Piping in Solid Edge
About: Rahul Kulkarni

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Rahul has a Bachelor's degree in Mechanical Engineering from VJTI, Mumbai University. Prior to his role in the Solid Edge Product Design organization, he was in Solid Edge Product Development and before that a Technical Services and Planning Engineer at Tata Motors car plant. Rahul has a combined work experience of 15 years in manufacturing and CAD software industry.
 Agenda

• Product and Information Diagram
• XpresRoute Environment
• Pipe Design Workflow
• Piping Route Command
• Pipe Edit Workflow
• Pipe Gradient
• Pattern of Piping
• Piping Utility
• Demonstrations
Product and Information Diagram

- P&ID shows how a system works
  - Use Solid Edge Draft environment to create P&ID
  - Use Blocks and Block Table to describe the system
XpresRoute Environment

• P&ID may have limitations to create a realistic view of how everything fits together

• Use Solid Edge XpresRoute environment to create tubes, pipes and fittings
Pipe Design Workflow – Path Creation

• First step is to create a path

• The path can be created using
  • 2D Sketches
  • 3D Segments
  • 3D Sketches (new in ST7)
Pipe Design Workflow – Piping Route Command

- Start the Piping Route command

- The “Piping Options” dialog is displayed (next slide)
Pipe Design Workflow – Piping Route Command – Piping Options

- Pipes and Fittings can be selected from
  - Standard Parts Library
  - By browsing to a location that is outside the Standard Parts Library
  - Local drive
  - Managed location (Teamcenter, SharePoint)
Pipe Design Workflow – Piping Route Command – Select Path Step

- ‘Select Path’ step
  - Select a path to define the piping route
  - Specify whether a gradient exists in the path (if any) and the maximum allowed gradient angle
  - Click Accept button once done
Pipe Design Workflow – Piping Route Command – Assign Fittings/Attributes Step

• Assign Fittings/Attributes step

• Select a sphere to place a fitting from the Standard Parts Library or by browsing to a location
  • The Standard Parts dialog will automatically apply a filter to display only those fittings that are valid to be placed or replaced at that location

• Click the Preview button
Pipe Design Workflow – Piping Route Command – Finish Step

• Clicking the Preview button will create the pipes

• Click the Finish button to complete the piping route
Demonstration 2 – Pipe Creation
Pipe Edit Workflow – Edit Fitting

• Select a single fitting
  • Edit Definition
  • Edit Fitting

• If “Edit Fitting” is selected, the user is presented with options for that fitting

- Flip Fitting
- Penetration Cut
- Replace fitting: Standard Parts Library
- Replace fitting: Browse from disk
- Orientation with respect to pipe centerline
Pipe Edit Workflow – Edit Fitting

• If “Edit Definition” is selected, the user can go to “Assign Fittings/Attributes” step and edit multiple fittings by selecting the respective spheres.

Select these fittings to edit.
Pipe Edit Workflow – Edit Pipe

- Select a single pipe
  - Edit Definition
  - Edit Pipe

- If “Edit Pipe” is selected, the user is presented with “Piping Attributes” dialog
  - Choose pipe from
    - Standard Parts Library
    - Browse from disk
Pipe Edit Workflow – Edit Pipe

- If “Edit Definition” is selected, the user can go to “Assign Fittings/Attributes” step and edit multiple pipes by selecting them.

Select these pipes to edit

Piping Attributes:
- Pipe Location:
  - Select from Standard Parts Library
  - Browse for pipes
  - Recently used:
- Standard: DIN
- Diameter: 80 mm
- Material: Tube DIN 11850-65 x 2
Demonstration 3 – Pipe Edit
Pipe Gradient

• Use the “Pipe Gradient” option to build this positive drain right in the pipe path
  • Notice the path has a 92 degree angle

• In the “Select Path” step, select the “Pipe Gradient” option

• Enter the maximum gradient value to be allowed in this piping route
  • up to +/- 20 degree maximum
Pattern of Piping

- User can create a pattern of the pipe route
Piping Utility

- With the capability to place pipes and fittings from a local drive, we also need a tool to create the right coordinate systems and attributes required to define a pipe or a fitting.

- This tool can be found under the piping utility folder.

- In order for this tool to work, you have to have a Solid Edge file open such as the fitting.

- Once the file is open, double-click “PreparePipingComponents.exe”
Piping Utility

• The following dialog presents the options that perform all the tasks necessary to prepare the model for correct positioning in a pipe path

• The first option determines the part type: prepare a fitting or a pipe
Piping Utility

• The next input is to determine the diameter information
Piping Utility

- The final step is to graphically select the two openings in the fitting
- It is important to identify the diameter at the depth in which the pipe will fit
Piping Utility

- Notice the coordinate systems are automatically created and added to the PathFinder, as well as the correct variable to the variable table.
Demonstration 4 – Pipe Edit

Demo Piping Utility and Pipe Cut Length
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