

Bend-Tech Quick Start Training Class 2

i. Things To Know

- **This class worksheet is designed to walk the user through the specifics on zooming, rotating and repositioning a part, creating and editing PickPoints, using the Bend Mode tool, Editing design features and obtaining and viewing Dimensions on parts. This class will also briefly touch on the Harpoon interface. As you go through this class, later procedures will assume that you understand all earlier procedures. Because of this, it is very important that you carefully step through this guide, understanding everything along the way.**
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ii. Getting Started

1) General Issues

- **For some users, the setup process can be confusing. We are very aware that many of our customers are better at fabricating in the shop or garage than they are at operating computers. And that's OK!**

WE'RE HERE TO HELP YOU!

- **While this Class Guide has its own instructions to meet its own goals in**

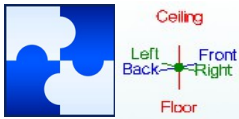
teaching you the basics to your Bend-Tech software, the over-the-phone training class is subject to change according to the needs of the customer. With that being said, the time spent on the phone for this class is set to a **THIRTY MINUTE** time slot, so we might not be able to accommodate **OUR** whole agenda if we're taking a lot of time on a certain question or concept. However, the manner in which this thirty minutes is spent is entirely up to **you!**

iii. Zooming, Rotating, and Repositioning

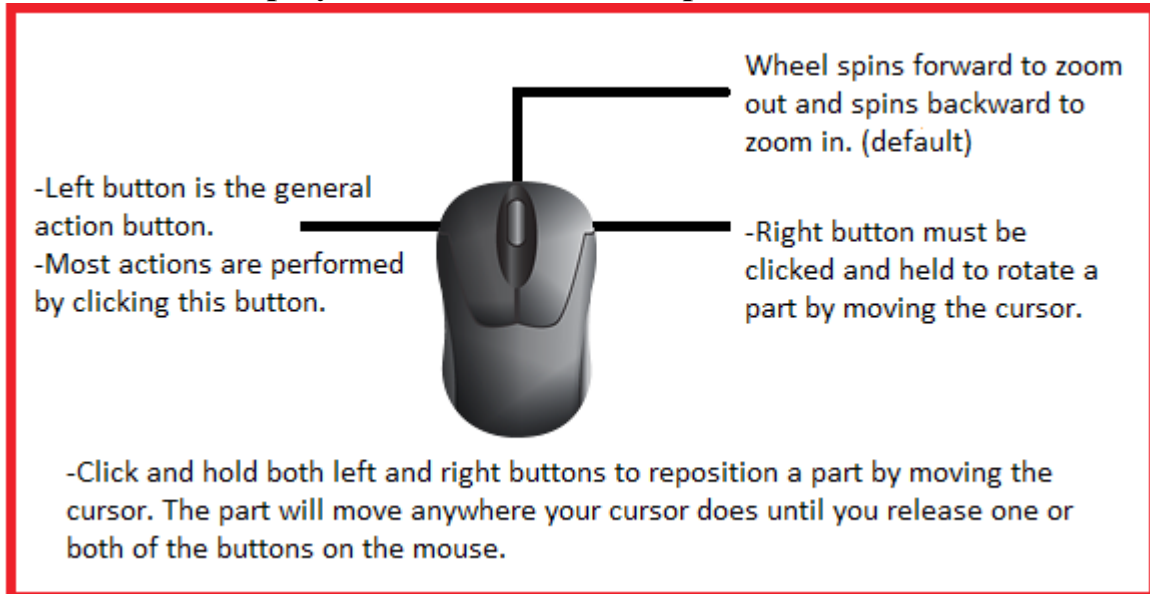


1. Start by opening the Bend-Tech software to the Task Menu screen. Before we illustrate how to zoom in and out properly and how to rotate and reposition a part, make sure that you have a mouse attached to your computer and that it is in working order. [A laptop touch/track pad is not a recommended substitute for a mouse.]





2. **Open the Assembly designer and maximize the screen. The Tri-Star at the center of the display area will be the focal point of this exercise.**



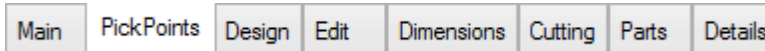
3. **“Left click” is constantly used in our software as with many other programs. When we say “click”, this is what we are talking about. So, click once in the display area in the Assembly window to activate the screen.**
4. **First, spin the wheel on the mouse to cause the screen to zoom in and out. Spinning the wheel forward will zoom out and spinning the wheel backward will zoom in. (Make sure that the cursor is placed over the part you're trying to see closer or further away. Otherwise you could zoom the part right off the screen.)**
5. **Then, click and hold the right button on the Tri-star and move the mouse around to get a feel for how the rotation works. (As with the zooming, if you don't click and hold your intended part or project, you run the risk of rotating it completely off the screen.)**
6. **Now, click and hold both buttons and move the mouse around to reposition the Tri-star to a different location on the screen.**



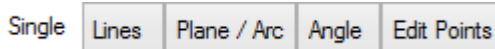
7. **When you're satisfied that you understand this, click the Home button at the top of the screen and the Tri-star will be reset to its original location, size and position.**
8. **You can also use the Projections button and choose to see the project from**

many different angles.

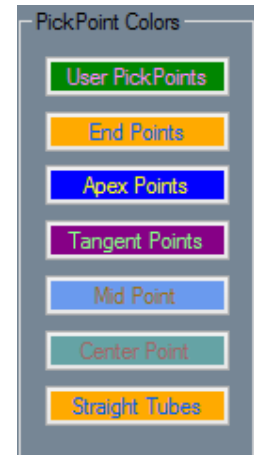
iv. PickPoints (Creating, Identifying, and Editing) [Found in Options]



1. Still in the Assembly window, start by clicking on the PickPoints tab near the upper left of the screen.

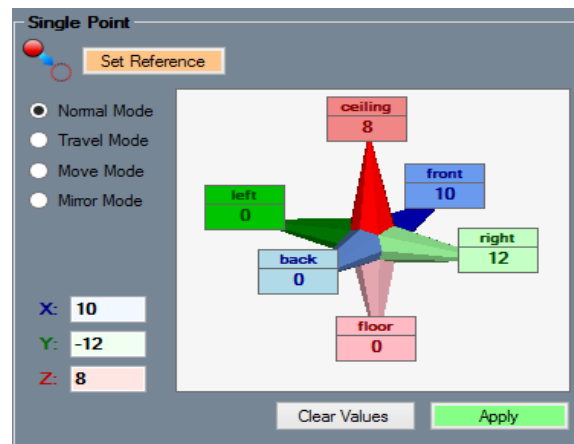


2. From here, you can see there are five additional sub-tabs that you can choose as different methods to create or edit PickPoints.



a.) SINGLE

1. Making PickPoints under the Single tab is probably the most common way for people to make them. Enter a length into a directional value field and click the Set Reference button followed by a point in the display area (like the Tri-star) and click Apply (or SHIFT+LEFT CLICK the reference to Apply immediately). Your point will be placed that many units (inches) away from its reference.

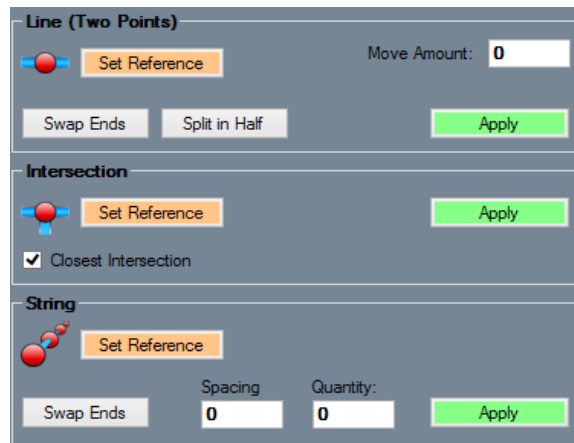


2. You can enter up to 3 lengths into these value fields at the same time as long as they don't conflict with each other. [Example. You cannot put numbers in both the Left and Right value fields. Clicking on the opposing value field will cause the number to transfer from the Left to the Right, Front to the Back, Ceiling to the Floor, etc.]
3. Use the Clear Values button to set all the value fields back to zero.

b.) LINES

1. Now, click on the Lines sub-tab to view the different ways of making

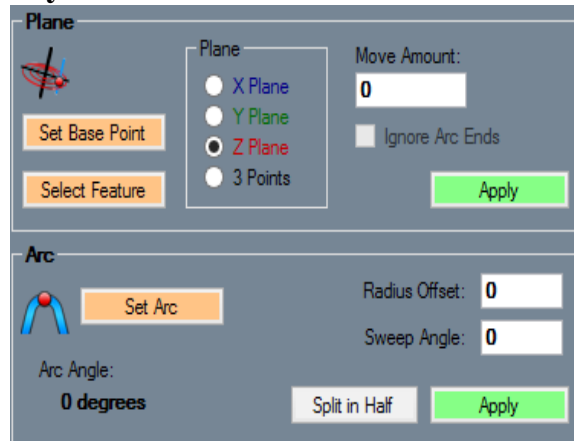
PickPoints off of a line.



2. The Line (Two Points) option is easy because you can create a line in between two points and create a new PickPoint anywhere along the line.
3. The Intersection option allows you to make two lines that intersect to place a PickPoint.
4. And the String option created multiple PickPoints along the length of a line you've created.

c.) PLANE/ARC

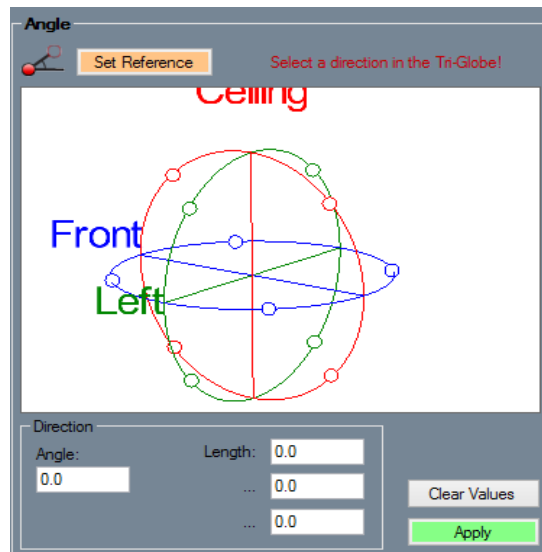
1. Click on the Plane/Arc sub-tab to view the ways to make PickPoints off of a Plane or a previously defined Arc.



2. The Plane option will allow you to choose a place to put a PickPoint either on or aside from a certain directional plane.
3. The Arc option will allow you to use angles to place a PickPoint in reference to an Arc or bend of a part.

d.) ANGLE

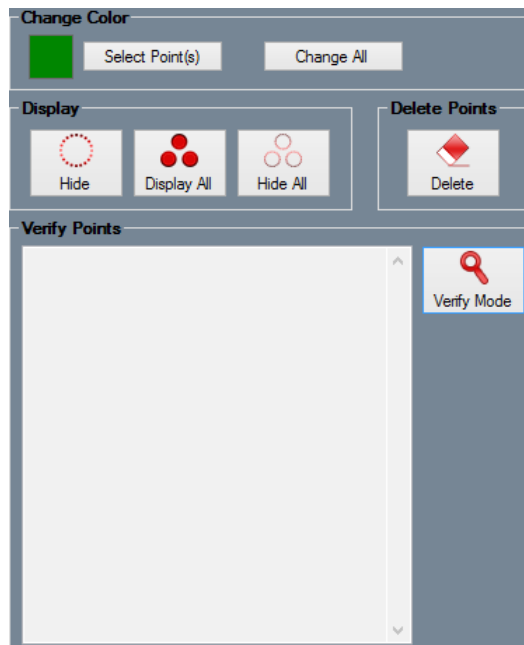
1. Select the Angle sub-tab to see how to place a PickPoint along an angle.



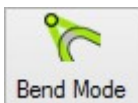
2. Pick a general direction by clicking on a circle in the Angle directional display, then type the angle of the PickPoint in reference to that and the distance it will be away from the reference.

e.) EDIT POINTS

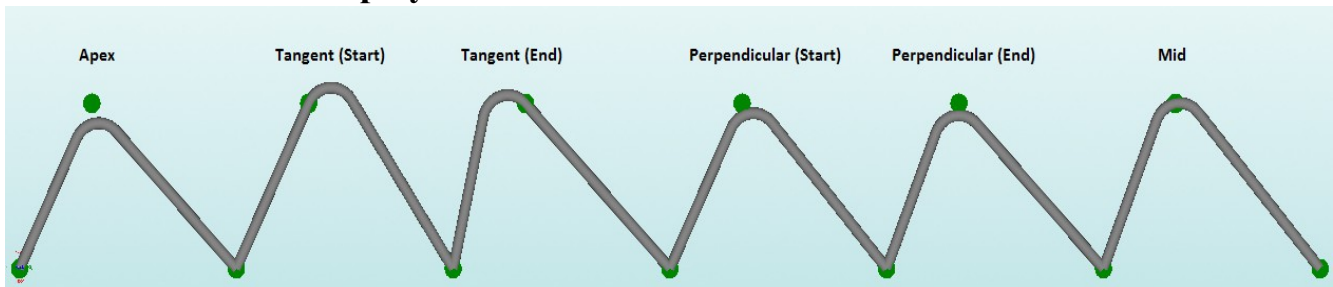
1. In the Edit Points sub-tab, we can see options that will allow you to change the color of your Pickpoints, show or hide them in the display area and delete or verify their placement.



iv. Bend Mode

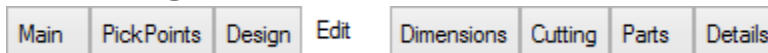


1. In the Assembly designer, the Bend Mode button is located above the top left corner of the display area.



2. When creating a bend, you'll need to click a minimum of 3 PickPoints, so select the Bent button first, click the first PickPoint, then the Bend Mode button to select how your bend will be defined.
3. Then, after you've chosen the location of your bend in reference to the second PickPoint, click the remaining two PickPoints to create the bend.

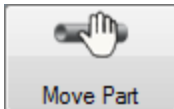
v. Editing Features



a.) MOVE



1. Move Functions include the Move Part and Move Feature options.

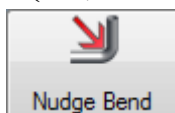


Once selected, the Move Part button allows you to select a part, then designate an anchor point for that part and move it to a new location. (This will most likely be a PickPoint of some kind.)



The Move Feature button works in the same way, but moves either a bend or the length of a part itself by changing a PickPoint location.

2. Move Bend options include the Nudge Bend, Move Bend and Adjust Radius (SE, or LR) tools.



Select the Nudge Bend button, then the bend you'd like to nudge and select the green or pink buttons to increase the size or location of the bend by the increment designated in the Amount value field.

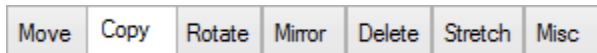


Select the **Move Bend** button, then the bend you'd like to move and click and hold the arrow which indicates the direction you'd like to pull the bend. Then, pull it in that direction.



Select the **Adjust Radius** button (Available in SE and Large Radius Module), then click and hold the bend you'd like to adjust. Pull it up or down to adjust the radius of that bend.

b.) COPY

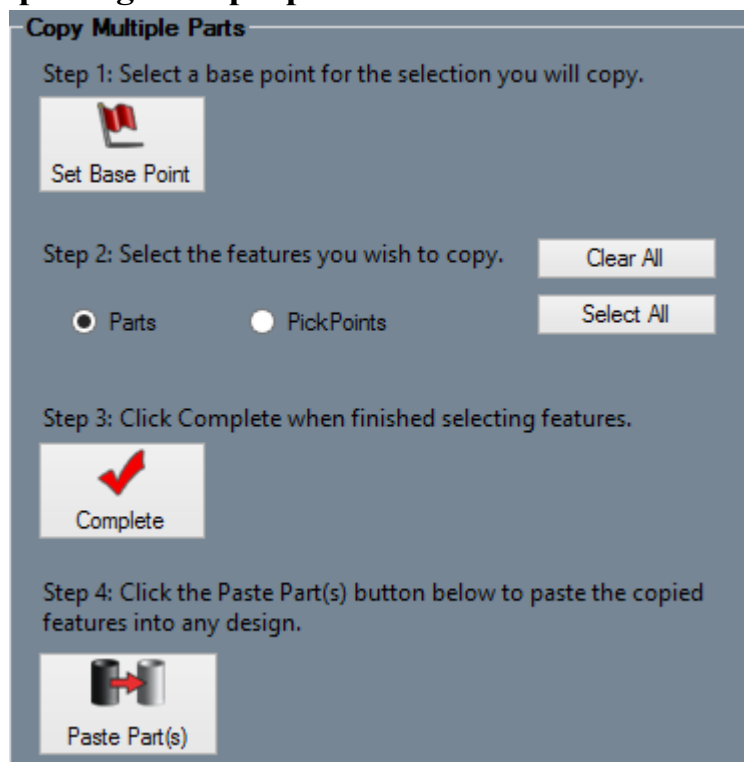


1. The **Copy Single Part** section contains the **Select Part** button.

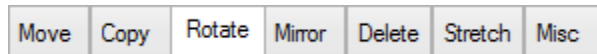


Click the **Select Part** button, then the single part you'd like to copy, followed by the anchor point for that part and then the point where you'd like to paste the copy to.

2. The **Copy Multiple Parts** section gives you step by step instructions for copying and pasting multiple parts.



c.) ROTATE



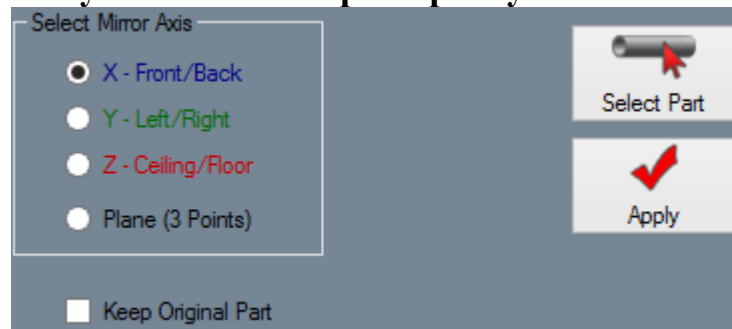
1. First, select the X, Y or Z Axis option from the Select Axis of Rotation section, then enter the amount you'd like the part to rotate in the Rotation Amount field, click the Select Part button, then the part you'd like to rotate and click Apply.



d.) MIRROR



1. Much like the Rotate feature, if you'd like to mirror a part, first select the Axis you'd like to mirror the part around, then click the Select Part button, then the part you'd like to mirror and click Apply. Check the Keep Original Part checkbox if you'd like to keep the part you're mirroring.



e.) DELETE

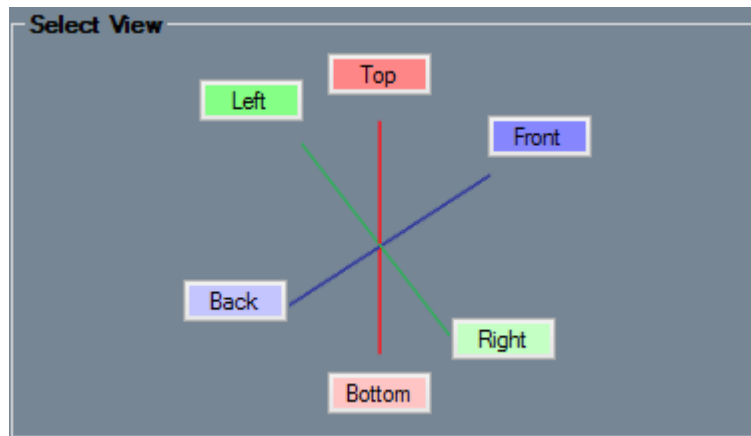


1. Select parts from this list that you'd like to delete for good and select the Remove Selected button to delete them. Select the Un-Select All button to deselect them.

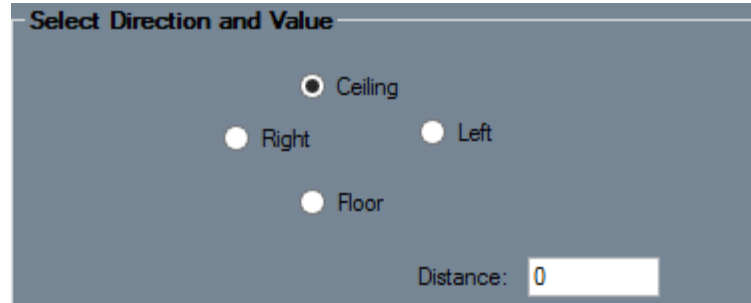
f.) STRETCH



1. Start by selecting the view you'd like to see the part from in the Select View section. (You may have to zoom in or out depending on the size of the part or project.)

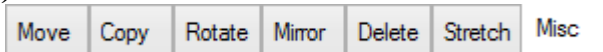


2. Once the view is selected, you'll have the option to create a window around the features you'd like to stretch. So, click once to place one end of the window, then again once you've enveloped the entire part you'd like to stretch.



3. Select the direction that the stretching will occur and the distance the part will stretch in the Select Direction and Value section.

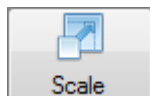
g.) MISC



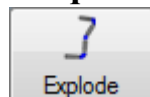
1. The Misc Tools section holds editing and display tools that can help you with bends, radii and other adjusting tools.



Select the Add Bend button and then a straight part of the tube to designate a place for a new bend. You will then be prompted to alter the distance which the bend will be from the straight part you initially clicked on.



Select the Scale button in order to re-size parts, material, radii or a combination of all of these. Scaling uses numbers as a percentage. (100 is equal to full or initial size.)



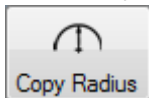
With multiple parts assembled together in the Assembly designer, click this button, then a central point in the project and choose an increment of distance for the explosion to separate all the parts and view them in explode mode. You can exit explode mode by navigating to away from the Misc tab.



Click the Clean button to remove any excess zero length tubes from the design.



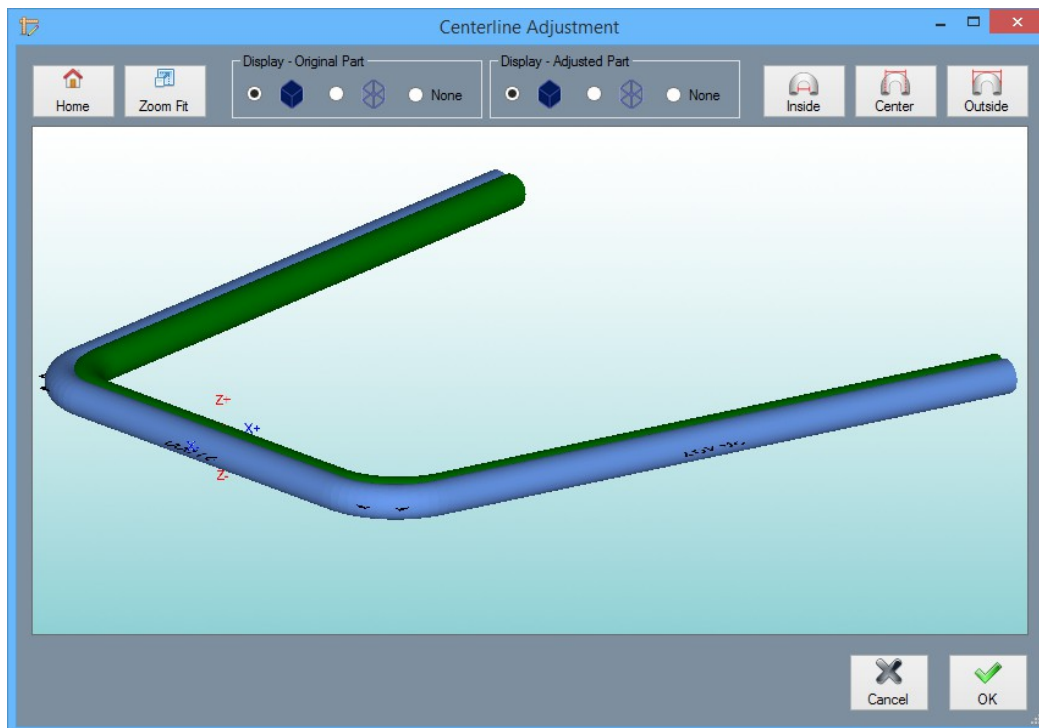
Click the Color button, then the part you'd like to change, then choose the color you'd like the part to be from the list.



Select the Copy Radius button, then click on a bend in the Assembly to copy its radius, then select another bend in order to change its radius to be like the first bend you chose.



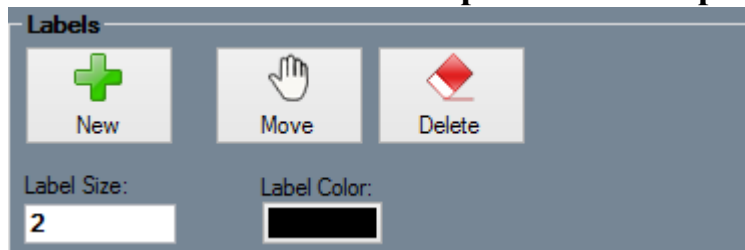
Select the Adjust Centerline followed by the part you'd like to adjust. A window will appear where you can change the centerline to outside or inside dimensions.



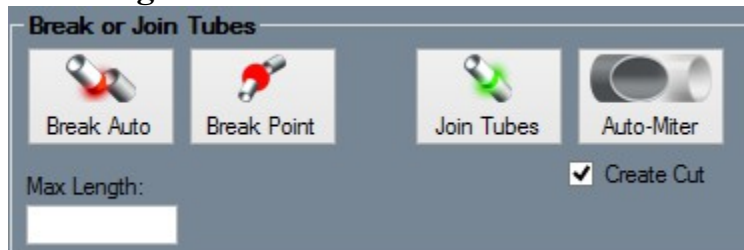


Select the **Bump Bending** button (Available in SE and the Large Radius Module) and then click on the bend you'd like to put multiple bends into. A window will appear asking for the die, material and number of bends desired.

- The Labels section is simply to set a label to a part or project. Select the size of the label in the Label Size field, then select the New button, enter the label/note into the text field and select a point in the display area to place it.



- The Break or Join Tubes section is to separate tubes that may be longer than the material you're using, or to join them to get the most out the lengths of material you're using.



Enter the maximum length for your material in the Max Length field, then select the **Break Auto** button followed by the part in the display area you'd like to split up.



Select the **Break Point** button, then choose the point on the part you'd like to place the break. (This will not work on bends or tangents of bends.)



Select the **Join Tubes** button followed by the two tubes you'd like to join together. (This will not work for tubes that are on different planes, such as intersecting tubes.)

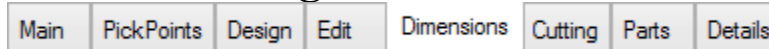


Select the Auto-Miter button followed by the two tubes you'd like to miter. (When the Display Tubes as Cut option is selected in the Settings window, the ends of the tubes will appear as they should after cutting and welding are performed. This function can also be found in the Cutting tab.)

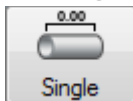
4. The Single Bend CLR Change tool is used to simply change the CLR of any bend that is selected. First change the die in the Select Die drop down menu, then click the Select Bend button and choose the bend in the display area.



vi. Dimensioning



1. Switch from the Edit tab to the Dimensions tab so that we can double check lengths and angles of parts and bends.



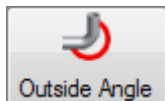
The Single button is for checking the length of a single part. Simply click the Single button and the straight section of the part your working on. You can also choose to measure from PickPoint to PickPoint using this tool.



The Multiple button is used to get multiple dimensions from many distances. When this button is enabled, you will be able to click a point on one tube followed by another point on a different tube and it will tell you the distances in between the tubes as well as intersection lines.

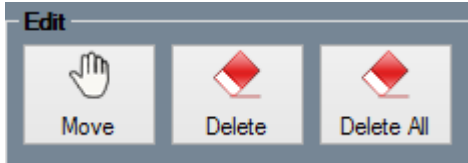


Select the Inside Angle button to view the inside angle of a bend. Click this button, then the far end of one leg, then the far end of the opposing leg on the other side of the bend. Click again to place the location of the dimension.



Select the Outside Angle button to view the outside angle of a bend. Click this button, then the far edge of one leg, then the far end of the opposing leg on the other side of the bend. Click again to place the location of the dimension.

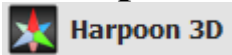
- From the Edit section, you can move dimensions with the Move button, delete them one at a time with the Delete button, or delete them all with the Delete All button.



- Select the 2D button to mark more dimensions on three different flat views of your part/project. This option includes Horizontal, Vertical and Linear buttons to achieve more specified dimensions. You also have the ability to edit the values of the dimensions with the Edit Value button. (This does NOT change the part itself in any way.)

Now prepare to experiment a little with the Harpoon designer.

vii. Harpoon Designer

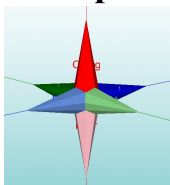


The Harpoon Designer can be accessed in two different ways, so I'll leave it up to you to pick the option you'd like. You will get the same results with both options.

[Option 1.] Close the Assembly Designer and choose the Harpoon 3D option from the Task Menu screen.

[Option 2.] Simply go to the Design tab in Assembly, click the New Part button and select the center of the Tri-Star in the display area. In this case, skip to step 2.

- From there, maximize the screen and choose a die and material from their drop down menus at the top left of the screen.



- Start by selecting the top arrow of the Tri-Star and pulling it upwards to any height. Without clicking anywhere else, simply type 24 on your keyboard. You'll notice that the tube adjusted its length to exactly 24 inches.

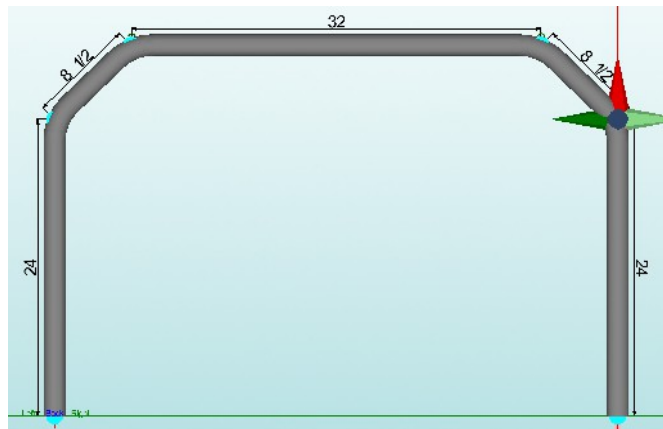


3. Then, simply select the Add Bend button off to the left. The Tri-Star will change locations to higher up on the tube.
4. Next, select the Right (light green) arrow and pull it out a bit and type 6 on your keyboard. Right after that, pull up the Ceiling arrow and type another 6.



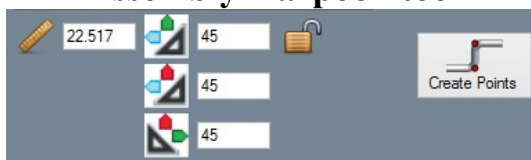
5. Then, select the Add Bend button once more.
6. Now, pull out the Right arrow and type in 32 and click the Add Bend button.
7. Next, select the Right (light green) arrow and pull it out and type 6. Right after that, pull down the Floor (pink) arrow and type another 6.
8. Add the last bend.
9. Finally, pull the Floor arrow straight down and type 24 to finish.
10. Creating this part with the Assembly Harpoon tool, you'll need to click Apply to finish.

The part will look like the picture below.

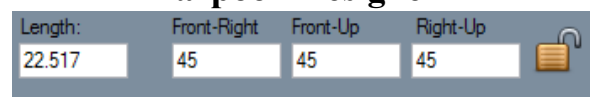


In the Harpoon Designer and Assembly Harpoon tool you'll be able to change the angles of the tubes in the value fields to the left below the other Harpoon options.

Assembly Harpoon tool



Harpoon Designer



Support Concerns or Questions:

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