From prototype to finished product

SPI SheetMetal Inventor Suite

Unfold sheet metal without restrictions

SPI SheetMetal Inventor Suite is 100% integrated with the current Autodesk Inventor solution and helps to precisely unfold complex sheet metal parts and assemblies. SPI SheetMetal Inventor complements the basic sheet metal functions of Autodesk Inventor and offers a range of helpful capabilities for sheet metal design and unfolding, especially regarding the process chain and the direct transfer of data to manufacturing.

Shorten your design cycle:

Design and unfolding of complex sheet metal parts and assemblies are no problem any more with SPI's solution.

The initial selection of the manufacturing capabilities ensures that only the materials, tools and processes available are recommended to the designer, avoiding rejection on non-manufacturable parts and the resulting rework.
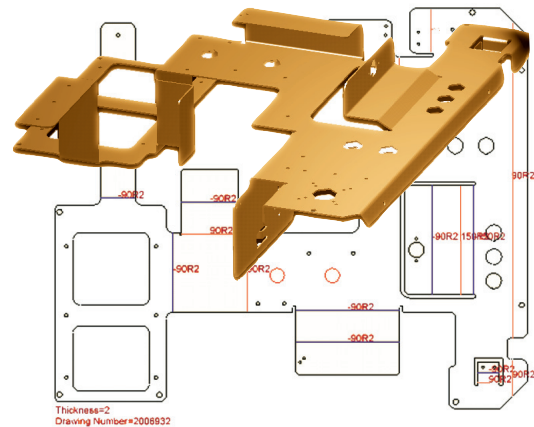
SPI SheetMetal Inventor Suite provides a variety of efficient design tools for sheet metal design. Especially the design and unfolding of sharp cornered models - without the need to apply reliefs - is available. It is possible to unfold sharp cornered Inventor parts or even inaccurate imported models.

The automatic flat generation provides fast, accurate flattening of 3D sheet metal parts to create the complete 2D flat information needed. SPI - in just seconds - generates an associative flat pattern transferable to e. g. laser or punch CAM programs and press brake control systems (special interface for Delem and Cybelec included) and to bending simulation software. Optionally a Tops GEO file is generated including the complete bending information for TruTops Bend (ToPs 600) software.

Close to production

SPI provides a library of punch and stamp tools. With the new SPI tool manager it is guaranteed that only tools are applied which are available for manufacturing.

Optional access to TruTops Bend machine information is realized as well as the import of several tools from the TruTops Punch (ToPs 300) libraries.
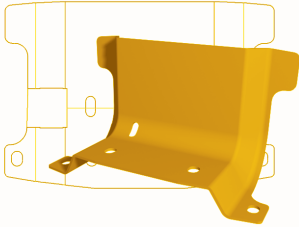
Customers say:

"The productivity of our engineering and drafting departments has and will continue to improve with the use of these SPI software packages ..."

Jack Pennypacker, Baxter Manufacturing

Sharp cornered design

Sharp cornered Inventor parts, lofted solids, or curved surfaces (e.g. conical, elliptic, transitions) can be transferred to 2D drawings without problems. Unfolding of freeform surfaces is possible, bending angles > 360° are allowed. As soon as a solid is designed the flat pattern is created including the calculation of bend allowance based on k-factor, free formula, shortening values or other attributes for special bend allowance calculation.

Automatic corner reliefs are available even at filleted bend areas. Thus, using the SPI application, expensive and time wasting rework isn't required any more.

Ready to manufacture

Parts, which have been designed with bend radius „0" can be unfolded. No unfold problems with conversions from polygon to circular occur. The unfold shape of cones, even with axes is generated in seconds. Pipes with non perpendicular cuts can be unfolded without any problems. The unfold shape shows the inner and outer contour of the cut. Tolerance parameters enable the designer to unfold even inaccurate parts that have been imported from other systems, e.g. STEP.

From the beginning SPI sheet metal software was able to create bending lines together with the unfolding of sheet metal parts. Now this is possible with freeform surfaces, too. The reason: transition parts generated with Autodesk Inventor using the Loft command are freeform surfaces. These surfaces can easily be unfolded with the SPI unfold functions and you can immediately use the flat shape for laser cutting. Some freeform parts are manufactured by roll forming. In many cases they are actually manufactured by applying several bends. The SPI unfolding software can create the needed bending lines without any modification of the original 3D model or the geometry and its feature structure remains as it is. It remains parametric and can be modified in its assembly context. The resulting number of bending lines calculated with the unfolding is driven by the user defined SPI unfold parameters. A bending line table is always available on demand.

Associative views

With SPI it is possible to create associative unfold views in an Inventor drawing document. After any model change the corresponding SPI unfolding is updated automatically. The creation of it can be started from an Inventor drawing document. Here one selects the desired 3D part and the position of the unfolding view in the 2D drawing document. It is possible to have multiple unfold views for the same or different parts in one document.

Bend technology

The result can be transferred to laser- and stamping machines as DXF-file, bending information goes to bending machines.

SPI allows exporting the unfolding geometry to the Tops GEO format. The created files can be uploaded to several TruTops modules (punch, laser) of TRUMPF. Time-consuming rework with the help of the Tops drawing editor is void.
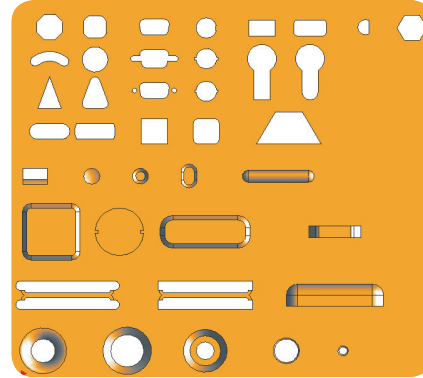
The results are significant cost savings and shorter design cycles.

SPI SheetMetal Inventor is proven in production across a broad range of industries, allowing product designers and manufacturers to get quality products to market faster at a lower cost.

More than 20 years of experience in the world of sheet metal define SPI to be one of the most competent CAD developers for the sheet metal industry.

SPI provides a library of punch and stamp tools. With the new SPI tool manager it is guaranteed that only tools are applied which are available for manufacturing.

A library of standard pipes and transitions is available, too.

Highlights

- unfolding associative
- unfolding of freeform surfaces (nurbs) on demand with bending lines
- unfolding of imported inaccurate parts
- automatic relief creation for filleted bend areas
- special command to smooth corner areas
- punch and stamp tool library
- import of shortening values from Autodesk Inventor
- unfolding of Inventor parts, which have been designed with bend radius=0 (sharp cornered)
- unfolding of solids which have been created by lofting commands
- unfolding of curved surfaces e.g. conical, elliptic, transitions
- calculated bending lines directly on the 3D model
- unfolding of bend angle even more than 360 degrees
- unfolding of flanges that are not relieved
- virtual corner split
- modification of type of material
- automatic generation of the flat pattern, including calculation of bend allowance
- calculation of bend allowance based on k-factor, free formula, shortening values
- attributes for special bend allowance calculation
- flat pattern is generated as 2D drawing
- options for automatic corner cut-out shapes in the flat e.g. circle, square, oblong, tear
- clash detection during unfold procedure
- material database (custom built)
- support of metric and imperial cost estimation, transfer to external calculation programs
- transfer via DXF file to NC programs (nesting, punch- and laser cutting)
- optional access to TruTops Bend (ToPs 600) database
- optional import of tools from TruTops Punch (ToPs 300)
- library for ducting demands

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