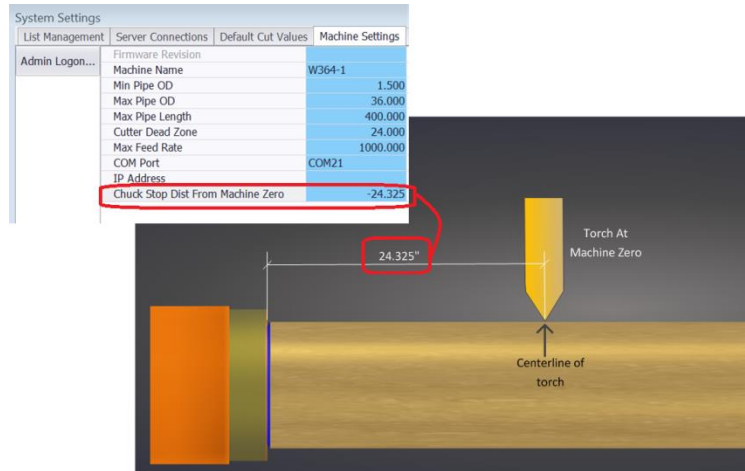
PypeServer knows the length of the nesting (or in Design mode, the part), so all it has to do is get you to position the torch at exactly the right absolute machine position when starting the first cut.

1. Set the distance from where your pipe stops in the chuck to the torch at machine zero. (once).
2. Create a nesting or part that has no additional cuts (besides the endcut) in the actual dead zone.
3. You then tell PypeServer that the last cut is in the chuck.
4. PypeServer gives you a machine absolute position to go to.
  - a. Some machine will go there automatically.
5. You go to that machine absolute position and hit start.
6. The last cut will be ignored (as it is the end of the pipe).

## 2 Setting Up the Machine Once

You only need to do this once.

- Zero your machine and make sure the torch is vertical
- Measure the distance from where the pipe will stop in the chuck to the torch at machine zero.
  - It may help to insert a piece of pipe and chuck it tight and just measure the end.
  - Also, for systems with pass through chucks, you may elect to create some alternative pipe end-stop (any distance through the chuck). Wherever you set the end stop—enter that as a negative distance from machine zero.



**NOTE: If your machine can move the chuck toward and away from the pipe, then you need to pin it/lock it in one location. Moving the chuck forward or back from the pipe will require that you re-measure this again.**

### 2.1 Testing your length

- Put a piece of inexpensive pipe in the machine and test it. To save pipe, use a length that is just a little longer than the distance you entered above (the chuck to torch distance).
- In PyeServer, design a part that is a little less than the length of that piece of pipe. Just two straight endcuts.
- Load the part directly to the machine (no nesting required)
  - Check Last cut is in the chuck when loading
- Cut the part.
- If the part comes out too long, increase the distance of the chuck stop to torch distance
- If the part comes out too short, decrease the distance of the chuck stop to torch distance.

Here's a formula:

$$\text{NewChuckStopDistFromMachineZero} = \text{CurrentChuckStopDistFromMachineZero} + (\text{ActualPipeLength} - \text{DesiredPipeLength})$$

Eg:

CurrentChuckStopDistFromMachineZero = 20

DesiredPipeLength = 30

ActualPipeLength = 31.5

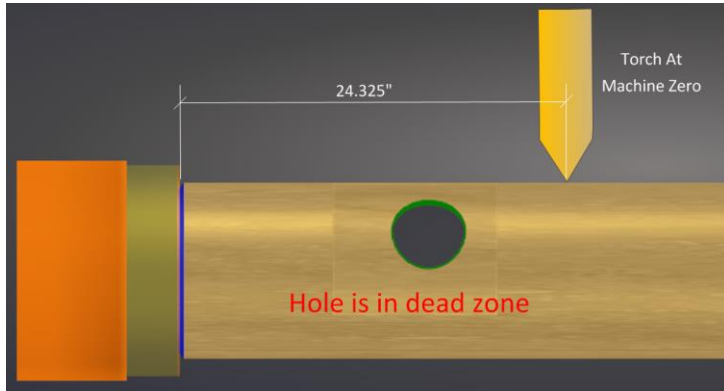
$$\text{NewChuckStopDistFromMachineZero} = 20 + (31.5 - 30) = 21.5$$

### 3 Preparing the Part or Nesting

The primary objective is to have a left pipe end with a straight cut, and no cuts within the dead zone distance from the left endcut.

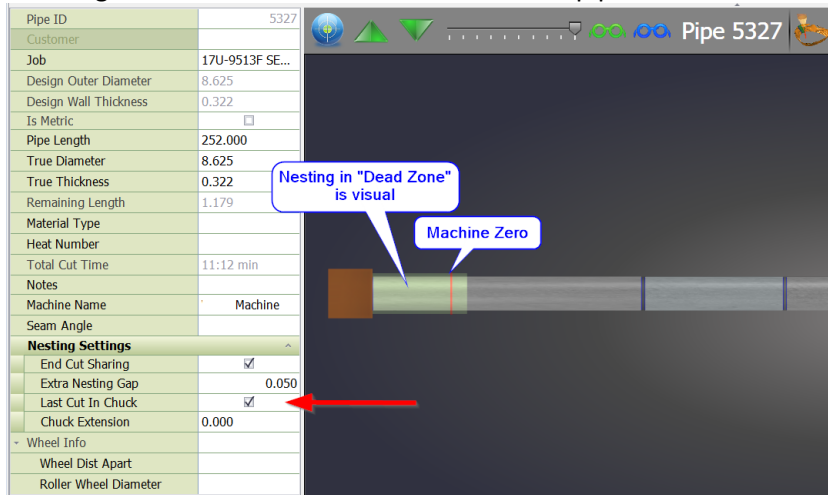
- If your design part's right end qualifies for holding in the chuck, you can nest the part and reverse it, or you can reverse your design in the PypeServer design editor.

This will not work



## 3.1 When Nesting, Check Last Cut In Chuck Feature

When nesting, you must tell PypeServer that you are going to nest into the dead-zone. This is done by checking the Last Cut In Chuck checkbox on the pipe data table:



**Note** that when you check this box, the nested parts will align on the left side of the pipe (against the chuck).

## 3.2 Getting a qualifying part-end into the chuck

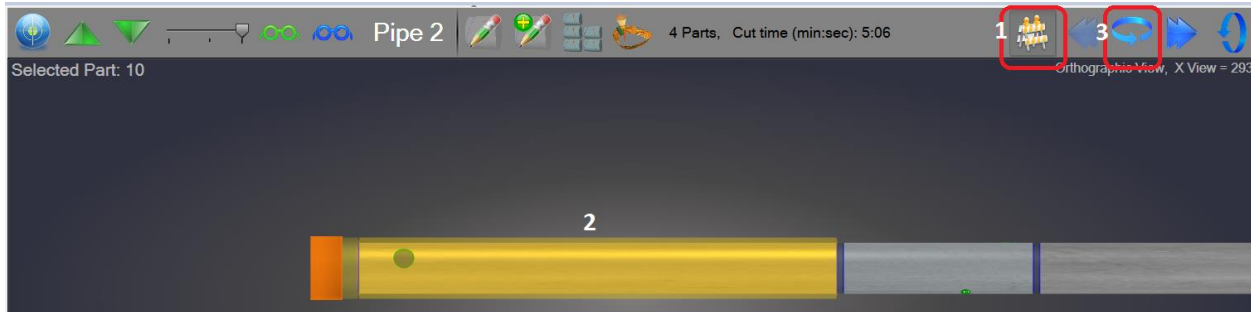
Auto-nesting seeks to nest longer pieces on the pipes, and places the longer pieces towards the machine chuck. However auto-nesting does not always favor straight end-cuts, and does not consider if there are cuts in the dead-zone. If Auto-nesting does not do what you want, you can easily set up your nesting to do this.

### 3.2.1 Flipping the last part after auto-nesting

If, after nesting, the in-chuck part just needs to be reversed, you can reverse it by manually reversing the part. (See the “Manual Editing Nestings” tutorial for more information.)

Per the above figure:

1. Select manual edit icon (1)
2. Select the part you want to reverse on the pipe (2)
3. Click the reverse icon to reverse the part. (3)



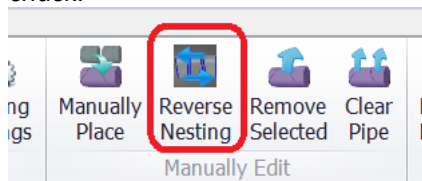
(This part won't work because there is a hole in the dead zone.)

This will give you desired results if you have another straight cut on the right end of the left most part, and there are not cuts on that end within the dead zone range.

### 3.2.2 Start your nesting with the part you want, then reverse it

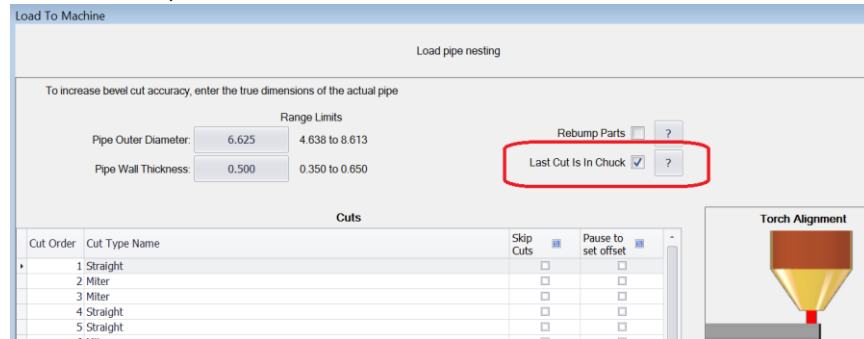
If PipeServer does not give you the long part you want to put in the chuck, you can create your own nesting. This is the best way to get what you want.

- 1 Select the long part you want to put in the chuck (one with a straight end-cut with a bevel that matches the pipe end bevel). Make sure one end has no additional cuts within the dead-zone distance from the qualifying end.
- 2 Autonest (the single part), or manually place that one part onto the pipe.
- 3 If needed, flip the part to get the cut-free end facing the RIGHT end of the pipe (the farthest away from the chuck).
- 4 Autonest the rest of the pipe.
- 5 Hit Reverse to reverse the entire nesting, and your desired part and end-cut will be in the chuck.



## 4 Load To the Machine

When loading to the machine, the Last Cut is in Chuck will be checked.

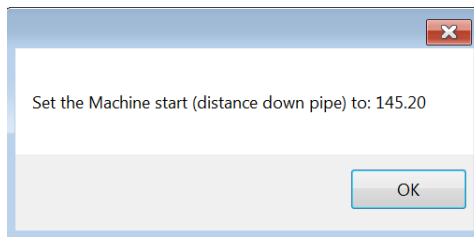


The 'Load To Machine' dialog box contains the following elements:

- Load pipe nesting** section:
  - Text: "To increase bevel cut accuracy, enter the true dimensions of the actual pipe"
  - Range Limits** section:
    - Pipe Outer Diameter: 6.625 (Range: 4.638 to 8.613)
    - Pipe Wall Thickness: 0.500 (Range: 0.350 to 0.650)
  - Rebump Parts** checkbox (unchecked) with a question mark icon.
  - Last Cut Is In Chuck** checkbox (checked) with a question mark icon. This checkbox is highlighted with a red rectangle.
- Cuts** table:

Cut Order	Cut Type Name	Skip Cuts	Pause to set offset
1	Straight	<input type="checkbox"/>	<input type="checkbox"/>
2	Miter	<input type="checkbox"/>	<input type="checkbox"/>
3	Miter	<input type="checkbox"/>	<input type="checkbox"/>
4	Straight	<input type="checkbox"/>	<input type="checkbox"/>
5	Straight	<input type="checkbox"/>	<input type="checkbox"/>
- Torch Alignment** diagram showing a torch head positioned over a pipe.

When you load to the machine, the system will then tell you where along the pipe the machine will start cutting. This cannot be adjusted by the user, as it would affect the length of the last part.



The dialog box contains the following text and button:

Set the Machine start (distance down pipe) to: 145.20

OK