

XpresRoute (tubing)

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SOLID EDGE
VELOCITY SERIES

...with Synchronous Technology

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Lesson

1 *Introduction*

Welcome to self paced training for Solid Edge. This course is designed to educate you in the use of Solid Edge. The course is self-paced and contains instruction followed by activities.

Solid Edge self-paced courses

- **spse01510**—Sketching
- **spse01515**—Constructing base features
- **spse01520**—Moving and rotating faces
- **spse01525**—Working with face relationships
- **spse01530**—Constructing treatment features
- **spse01535**—Constructing procedural features
- **spse01536**—Modeling synchronous and ordered features
- **spse01540**—Modeling assemblies
- **spse01541**—Explode-Render-Animate
- **spse01545**—Creating detailed drawings
- **spse01546**—Sheet metal design
- **spse01550**—Practicing your skills with projects
- **spse01560**—Modeling a Part Using Surfaces
- **spse01610**—Solid Edge frame design
- **spse01640**—Assembly patterning
- **spse01645**—Assembly systems libraries
- **spse01650**—Working with large assemblies
- **spse01655**—Revising assemblies
- **spse01660**—Assembly reports
- **spse01665**—Replacing parts in an assembly

- **spse01670**—Designing in the context of an assembly
- **spse01675**—Assembly features
- **spse01680**—Inspecting assemblies
- **spse01685**—Alternate assemblies
- **spse01690**—Virtual components in assemblies
- **spse01695**—XpresRoute (tubing)
- **spse01696**—Creating a Wire Harness with Harness Design
- **spse01424**—Working with Solid Edge Embedded Client

Start with the tutorials

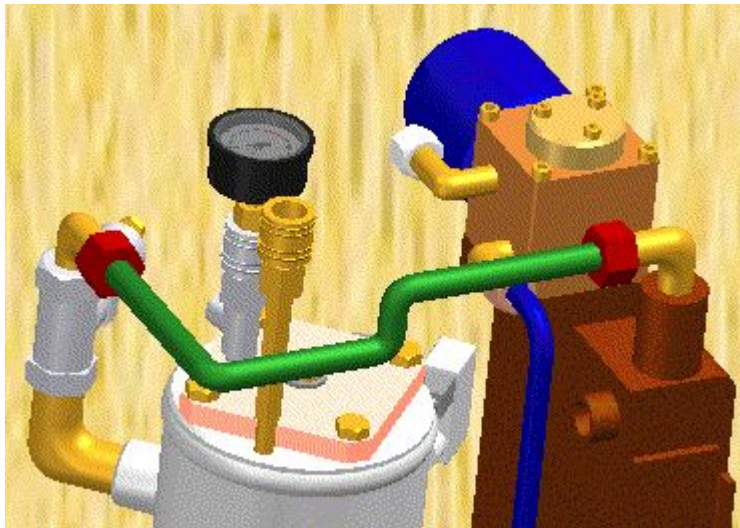
Self-paced training begins where tutorials end. Tutorials are the quickest way for you to become familiar with the basics of using Solid Edge. If you do not have any experience with Solid Edge, please start by working through the tutorials for basic part modeling and editing before starting this self-paced training.

Lesson

2 *Tube design workflow*

Tube design overview

You can use XpresRoute to create path segments and tubes in an assembly. To access the commands for tubing, while in Assembly, choose Tools® Environs® XpresRoute .



Tube parts are designed in the context of an assembly, so you to directly model them within an assembly, using existing part and assembly geometry to ensure accurate fit and function. Tube parts are fully associative and update with the parts to which they are connected. Tube wire parts are directed parts. They conform to the path segment and the options you use to construct the part. When you make changes to the assembly that cause the path to change, the part will also change.

Tube design workflow

1. Create a path

Use the PathXpres command to automatically create a 3D path for the tube.

To learn how, see [Create a tube path with PathXpres](#).

Use the Line Segment or Arc Segment command to manually draw the path for the tube.

To learn how, see [Create a tube path](#).

2. Create the tube

Use the Tube command to assign pipe attributes and fittings to a path segment that defines the route the pipe should follow.

To learn how, see *Create a tube*.

Creating path segments

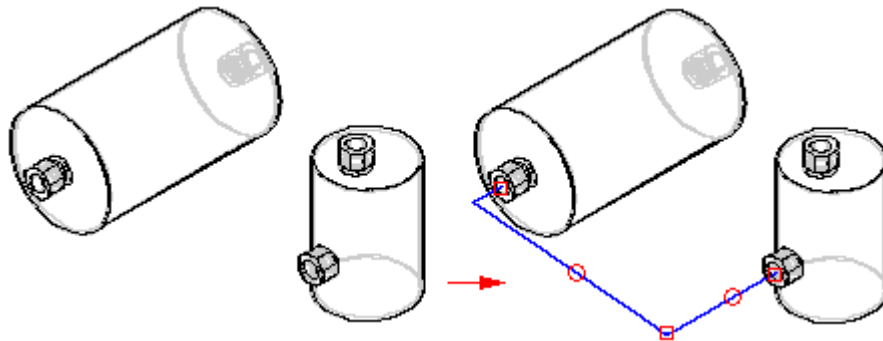
Tubes and Pipes are created along a path segment. You can use the PathXpres command in XpresRoute to create the path without manually drawing the individual lines of the path or you can use the Line Segment command or Arc Segment command to manually draw the path.

Note

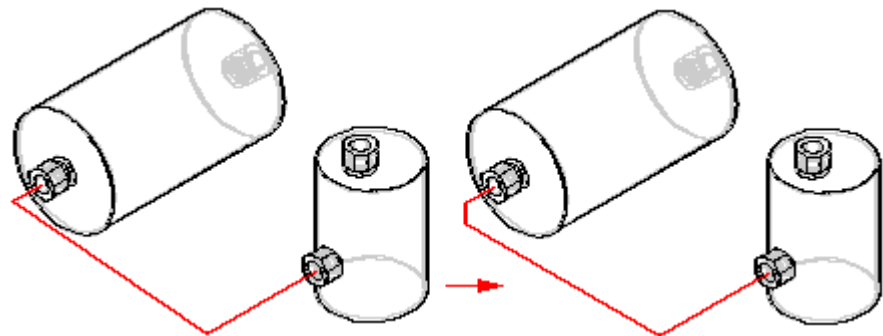
In addition to drawing the path segment, you can use the sketch geometry of an assembly layout to define the path.

Creating the path with PathXpres

Use the PathXpres command to create a 3D path for a tube or pipe without having to manually draw the individual lines of the path. PathXpres generates a path between two points that is orthogonal to the default reference planes. These points must be circular or elliptical element, the endpoint of a segment, or the endpoint of a sketch element.



In cases where more than one way for the path exists, you can use the Next and Previous button on the PathXpres command bar to display alternative paths. The order of the paths goes from the simplest path, with the least number of segments, to the most complex path. The maximum number of segments in a path that PathXpres generates is five.



Drawing a Path Manually

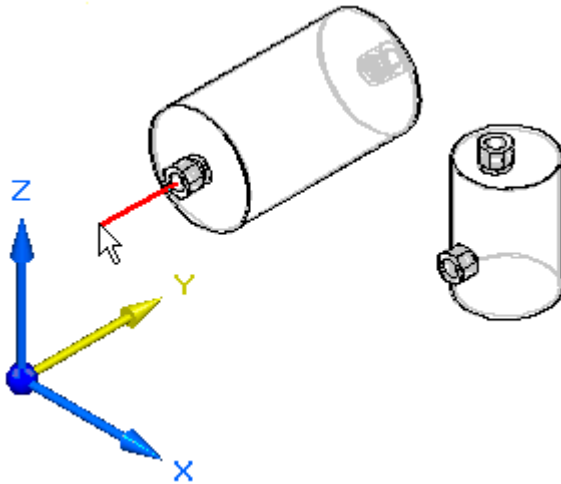
You can use the Line Segment command or Arc Segment command in XpresRoute to manually draw the path for the tube or pipe. You can connect arc segments to line segments or other arc segments.

Note

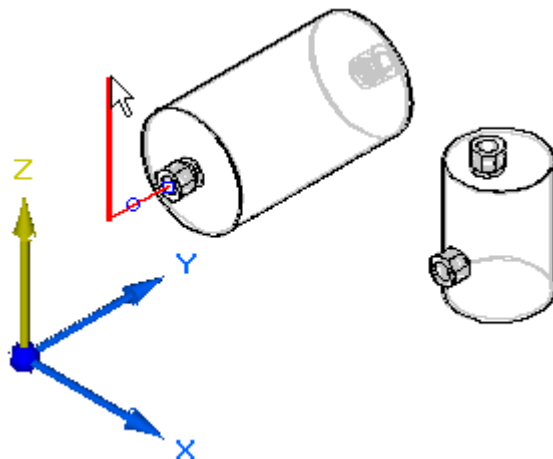
The part must be activated before you can attach a line segment to the part. If the part is not active, you can use the Activate Part button on the Line Segment command bar to activate the part.

OrientXpres

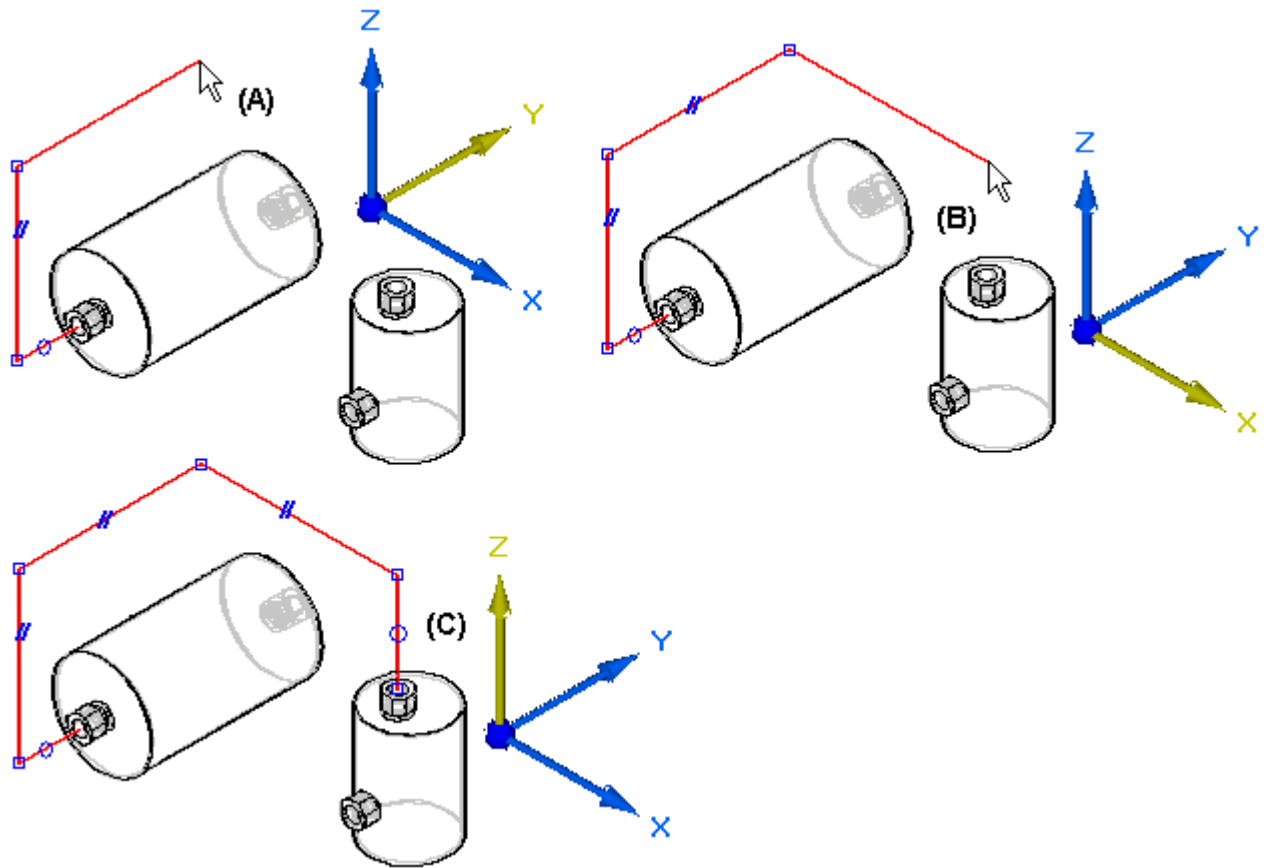
You use the [OrientXpres](#) tool to assist you in drawing lines and arcs in 3D space when drawing a path manually. As you draw the line or arc segments, use OrientXpres to lock the orientation of the element parallel to an axis or plane as you draw it. For example, after you define the start point for a line segment, you can use OrientXpres to lock the orientation to the y axis.



When you click to define the second point for the line, you can then use OrientXpres to lock the orientation to the z axis.



You can continue to lock the axis or plane to assist you in defining the path (A), (B), (C).

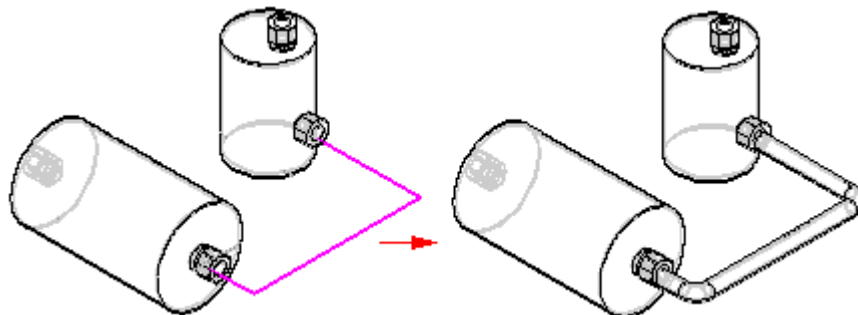


If you make an error when you draw a path segment, you can click the Undo button to undo the unwanted action. You can then continue drawing the path segment.

If you mistakenly undo the wrong action, you can click the Redo button to restore the action.

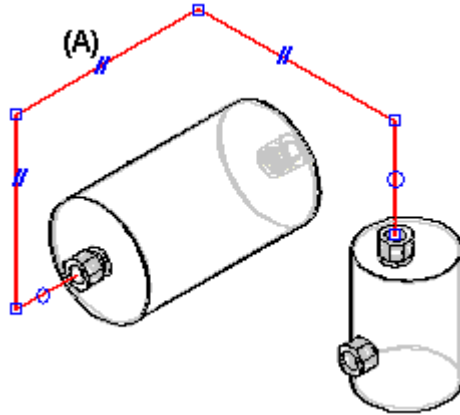
Creating paths with assembly layouts

In addition to drawing the path, you can use sketch geometry that exists in an assembly layout as input for the path segment.



Applying relationships and dimensions to path segments

As you add segments to the tube path, relationship handles are displayed on the segments (A) to indicate the relationships that you are creating. You can display or hide the relationship handles with the Relationship Handles command.

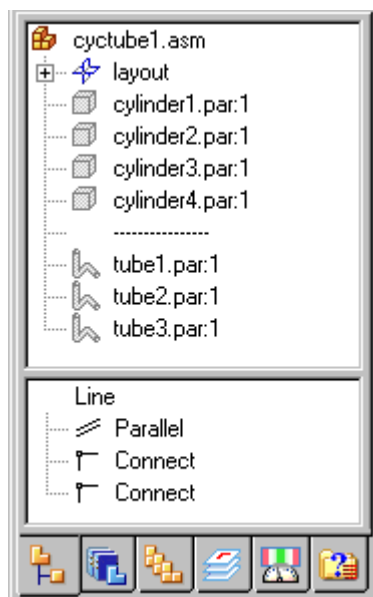


There are four types of geometric relationships for tube parts:

- Connect relationships
- Coaxial relationships
- Parallel relationships
- Tangent relationship

The PathFinder tab displays the tube path segment relationships.

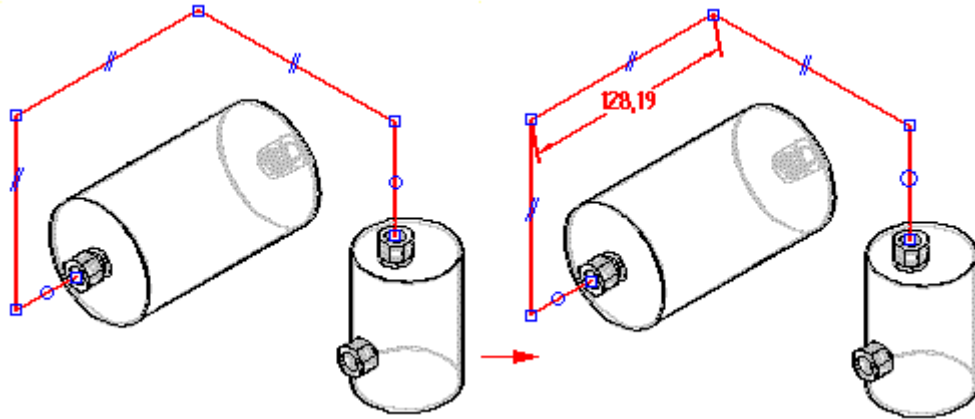
You can delete any relationship by deleting its handle in the graphic window or deleting the relationship in PathFinder.



Notice the dashed line separating cylinder4.par and tube1.par. This dashed line indicates that parts below the line are directed parts.

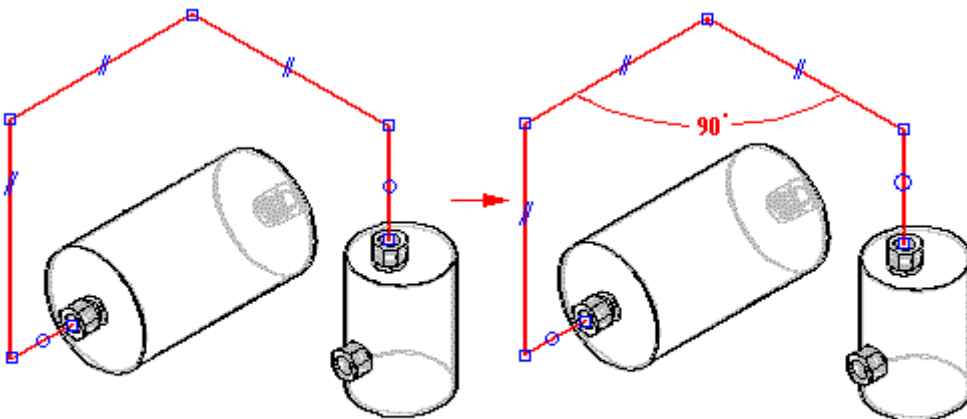
Creating linear dimensions on paths

You can use the Axis Dimension command to create a dimension along a principal axis between a path segment and a reference element. The reference element can be another path segment, a principal plane, or a part edge.



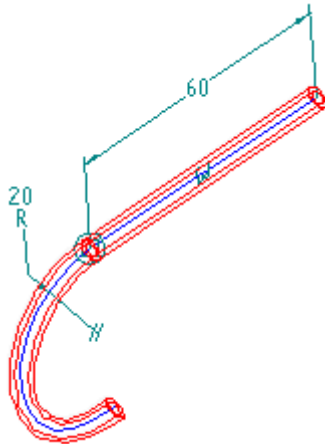
Creating angular dimensions on paths

You can use the Angle command to place a dimension that measures the angle between two endpoint-connected tube path segments.



Dimensioning path segments

You can use the SmartDimension command to dimension the length of a linear path segment or the radius of an arc path segment.



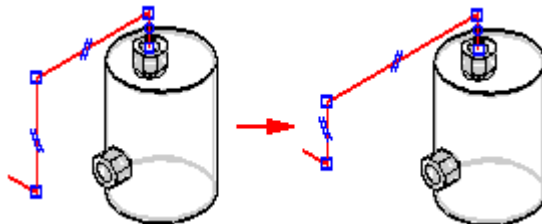
Modifying path segments

You can modify path segments by:

- [Moving the path segment](#)
- [Splitting the path segment](#)
- [Creating a 3D curve from the path segment](#)

Moving path segments

You can use the Move Segment command to move a path segment along the plane to which it is attached. With the command, you simply click the segment you want to move, drag it to a new position, then release the mouse button. This command maintains any existing relationships on the path segment and any of the adjacent tube segments.



Suppose you place a dimension on a segment and later decide you want to change the dimension value. All you have to do is click the dimension you want to change, and type the new value in the Dimension Value on the XpresRoute command bar.

Splitting path segments

You can use the Split Segment command to split a path segment into two separate segments. With the command, you click the segment at the point you want to split.

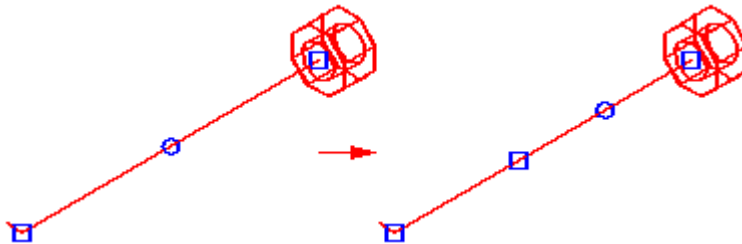


Relationships and split segments

When you use the Split Segment command, the relationships on the split segment are maintained on the new segment. In addition, a connect relationship is applied to the split point of the new segments. The following cases describe how the Split Segment command works with relationships.

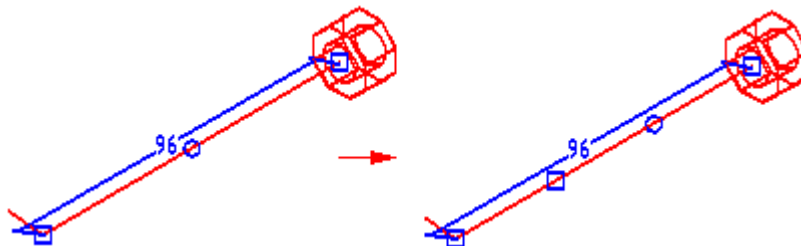
Segment coaxial relationship with a port

When you split a segment that is coaxially aligned with a port, the new segment attached to the port retains the coaxial relationship. The segment that is not directly attached to the port has no additional relationships other than the connect relationships.



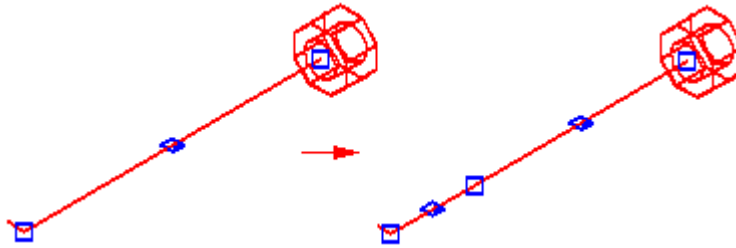
Segment with an axis dimension

When you split a segment containing an axis dimension relationship, the original axis dimension is maintained between the endpoints of the segment.



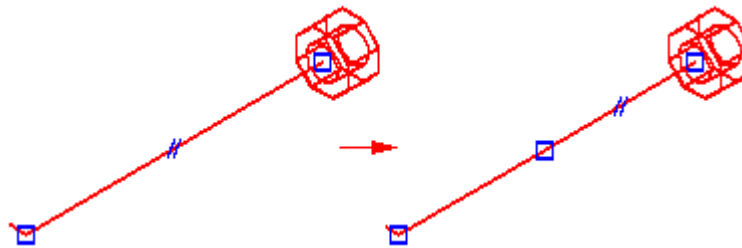
Segment with a planar relationship

When you split a segment containing a planar relationship, both new segments retain the planar relationship.



Segment with a parallel relationship

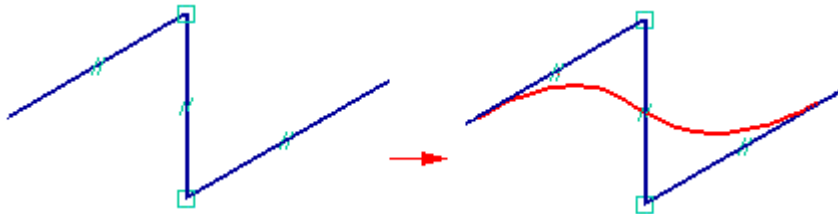
When you split a segment containing a parallel relationship, the new segment maintains the parallel relationship.



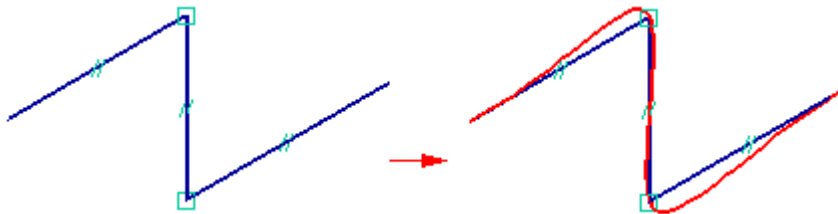
Creating curve segments

You can use the Curve Segment command to create a 3D curve based on a set of endpoint-connected path segments. The curve is always tangent to the first and last segments in the select set and it passes through the first and last points of the path. There is an option on the Curve Segment command bar that allows you to define the points for the curve. You can specify that the curve pass through the

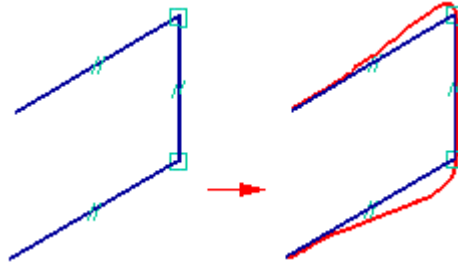
- midpoints of the line segments,



- the endpoints of the line segments,



- or all points of the input segments.

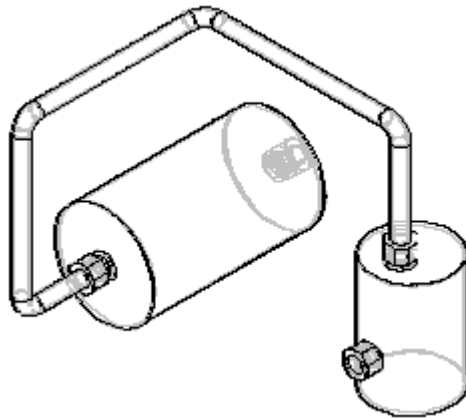


Note

You can use the Hide Input Path and Show Input Path commands on the shortcut menu to control the display on the path used to create the curve segment.

Creating the tube

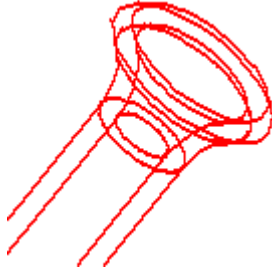
Once you have drawn a tube path, use the Tube command to create a tube along the path segment. With the Tube command you can select a single segment or a chain of segments as the tube path. You can also define tube extents to both ends of the tube path.



When creating a tube part, you can use the Tube Options dialog box to define parameters such as material, outside diameter, bend radius, and wall thickness for the part. To access the Tube Options dialog box, click the Tube Options button on the Tube command bar.

End treatments

You can use the End Treatment Options dialog box to apply treatment types to the end of the tube.



The list of available end treatments include: None, Expand, Reduce, Close, and Flange. To display the End Treatment Options dialog box, on the Tube command bar, click the End Treatment Options button. You cannot apply end treatment to a curve segment.

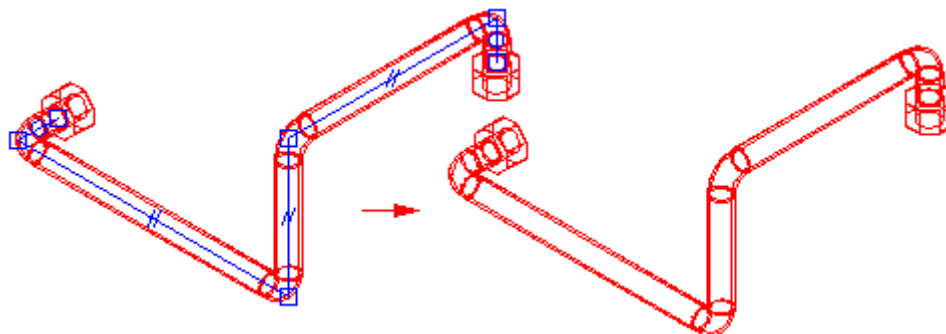
Opening and editing tube parts

The Edit Definition button on the Select Tool command bar displays the XpresRoute command bar so you can edit the tube part. You can use the Tube Options dialog box to make changes to such parameters as the material, bend radius, and wall thickness. You can also make changes to path segments and edit the extents for the ends of the tube.

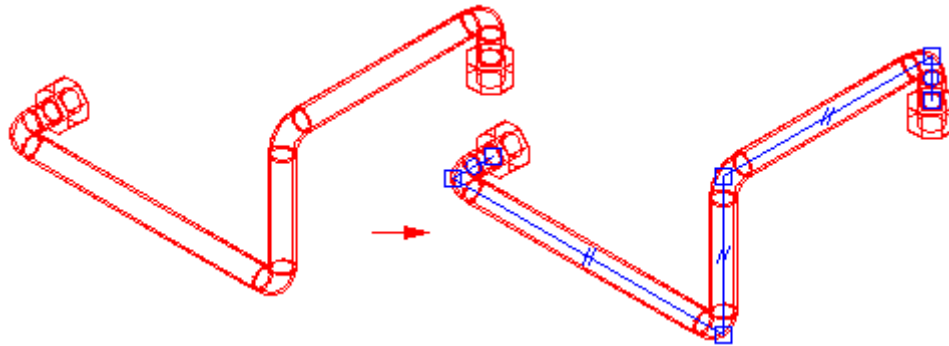
The Open command on the shortcut menu activates the tube part in the Part environment so you can add features to the tube. To save your changes, you can use the Close command to change the part and return to the XpresRoute environment.

Managing path display

When working with tube parts, it is often useful to manage the path display. Solid Edge makes it easy to hide and display the part paths so you can work more efficiently. To hide a tube path, right-click the tube part containing the path and click Hide Path on the shortcut menu.



To display a hidden path, right-click the part containing the path and click Show Path on the shortcut menu.



Displaying tube center lines

When you place tube parts in a draft document, you can display the tube center lines in the drawing view. To display the center lines, on the Annotation tab of the View Properties dialog box, select Show Centerlines.

Generating tube information

You can use tube properties to extract information to create such reports as bend tables, tube reports, and parts lists.

Outputting bend information

You can use the Bend Table command to create an ASCII text file that contains information about how to manufacture the tube. You can output the tubes as a select set or output them all at once. The information consists of columns of data such as feed length, rotation angle, bend radius, and bend angle.

Creating tube reports and parts list

You can include tube properties defined on the Tube Options dialog box in reports or parts lists. When you create a tube file, these tube properties are automatically stored in the tube file and are exposed so that they can be included in reports and parts lists.

For tube parts created in version 12 and earlier, the tube properties are added to the tube file when the tube is recomputed. You can use the `WriteTubeFilePropertiesForReportsAndPartsList` method on the Tube object in a Visual Basic program to automatically populate the tube files with the tube properties.

Transferring tubes to another assembly

You can use the Transfer command to transfer a tube to a new or existing assembly. When you transfer a tube, the system copies the path for the tube into the target assembly and creates an associative link between the tube and the copied path. The path in the target assembly is not associative to the path in the source assembly, so you can edit the new path without affecting the path in the source assembly.

All of the parameters of the tube are copied to the new assembly.

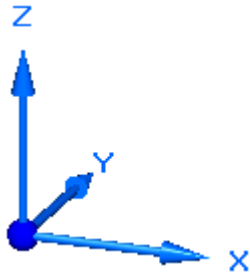
Any relationships applied to the path segments in the source assembly are reestablished in the target assembly. If the part that contains the port remains below the target assembly, the relationships are reestablished. If the part that contains the port is transferred to an assembly that is not below the target assembly no warning is displayed and the associativity of the port is broken. You can use the Hide Previous Level command to make sure the part containing the port is below the target assembly. To do this, in-place activate into a subassembly and select the Hide Previous Level command. If you can see the part in the graphics window, it is at the current level or below in the tree structure. If the part disappears when you select the Hide Previous Level command, the part is above the active assembly level. If you want to move the tube down the tree structure, make sure that the port part will remain at or below the target level. If the target assembly is below the current level of the port part, you should transfer the port part to the level of the target assembly before transferring the tube.

If the tube being transferred refers to sketch elements, a new sketch is created in the target assembly. The sketch will contain only the 2D elements referenced by the tube being transferred.

Lesson

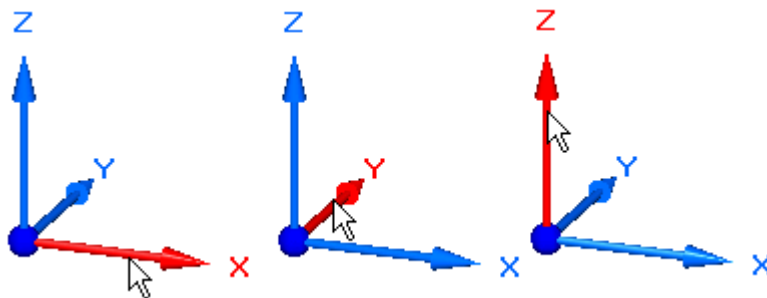
3 *OrientXpres tool*

The OrientXpres tool is an interactive design aid for drawing lines, arcs, and curves in 3D space, and for editing the position of blue dots in 3D space. OrientXpres is displayed automatically when creating or editing elements which require its capabilities. For example, OrientXpres is displayed when drawing line segments in the XpresRoute and Frame applications, and when editing blue dots in the Part and Sheet Metal environments.

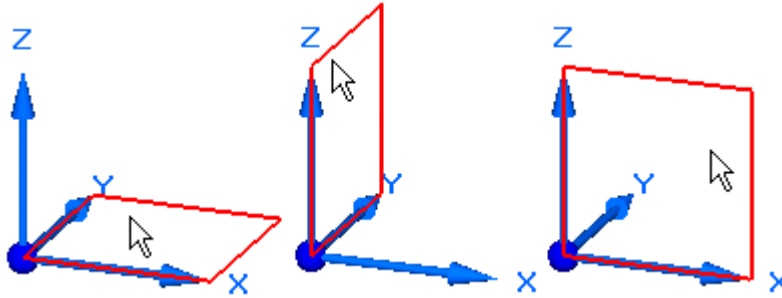


When working in 3D space, you often need to restrict the placement or movement of elements to be parallel to a particular axis or plane. The OrientXpres tool provides that capability. You can do the following using OrientXpres:

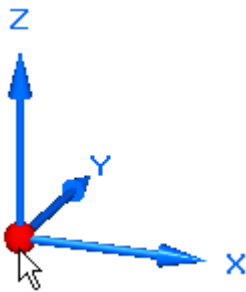
- To restrict movement parallel to an axis, select one of the three axes (X, Y, or Z). You can also cycle through the axes by typing Z key on the keyboard.



- To restrict movement parallel to a plane, select one of the three planes (XY, YZ, or XZ). You can also cycle through the planes by typing X key on the keyboard.



- To move the OrientXpres tool to a more convenient location, select the origin, and drag it to a new location.

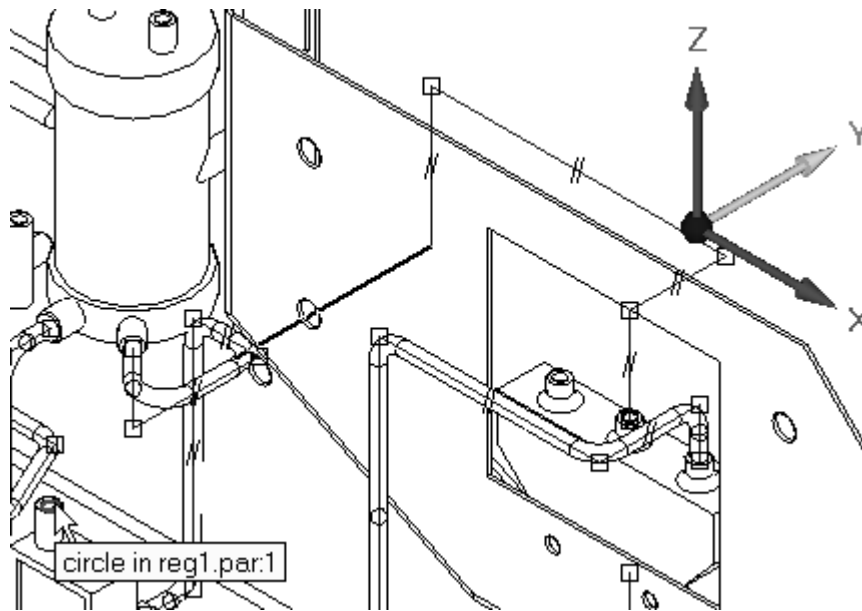


- You can type C key on the keyboard to clear any locks to planes or axes.

Lesson

4 *Activity: Placing tubes in assembly with XpresRoute*

Activity guides you through the process of using XpresRoute, and OrientXpres to route tubing components in an assembly, and then create a bend table of the tubes.



Turn to **Appendix A** for the activity.

A Activity: Placing tubes in assembly with XpresRoute

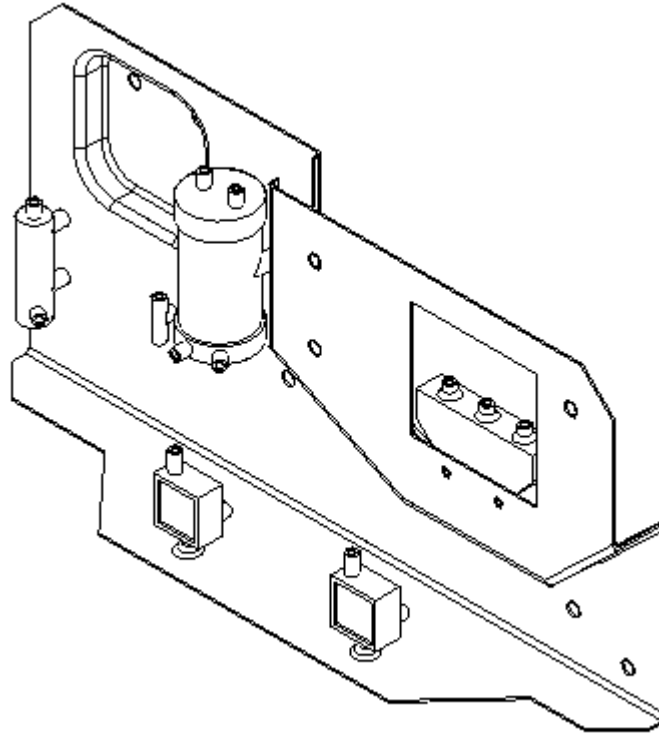
Overview

When you complete this activity, you will be able to:

- Add tubes to the design using PathXpres.
- Add tubes by manually creating tube paths.
- Add end treatments to tubes.
- Modify tube paths and update the tube part.
- Edit the tube part after the tube is created.
- Output a Bend Table of the tube parts for manufacturing.

Use PathXpres to automatically route the first tube path

- Open *Xpres.asm* with all the parts active.



- Click the Tools tab. In the Evirons group, click XpresRoute.



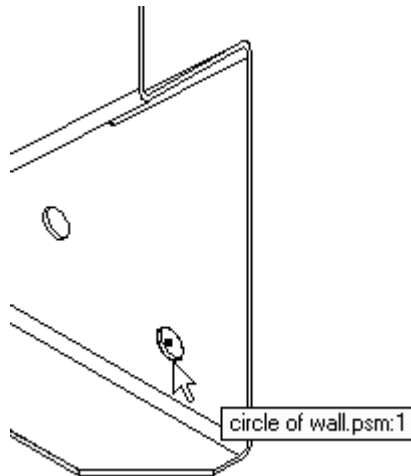
- Click the Application button. Click Solid Edge Options, and then click the Tube Properties tab. Set the tube properties values as shown, and click OK.

Material:	Copper	▼
Bend radius:	10.00 mm	▼
Outer diameter:	5.00 mm	▼
Minimum flat length:	10.0000	▼
	<input type="checkbox"/> Solid	
Wall thickness:	1.00 mm	▼

- ▶ Click the PathXpres command.



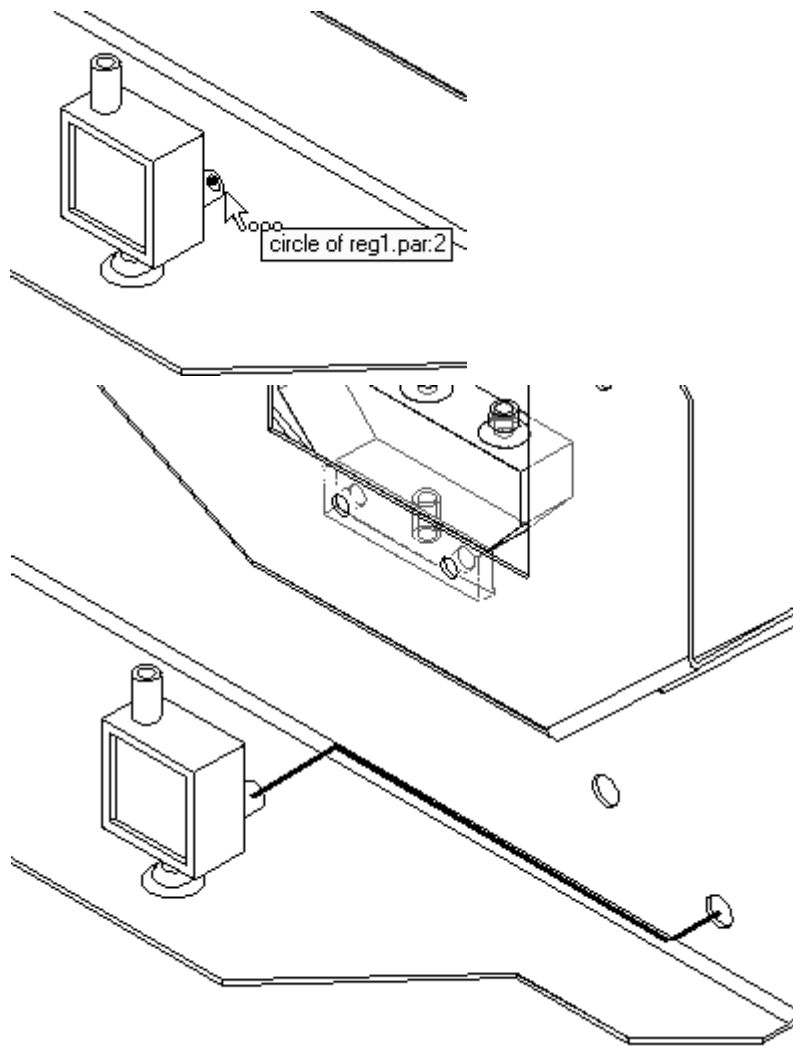
- ▶ For the first port, on the part *wall.psm*, click the front edge of the far right hole.



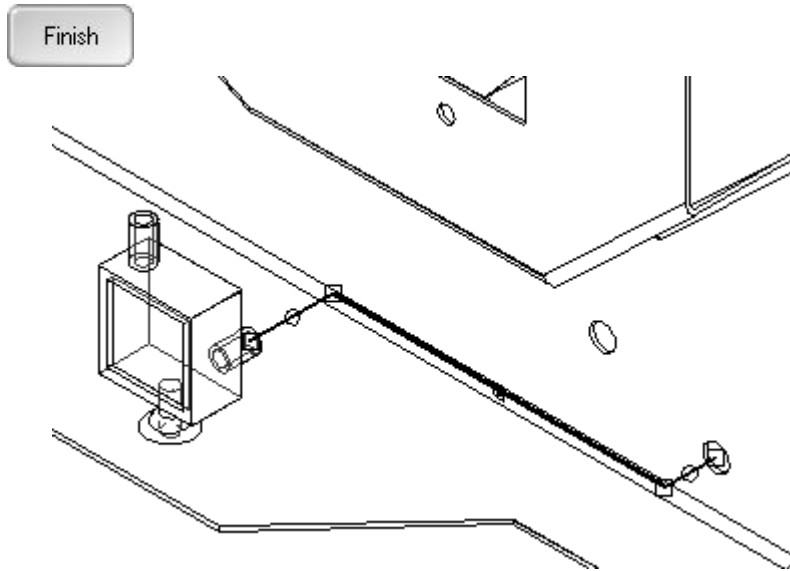
Note

The front edge is selected so the tube will extend toward the front of the assembly. If you select the rear edge of the hole, the tube path tries to project toward the rear of the assembly.

- For the second port, select the rear inlet on the blue part *reg1.par* as shown. After you click the rear port, the tube path should highlight.



- Accept the tube path by clicking Finish. The tube path changes to the profile color and displays the relationships applied along the path.



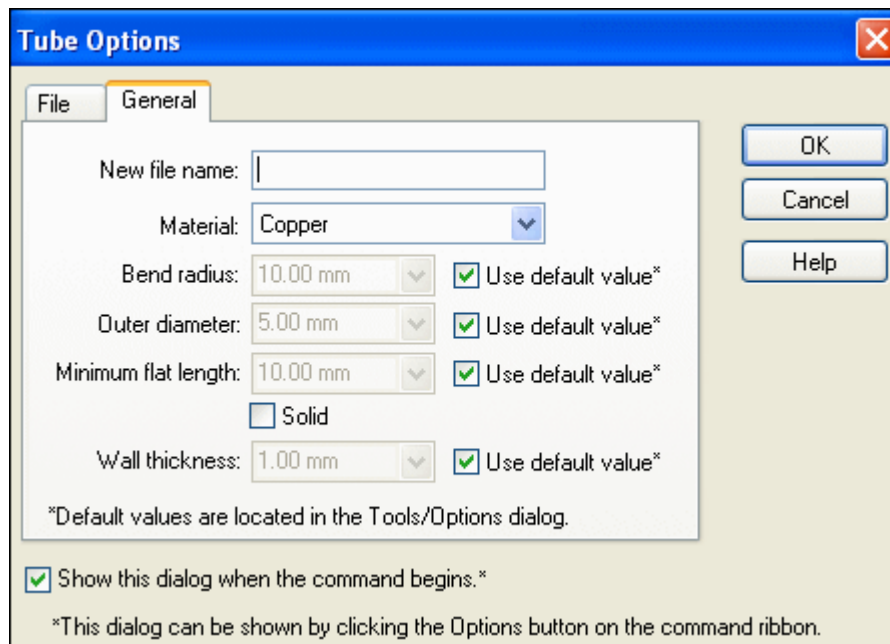
Place the tube on the tube path

- On the Home tab, in the Tubing group, click the Tube button. If the Tube Options dialog is not displayed automatically, click the Tube Options button.



Note

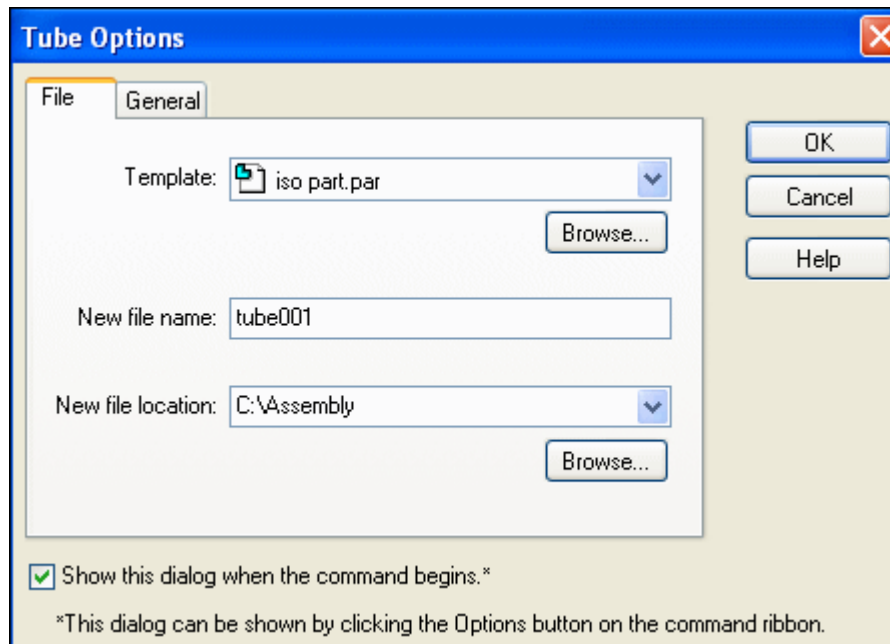
The Tube Options dialog box should display as shown. Check the values against the values in the image below and make any necessary adjustments.



- ▶ To select the folder where the part file for this tube will be stored, click the File tab and browse for the folder location.

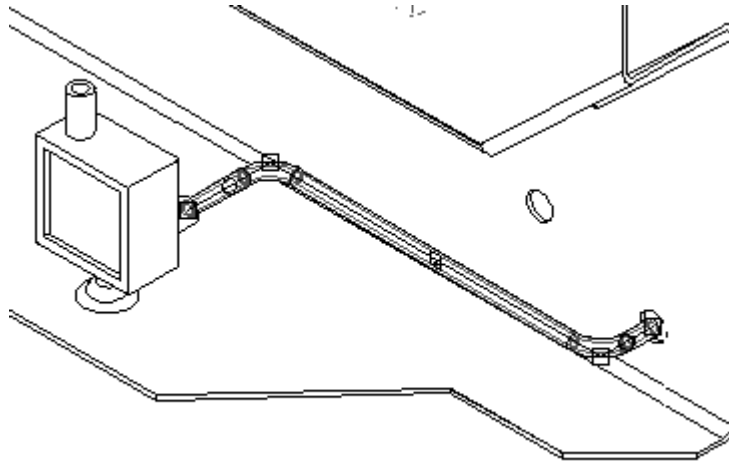
Note

When this dialog box is opened, the corresponding tube is directed to this folder. On the other hand, when this dialog box is bypassed and the tube name is typed on the command bar, the tube part is directed to a default folder specified when Solid Edge is loaded. The file location shown may not be the location where you are currently working.



- ▶ On the dialog box, clear the show this dialog when the command begins option. To see this box in the future, click the tube options button on the command bar.
- ▶ Type *tube001* as the new file name and click OK.
- ▶ Select the tube path just created.
- ▶ In the Name box, *tube001* is displayed. Click the Accept button to accept the path.

- ▶ The result should look like the following illustration.



- ▶ To accept this result, click Finish.

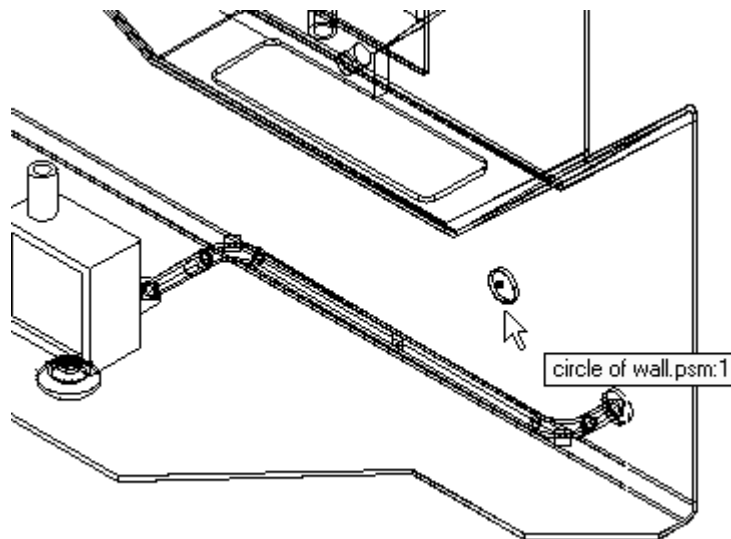


Create a new path and a new tube

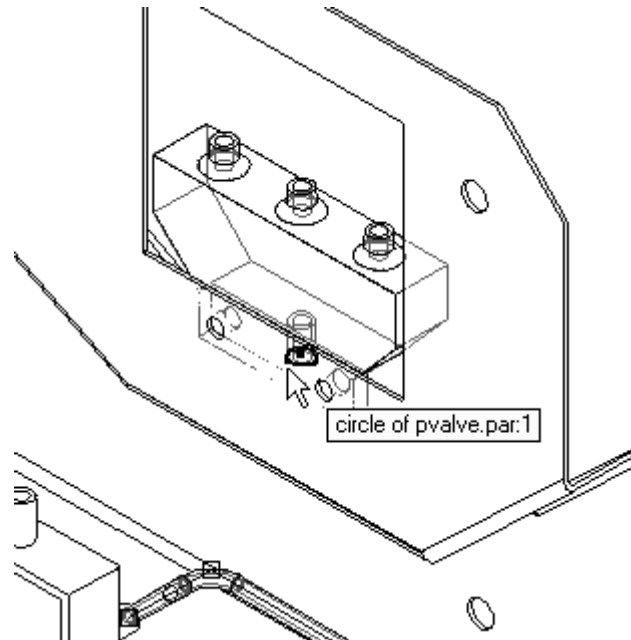
- ▶ To construct a second path, click PathXpres.



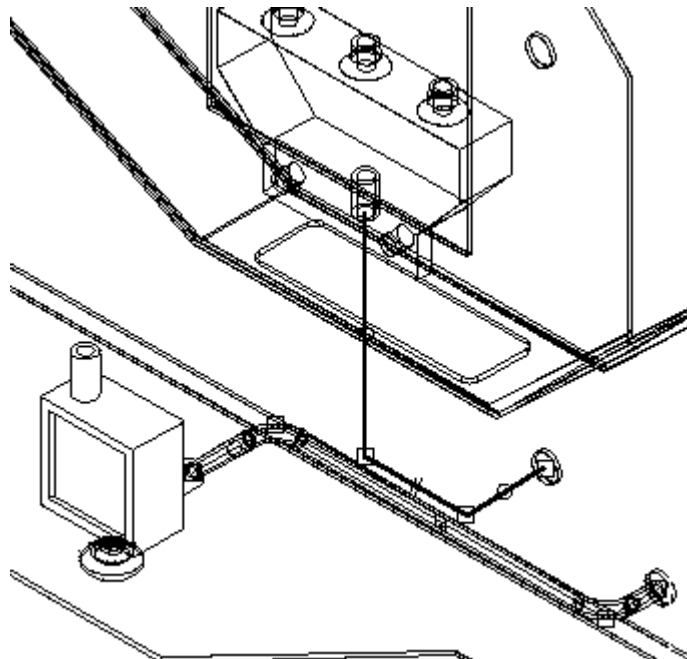
- ▶ For the first part of this new path, click the hole to the left of the first hole selected on *wall.psm*.



- ▶ For the second port, click the bottom port on the valve body *pvalve.par*.



- ▶ To accept this tube path, click Finish on the command bar.

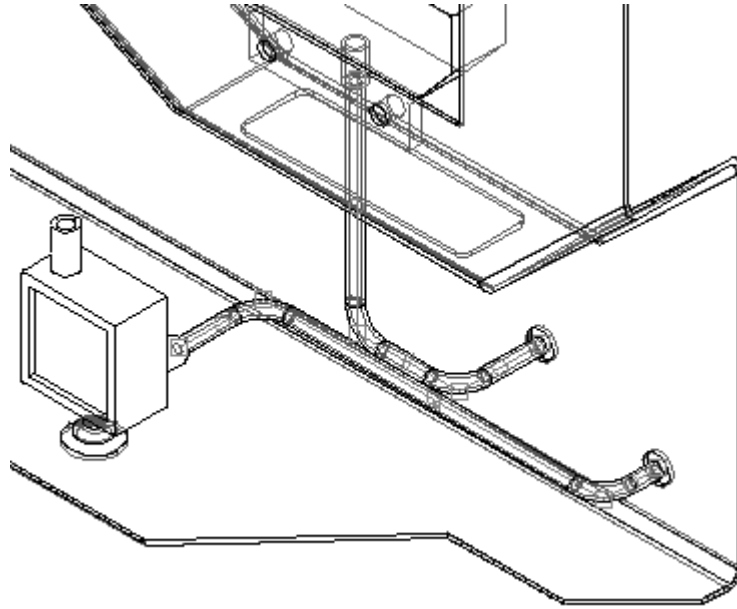


- ▶ To place a tube using this path, click the Tube command.



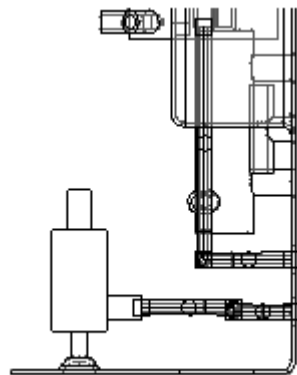
- ▶ Select the path just created.
- ▶ In the name box, type the name *tube002*.

- ▶ Click Preview.



Note

In the 3D window, it looks like the two tubes intersect each other. By checking the window with the right view of the assembly, you can see that the two tubes do not interfere with each other.



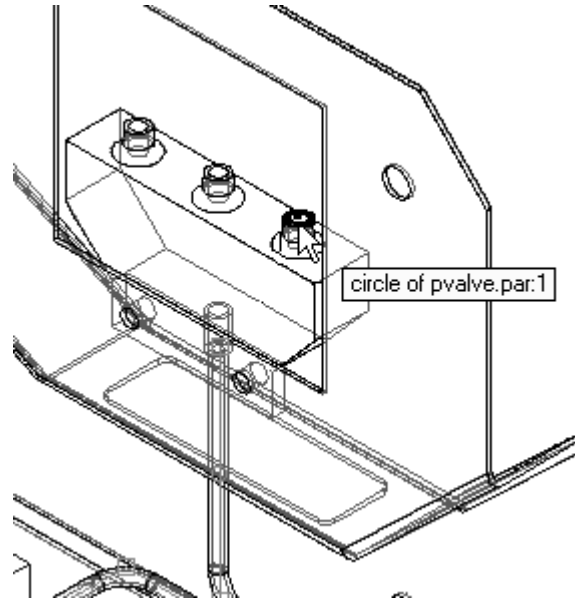
- ▶ Click Finish to complete the placement of the tube part.

Create another new path and tube

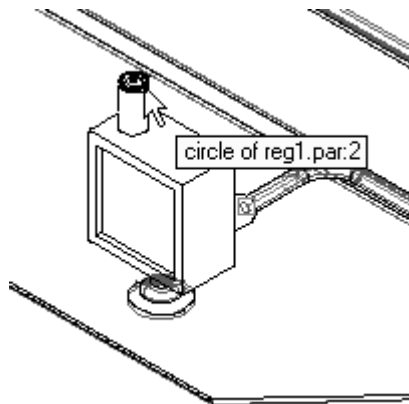
- ▶ Click PathXpres.



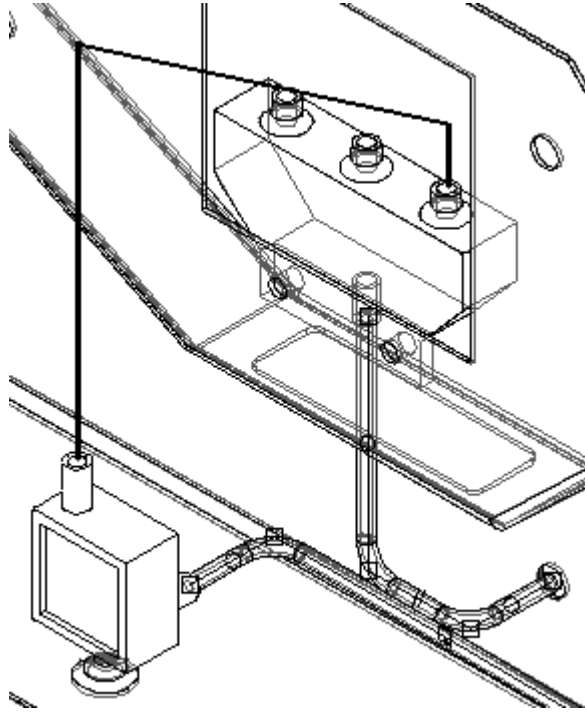
- ▶ Select the far right port on *pvalve.par* as shown.



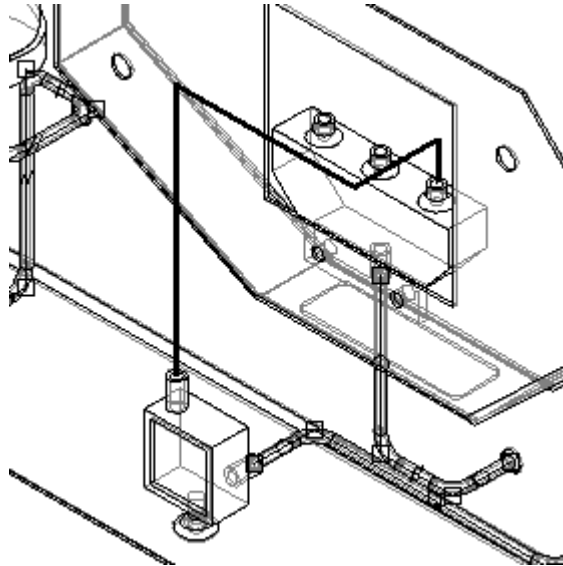
- ▶ Select the top port on the blue *reg1.par* as shown.



- ▶ The resulting path should look like the following illustration.



- ▶ To see another path option, on the command bar, click the right blue arrow once. Keep clicking the blue arrow until the path looks like the illustration below. If you click too many times, use the left blue arrow to cycle back through the options.

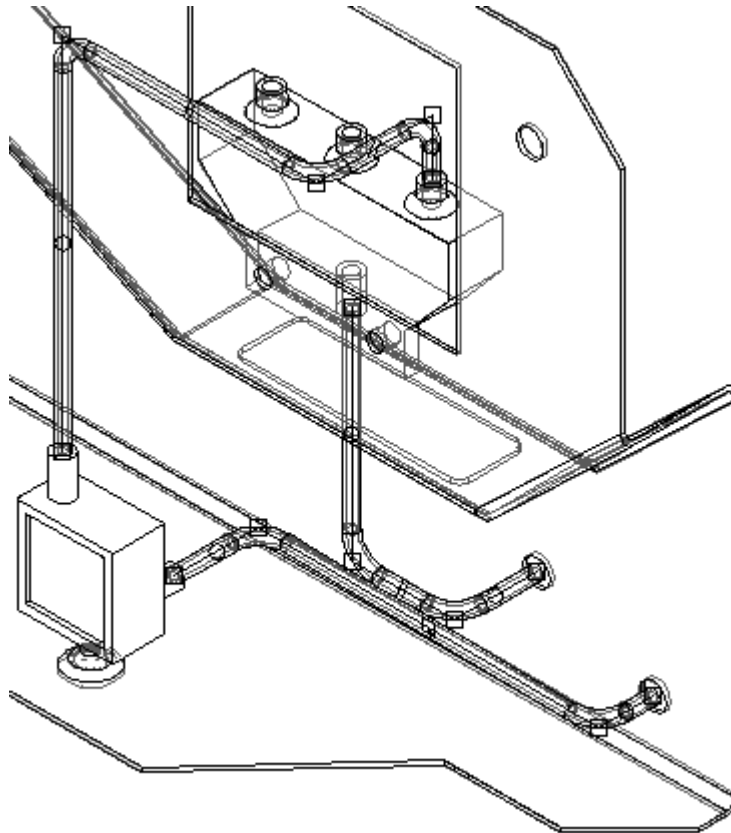


- ▶ Click Finish to accept this path.

- ▶ To construct a tube part from this path, click the Tube command.



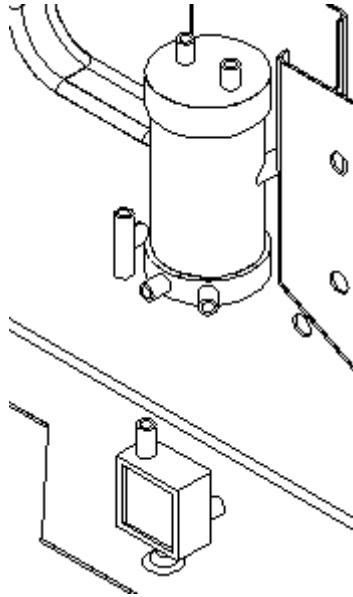
- ▶ Select the path just created, type tube003 for the tube part name, and click Preview to view the part. The result should look like the following illustration.



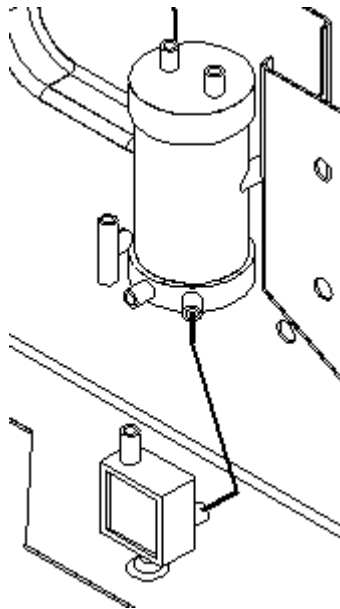
- ▶ Click Finish.

Create a new path, then move a segment to maintain a clearance

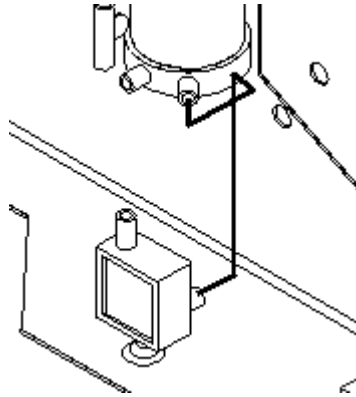
- ▶ The fourth path will be created in the middle of the assembly. Adjust the view as shown.



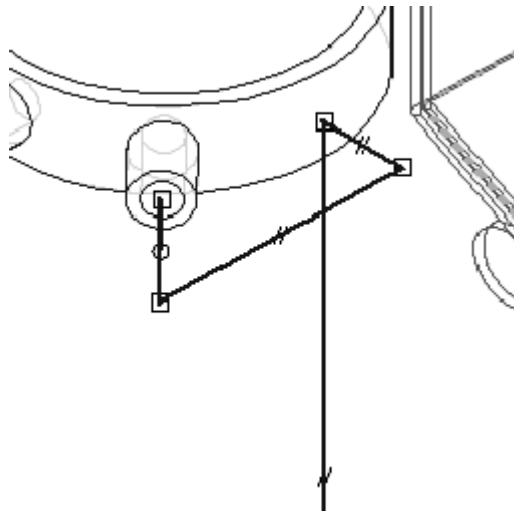
- ▶ Click PathXpres and construct a tube path from the bottom right port of the *tank2.par* to the rear port of the green *reg1.par*. Do not click finish.



- ▶ Cycle through the tube path solution options to get a tube path as shown by clicking the right blue arrow on the command bar.



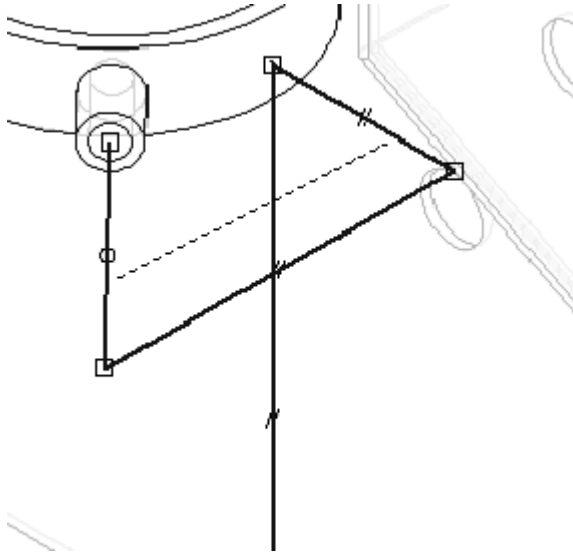
- ▶ Click Finish.
- ▶ Zoom the area on the top portion of the tube path as shown.



- ▶ On the Home tab, in the Segments group, click the Move Segment command.



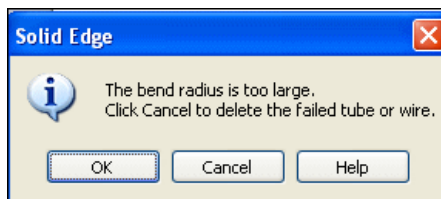
- ▶ Hold down the left mouse button over the second segment in the path, and drag the path segment to the right. Use additional windows to make sure you do not cause an interference with the other parts in the assembly.



- ▶ Using this modified path, construct a tube part named tube004. Click the Tube command, and select this path.

Note

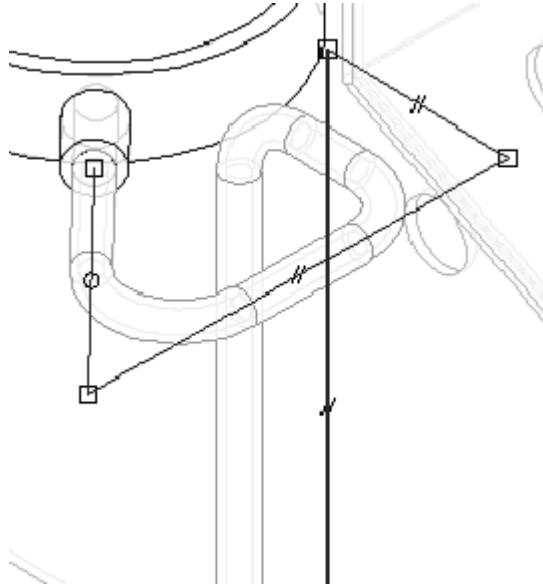
Depending on the new segment position, the software may display a warning dialog box stating that one of the segments has violated either the minimum flat length or the bend radius as specified in the options settings. This is not an error message but a notification that this tube does not meet the requirements as specified in the Tube Options dialog box. Take the time to study whether or not the tube path is still valid, and modify the tube path accordingly. The tube part will not be placed into the assembly if you click OK.



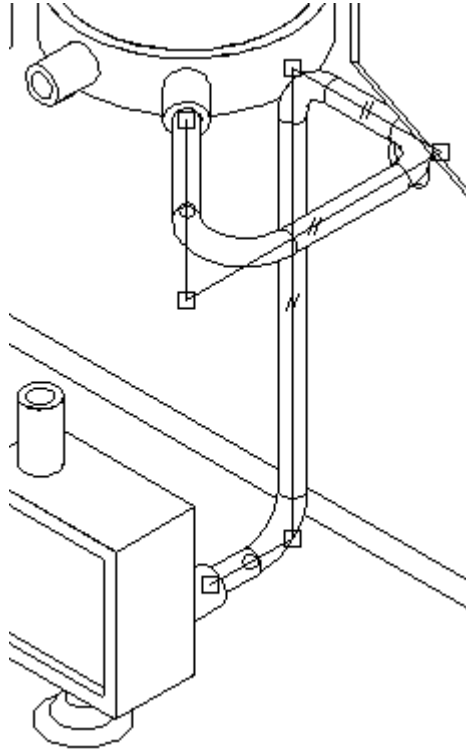
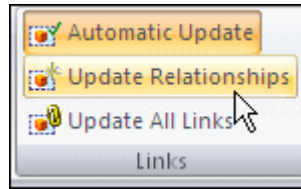
- ▶ If this warning is displayed, click OK to dismiss the dialog box.
- ▶ Click the Move Segment button.



- ▶ Select the tall vertical segment, and drag it towards the rear of the assembly.



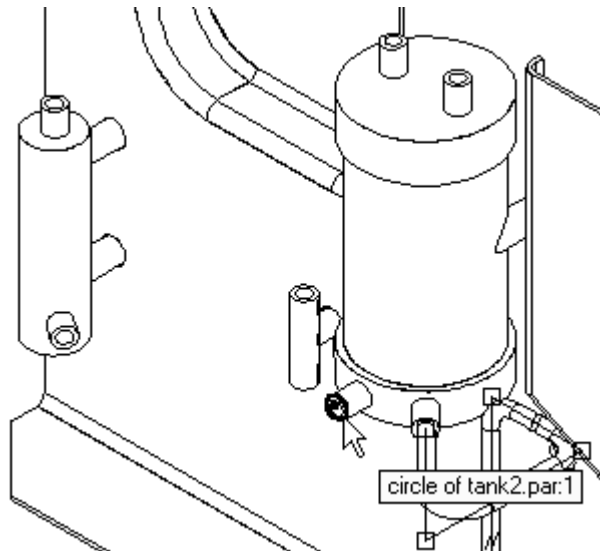
- ▶ To force the tube part to reflect the new tube path, click the Tools tab and then in the Links group, click Update Relationships. Notice that the tube recalculates and now resides on the newly modified path.



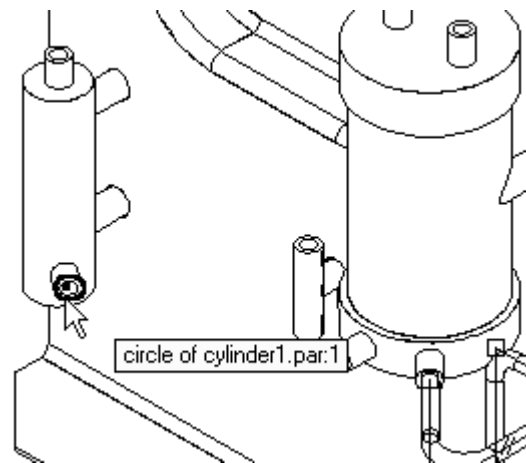
- ▶ To construct and modify another tube path, click PathXpres.



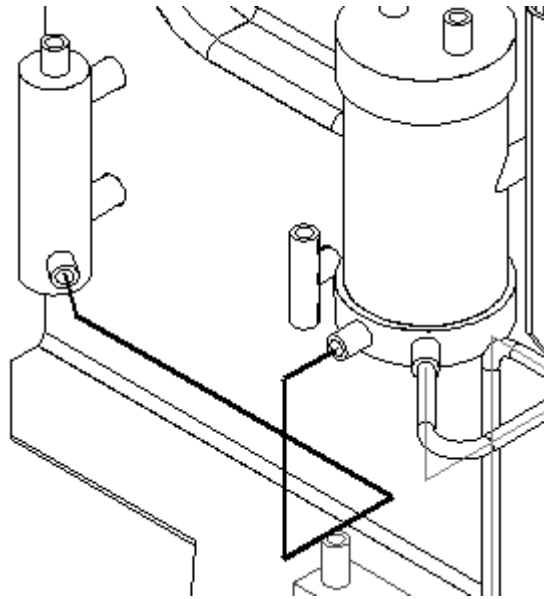
- ▶ For the first port, select the remaining bottom tube port on *tank2.par*.



- ▶ For the second port, select the bottom port on *cylinder1.par*.



- ▶ Cycle through the path options until a path is found that resembles the path as shown.



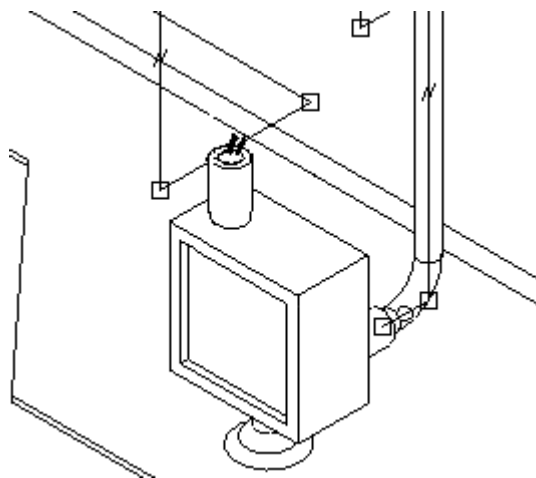
- ▶ Click Finish.

Modify the tube path and add end treatments

- ▶ Click the Select tool.



- ▶ As shown, select the parallel relationship on the line segment.

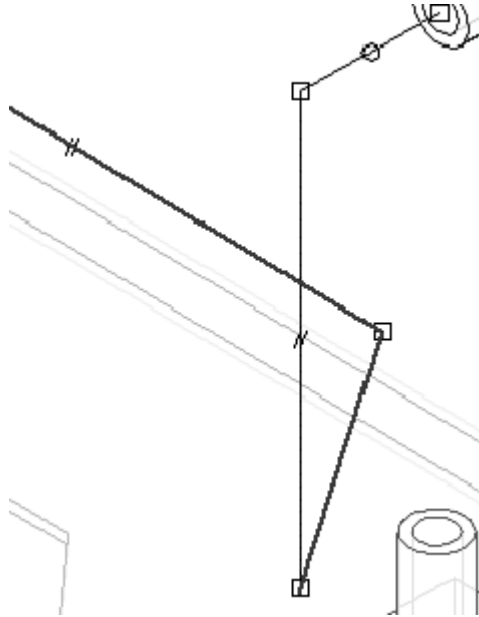


- ▶ Press the Delete key to delete it.

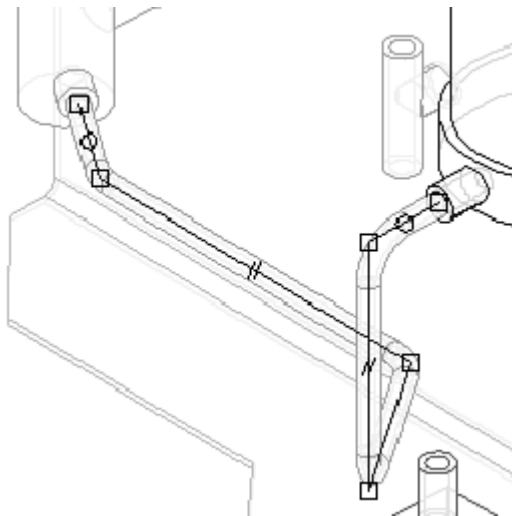
- ▶ Click the Move Segment button.



- ▶ Select the endpoint of this line segment closest to the rear of the part, and drag it to the left to make it longer.



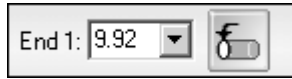
- ▶ Click the Tube button and construct a tube part named tube005 from this modified path.



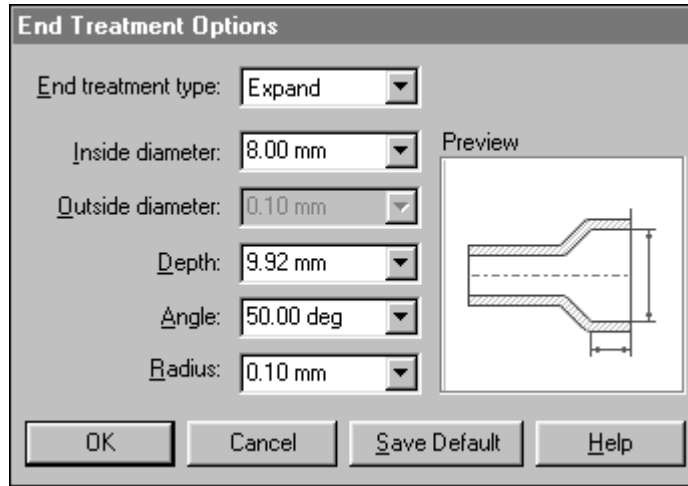
- ▶ Once *tube005* has been placed, click the Select tool and select *tube005.par*. Double-click *tube005.par* in PathFinder to edit the definition, and then edit the tube by clicking the End Treatment step.



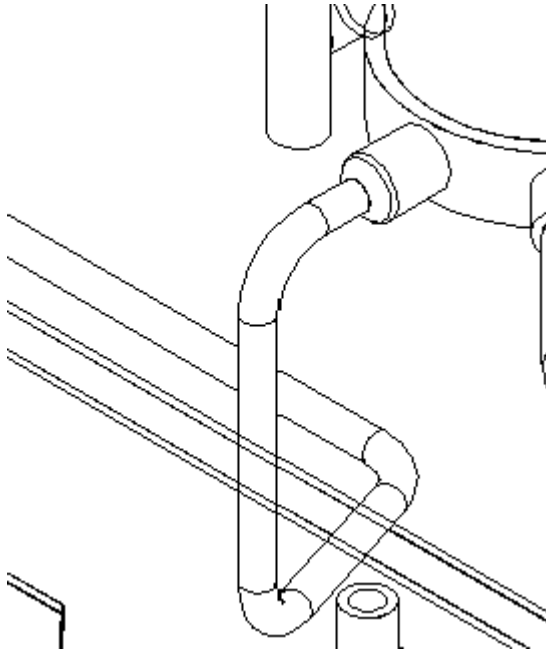
- ▶ Increase the extent of End 1 by typing 9.92 mm.



- ▶ Click End Treatment Options for end 1, and edit as shown in the illustration. Then click OK on the End Treatment Options dialog box.

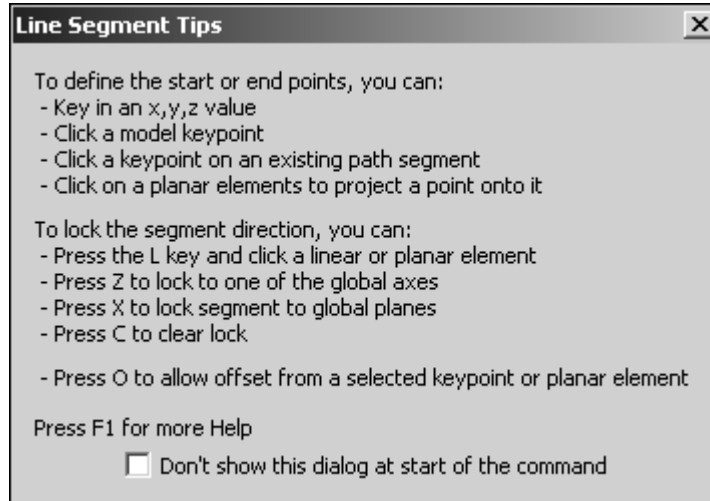


- ▶ Click Preview, and then click Finish. The end of tube005 is shown.

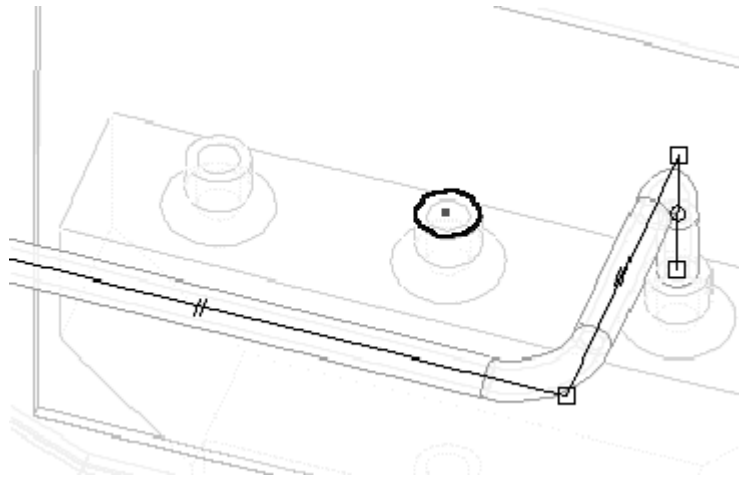


Use OrientXpres to manually route a tube path and place a tube

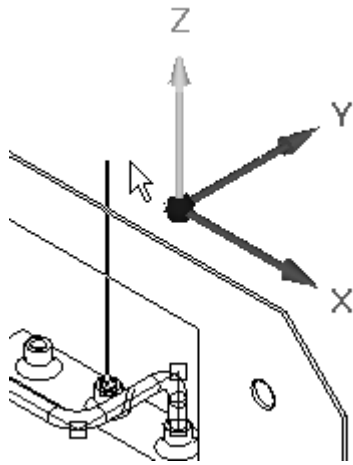
- ▶ On the Home tab, in the Segments group, click the Line Segment button. You may see the Line Segment Tips box shown.



- ▶ As the starting point for the new path, select the middle port on *pvalve.par*. Adjust the view angle to get a better view.

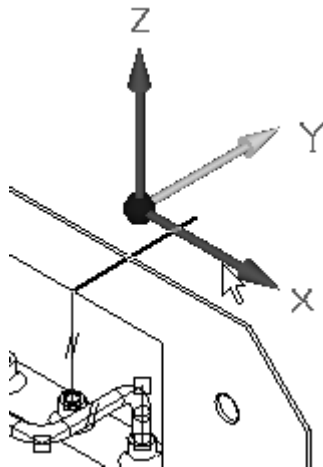


- ▶ To lock this line segment to this axis, select the vertical axis on OrientXpres.

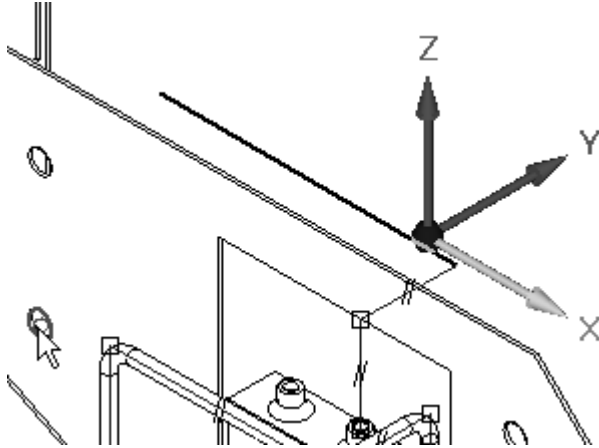
**Note**

To move the OrientXpres triad to another screen location, click and grab the triad by the origin.

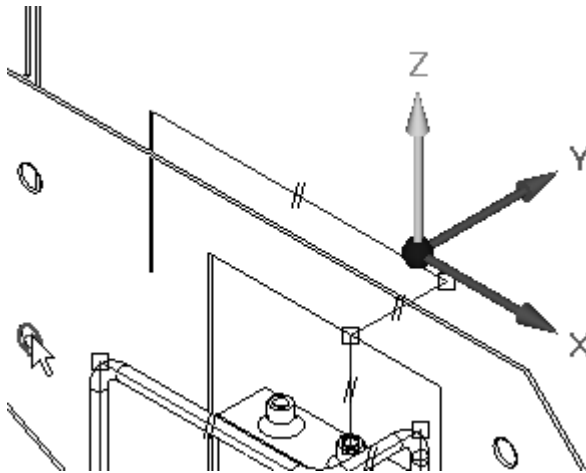
- ▶ Extend this vertical line 40 mm and then click.
- ▶ Click the axis as shown, and extend the line 40 mm toward the rear of the part and then click.



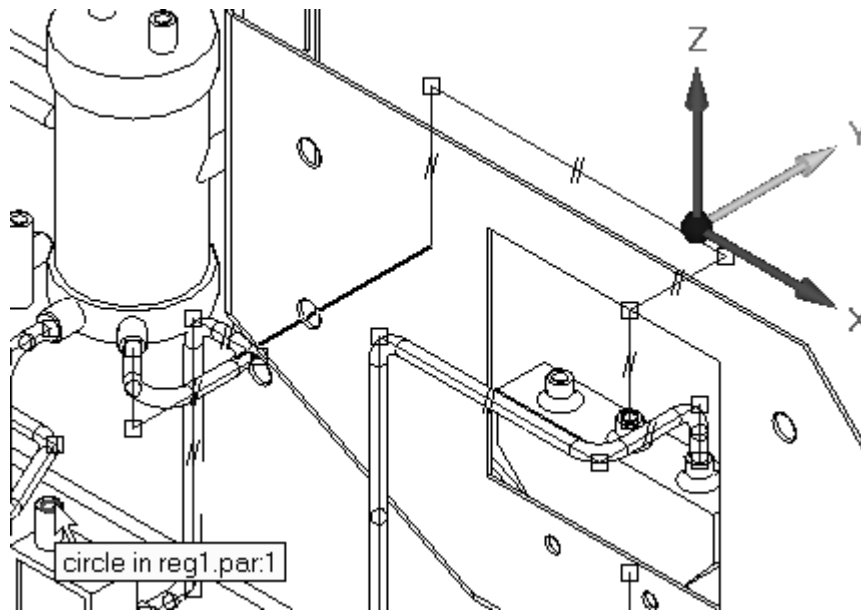
- ▶ Extend the next line segment the distance to the center of the hole in *wall.par*. Do this by selecting the axis shown and then positioning the cursor over the hole feature. When the center of the hole feature highlights, left-click. The line will extend to that distance horizontally.



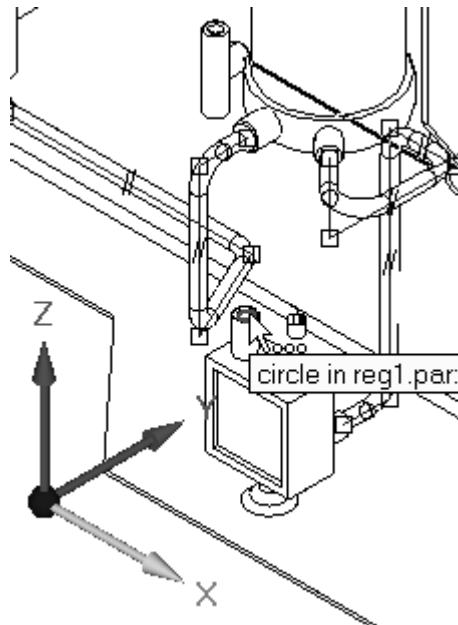
- ▶ Select the axis and extend the line down to the hole's center as in the previous step. Highlight the center, and accept this as the distance.



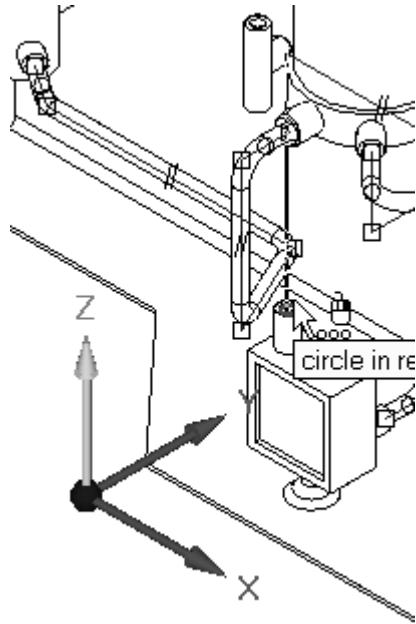
- ▶ Select the axis shown in the illustration, and extend the line to the center of the top port on green *reg1.par*.



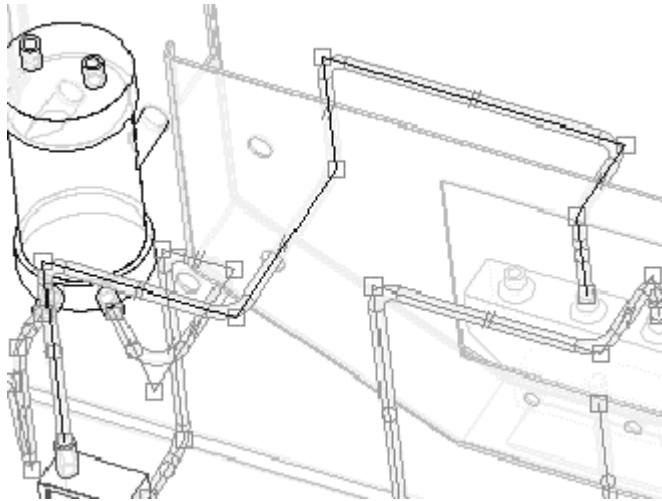
- ▶ Select the axis as shown, and extend the line to the port center.



- ▶ Select the axis as shown, and extend the line to the port center.



- ▶ To end the line segment command, right-click. The path is now complete.
- ▶ From this path, construct a tube part named *tube006*.

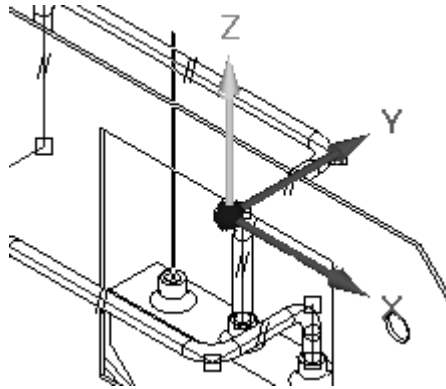


Place a tube path manually

- ▶ To construct a second path manually, on the XpresRoute toolbar click the line segment button.



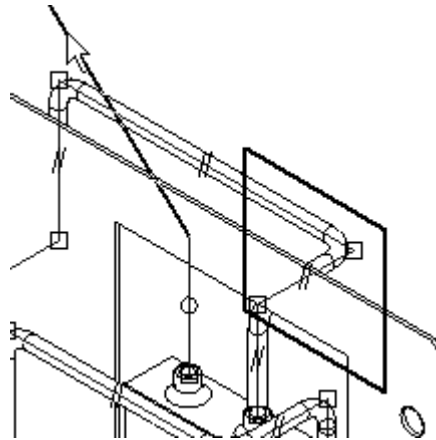
- ▶ Select the remaining port on *pvalve.par* as the starting port. Lock the OrientXpres into the vertical axis as shown.



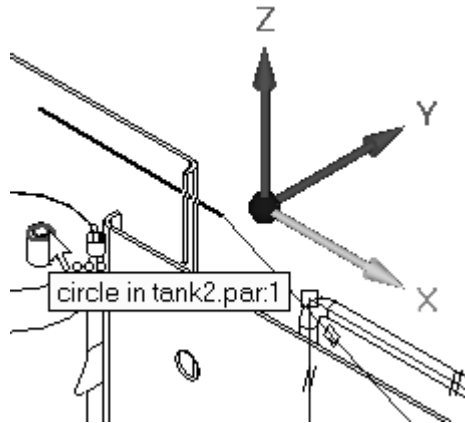
- ▶ Extend this line segment by 50 mm and click.
- ▶ Lock the next line segment to the plane as shown (click the plane with the mouse when it highlights), and extend the line 100 mm towards *tank2.par*. Use the other views to determine a reasonable height for the line segment. Right-click to restart the line command.

Note

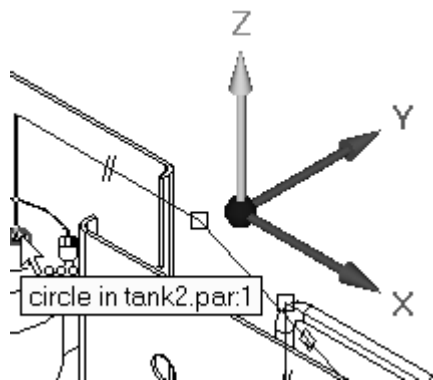
Locking to the plane allows construction of an angled tube segment.



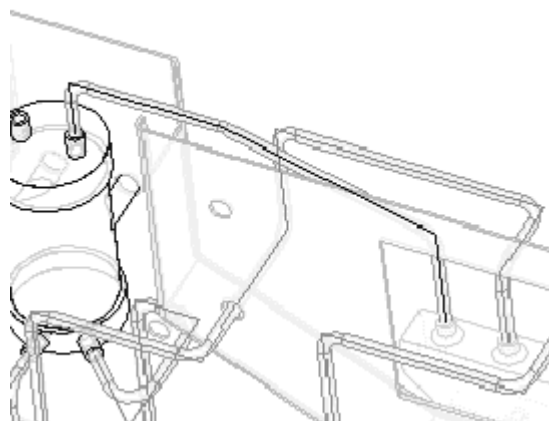
- ▶ Start the next line segment at the end of the previous line segment. Lock the next segment as shown, and extend it to one of the port centers on *tank2.par*.



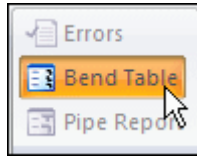
- ▶ Extend the final line segment to the port center by locking the line to the vertical axis.



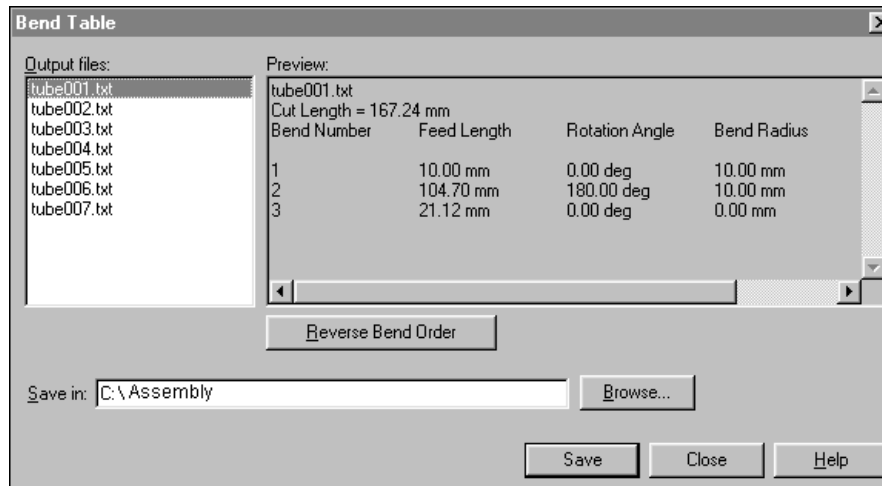
- ▶ Right-click to exit the line segment command.
- ▶ From this tube path, construct a tube part named *tube007*.



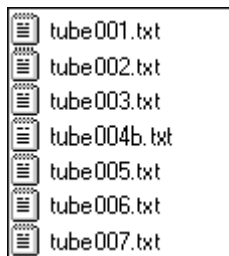
- ▶ On the Tools tab, in the Assistants group, click Bend Table.



- ▶ Click the Select All Tubes button and accept. All the tubes in the assembly should highlight.
- ▶ The bend information for the highlight tube part displays in the right portion of the dialog box. To view other tube part information, highlight the tube part file on the left portion of the dialog box.



- ▶ Click Save. Solid Edge will construct .txt files for each tube part in the folder specified in the Bend Table dialog box.



- ▶ Save and close this file. This completes the activity. However, if time permits, use the remaining ports to practice constructing additional tubes in the assembly.

Activity summary

In this activity you learned how create tube paths both automatically and manually using OrientXpres. Once created, the tube paths were edited and tubes placed on the different paths. A bend table was created for the tube paths created.

- The XpresRoute provides the basic tools for creating tubes for fluid and air transfer. Other tube part features can be modeled by in-place activating to the part environment.
- XpresRoute provides editing, modification, and output tools for creating and manufacturing these types of tube parts.
- PathXpres is an automated method of generating a 3D tube path between two ports. Solid Edge calculates as many solutions as possible for connecting the two ports, where the solution solves a maximum of five (5) segments.
- OrientXpres activates automatically when you click the line segment command. This tool allows PathXpres to lock the line segment direction or planar orientation along a specific vector regardless of the mouse position on the screen. OrientXpres is activated by default, but its options are not active.
- The Tube command is used to construct a tube part file from a tube path. The tube path must exist before the tube part can be constructed. When the tube command is clicked, the command bar updates to show the options and steps required for tube part creation.
- The Bend Table command is accessed on the Tools tab. Bend table allows the extraction of tube information to an ASCII text file for use on the shop floor.