

From prototype to finished product

SPI Ducting

Feature-based design and unfolding of sheet metal pipes and pipe-connections

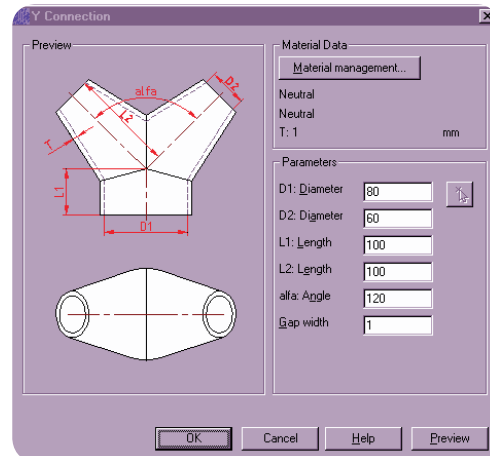
SPI Ducting is the premier application for design and unfolding of sheet metal pipes and pipe-connections of different types. Integrated with latest versions of AutoCAD and Mechanical Desktop, SPI Ducting is 100% interoperable with latest Autodesk releases and other applications.

SPI Ducting has a friendly user-interface. When the designer selects a function from the menu or from the icon bar, an input box with the main parameters of the corresponding shape or connection is displayed. These shapes include: pipe, cone, circle-rectangle transition, elliptic pipe, y-pipe, t-pipe, y-connection, elbow and flanges.

The designer may define the dimensions through the online display function as well as pick existing edges to determine the size. Apart from the over all dimension the designer can fix the width of the welding gap.

Additionally, the designer can access the values of the integrated material management (used material, machine and thickness). As the parameters are set up, the program calculates referred shapes, transitions or connections as 3D solids. The preview command helps the designer to modify a part in any parameter before final generation. With a single step, the unfolding is automatically generated from the 3D model. Special parameters from the materials database are considered during the unfold phase.

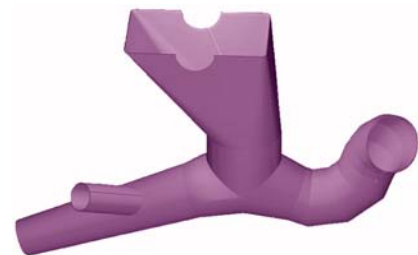
The AutoDimension command annotates the unfolded sheet which can be transferred to NC-applications via DXF.



Intro - ducting:

Existing models can be easily modified by commands for extending/trimming of pipe, hole cutting, and region creation. The unfolding is automatically generated in seconds. Even AutoCAD solids that have not been built up with SPI Ducting can be unfolded.

Since shapes are generated as 3D solids, a standard AutoCAD rendering is used for quick visualization of assemblies. Data transfer to NC or FEM can be easily accomplished.



Shapes

Pipes are defined by diameter and height. Miter cuts can be defined for both ends (top and bottom plane rotation).

Elbows (1) are defined by diameter, radius and angle of elbow, horizontal and vertical distance of the ends and number of segments.



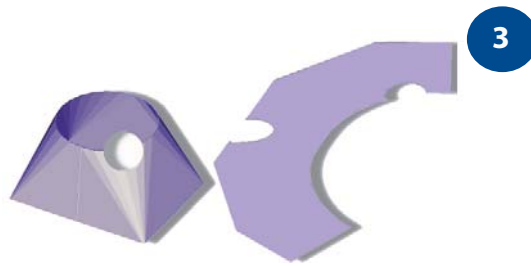
Cones

Cones (2) are defined by upper and bottom diameter and the length. The program allows a displacement in x- and y-axis. The number of segments (bending lines) can also be defined. Elliptic pipes are defined by major and minor radius, height and the number of segments (bending lines).

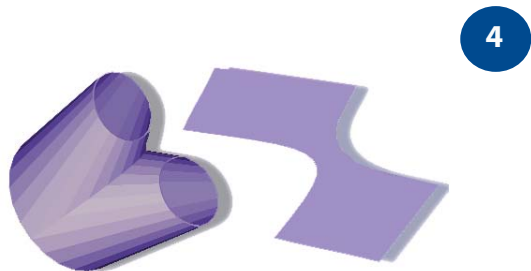


Transitions

A transition circle - rectangle (3), the classic case of use is the suction hood, is defined by diameter, dimensions of the rectangle and height. The program allows a displacement in x- and y-axis. Bending radii at the corner areas and the number of segments can also be defined. The number of the welding gaps and the resulting sections can be defined between 1 and 4.



Y-transitions (4), Y-pipes with parallel exits and Y-transition with parallel extended ducting, are defined by diameter (top diameter), height, distance of the parallel pipes and the number of segments.



Connections

The program provides T-connections (5) with equal or different diameter. The definition of the position and the angle of the departing pipe to the main pipe are possible. The Y-connection (6) is defined by diameter, angle and length of the different parts of the pipe.



Accessories

Round flanges are defined by inner and outer diameter, thickness, diameter of the bolthole circle and the number and diameter of the holes. Rectangular flanges are defined by side length, width of flange and thickness. The function allows the exact position of every element and dramatically simplifies the placing of models on existing ones. Workplanes are automatically set according to the selected plane on the model. With this capability, a designer can build complete 3D assemblies.

