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SPI SheetMetalWorks 2021

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Installation manual and additional information for SPI SheetMetalWorks Version 2021

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This manual describes the installation of **SPI SheetMetalWorks** on a PC running **Windows 7 and Windows 10**. You will find further information in the first section of document **Getting Started.pdf** which is included in this installation package.

If you have trouble with the installation please contact your local dealer or the SPI support.
Email: support@spi.de
Internet: http://www.spi.de

Please refer to the **New Functionalities and Changes in SPI SheetMetalWorks**.

Note that the handling of SOLIDWORKS configurations and their unfolding in drawing documents has changed fundamentally in version 2019.

Since SPI SheetMetalWorks 2019 the used drawing documents for unfolding are defined in the unfold parameters, analog to DXF or GEO. Old models with SOLIDWORKS configurations and different drawing documents as unfold target will be migrated by the command "Unfold all Configurations"! Own unfold parameters are created for each SOLIDWORKS configuration after migration, in which the configuration depending drawing document are registered. The unfold parameters and the SPI material are configuration specific after migration. This means if you change a unfold parameter or the SPI material, this change is applied only for the active SOLIDWORKS configuration. If you switch the active SOLIDWORKS configuration, the change will not be transferred.

If you work with SOLIDWORKS configurations and unfolding in configuration specific drawing documents and still want to use configuration independent unfold parameters and SPI materials, we recommend the following proceeding:
You use a complete path with a variable part for the SOLIDWORKS configuration as "Individual path" in the unfold parameters of drawing, e.g.

$(PartFolder)\(?SpiUnfold)_$(ConfigName)

This entry will be used for all SOLIDWORKS configuration and will be remained as long you save the drawing document with the created unfolding in this path. It is important, that a complete path, inclusive folder and file type, is used. The adjustment is to carry out manually for old models. If you adjust your start configuration for unfold parameters, new models will be using this entry automatically.

If you have question feel free to ask the support.

General information

SPI SheetMetalWorks is an application for the CAD system **SOLIDWORKS**. So you must have SOLIDWORKS already installed if you want to use this application. The installation will be done using the installation program `SPI SheetMetalWorks 2021 Setup.exe`.

Requirements for the installation

- **Refer to requirements for SOLIDWORKS**
- **Windows 7 (x64), Windows 10 (x64)**
- **SOLIDWORKS 2021.**
- **PDF viewer for reviewing the documentation files**

SPI SheetMetalWorks only runs with the **corresponding** SOLIDWORKS version. Older or newer **versions will not be supported.**

Preparations for the installation

Backup all data of your PC before installing the SPI Software.

Take care that you possesses the complete set of the SPI Software and that there is sufficient space on your hard disc. Additional space for your drawing data should also be available.

Installation process

The installation has to be done by your **system administrator** who guarantees full access to the file system.

Start the SPI installation program via the Windows Explorer or a command line window. You can also use the section "Software" in the Windows system control panel. Follow the instructions of the installation program.

If you should have problems during the installation process please refer to section Troubleshooting.

When installing you will be prompted to enter the following data:

SPI installation folder

Type in the name of the folder to which you would like to install the SPI application on your local hard disk. It would be the best to install the software to the suggested folder, for example to `C:\Program Files\SPI GmbH\SPI SheetMetalWorks 2021`. You may also enter another folder name. In the following description it is assumed that you have set the installation folder to this name. Otherwise replace this name by the name you have chosen.

Folder for the general SPI data

Type in the name of the folder to which you would like to store the general SPI data (tool data, material data etc.). The users must have full access to this folder. The default folder is `C:\users\public\documents\SPI GmbH\SPI SheetMetalWorks 2021`. All files in the selected folder will be deleted and replaced by default files. If you want to keep your files, then uncheck the check box "Create new data folder (ATTENTION: Overwrites old data!)" during the installation.

If you have specified a **network drive** for this folder, then full access to the network folder must be provided for all users sharing these data.

Licensing of the SPI application

The SPI software is protected by a software lock. So you need a valid password (authorization code) from SPI which you have to request after installation. You are able to work with single-user or network licenses.

> Also a demo version or test version has to be registered at SPI. In this case you will get a time limited password. Please note that you need a **connection to the internet** when working with a **demo version or test version**.

When using **network licenses** the SPI License Server has to be installed to request and enter the password.

If you want to use **single-user licenses** it is NOT REQUIRED to install the SPI Licesnse Server. You have to request and enter the password via the SPI Registration Wizard on each workstation. The SPI Registration Wizard will be displayed automatically after first start of the SPI application when running a SPI command for the first time.

Installation of the SPI License Server when using network licenses

To use the SPI application in a network licenses environment one computer in the local network must have the SPI License Server software installed (License Server computer). This software is located on the SPI Software CD in the folder `utils\spilicsrv` or you can download it in the internet from the SPI-VIP-Download sites. Run the SPI License Server installation program to install the SPI License Server. Register the SPI application via the web interface of the SPI License Server to request the password. The web interface is accessible in the Internet Explorer via `http://servername:50000` . There you can register the application at SPI and enter the passwords later on (`servername` has to be replaced by the name of your License Server computer).

The activation of the network license on each workstation will be done when starting the SPI application for the first time: The SPI Registration Wizard will be launched and you have to enter the name of the License Server computer.

Installing and licensing the SPI TruTops Interface

The SPI TruTops Interface is an **optional software module** for SPI SheetMetalWorks. This interface allows you to use the bend information imported from TruTops Bend, like bend angles and bend factors, in the CAD modelling with SPI.

It is not necessary to install this interface module explicitly. It is already integrated in the SPI application but must be activated with a specific password.

If you have bought this module, you have to select the corresponding check box in the SPI Registration Wizard to get the additional password from SPI. Ater you have got this password you must enter it in the Registration Wizard on each workstation (single-user license) respectively via the web interface of the SPI License Server (network license).

With a valid license of the SPI TruTops Interface the SPI application provides the following additional functionalities:

- **TruTops Bend Import in the SPI SheetMetal Data Editor:** The SPI SheetMetal Data Editor can import all bend process data (materials, bending tools, bend factors etc.) from the TruTops Bend (ToPs 600) database and save it to the SPI format, so that all SPI applications can use it.
- **Access to TruTops Bend process data in the CAD system:** If you have created a SPI material database from the TruTops Bend data, then you can use these data in all SPI applications which have a valid SPI TruTops Interface license.
- **Creating TruTops Bend compatible unfoldings:** The SPI unfold option "Pressbrake" can only be set to the "TruTops" setting if there is a valid SPI TruTops Interface license on that computer.
- **Creating unfoldings in GEO format:** This format can only be chosen if there is a valid SPI TruTops Interface license on that computer.

If you are using network licenses, then you need the same number of SPI TruTops Interface licenses as you have got for SPI SheetMetalWorks.

Installation and licensing of the SPI WiCAM Interface

The SPI WiCAM Interface is an **optional software module** for SPI SheetMetalWorks. This interface allows you to export the unfolding data of a sheet metal part into a WICAM XML file which may be imported by the WiCAM software PN4000 afterwards.

It is not necessary to install this interface module explicitly. It is already integrated in the SPI application, but must be activated with a specific password. See also the description in the section above Installation and licensing of the SPI TruTops Interface.

Getting started with SPI SheetMetalWorks

Programs in the SPI program group

In the SPI program group in your Windows Start Menu you will find the icons to start the SPI programs.

Activation / Deactivation of the SPI application

After the installation when starting SOLIDWORKS, the SPI application will be loaded automatically as SOLIDWORKS "Add-In". Then the menu "SPI SheetMetalWorks" is available for you. In the context of a part document you will find the additional tab "SPI SheetMetalWorks" in the command manager of the user interface.

If you have installed an older version and the current version of SPI SheetMetalWorks **side by side** and you want to switch to the older version, you have to register the older version again. For this there is a command located in the Windows Start Menu in the SPI program group of the older version: **Register Addin at SOLIDWORKS**. Please note that you must have **administration rights** to execute this command. This command has to be started **as Administrator**. To switch back to the current version of SPI SheetMetalWorks you have to execute the command **Register Addin at SOLIDWORKS** from the SPI program group of the current version.

Registration and activation of the SPI application

To run the SPI application a password is needed. This password will be provided by SPI after you have sent a request form to SPI containing a request code and other necessary data which identify your computer. The **SPI Registration Wizard** will assist you to create a request form.

At each workstation the SPI Registration Wizard is launched automatically when starting the SPI application and running a SPI command for the first time. You are also able to start the SPI Registration Wizard in the CAD system anytime via the "SPI SheetMetalWorks Info..." command located in the SOLIDWORKS Help menu. Then use the button "License" in the displayed dialog.

To **register a network license** you have to run the SPI Registration Wizard via the web interface of the SPI License Server. Then fill in all information. At the end the SPI Registration Wizard creates a text which you have to send to SPI. Copy the complete content of the displayed request form and send this text via Email to license@spi.de. You can use the appropriate link in the wizard to create the Email. Paste the text into the Email form using the **+V** keys and send it to SPI to get the password.

To **register a single-user license** you have to run the SPI Registration Wizard on each workstation. Then select the option "Register a single-user license for this computer". Fill in all information. At the end the SPI Registration Wizard creates a text which you have to send to SPI. Press the button "Send E-Mail" and the default Email program will be started and a new Email form will be opened. This form contains already the text as well as the target Email address license@spi.de. Send it to SPI to get the password.

If an Email service is not available you may send the text via fax (+49 (0) 4102-706-444) to SPI

The SPI Registration Wizard will show optional software modules for the application, if available, for example the SPI TruTops Interface (ToPs 600). Mark the modules you bought. Then they are added to the password request form and you will get additional passwords.

After you got the password use the SPI Registration Wizard to activate the SPI application.

To **activate a network license** first you have to enter the new password via the web interface of the SPI License Server. Then each workstation has to be configured to use this network license. This can be done running the SPI Registration Wizard, selecting the option "Use a network license using a license server" and entering the name of your License Server computer.

To **activate a single-user license** use the SPI Registration Wizard on the respective workstation and enter the password by selecting the option "Enter Authorization Code (Password) for a single-user license".

SPI SheetMetal Data Editor and SPI Tool Editor

In the SPI program group in the Windows Start Menu the symbols to start the SPI SheetMetal Data Editor and the SPI Tool Editor are located.

In the **SPI SheetMetal Data Editor** you have to enter the data, i.e. the shortening values, production radii etc. for your press brakes (bending tools). The Online-Help of the SPI SheetMetal Data Editor supplies further information.

Note that the bend factor values delivered with the SPI Software are only example values and should be used only for testing and demonstration purpose. Don't use it for production! You have to enter your own values in the SPI SheetMetal Data Editor.

If you want to customize the tools provided with the SPI application to your punch and stamp tools you can do this using the **SPI Tool Editor**. The Online-Help of the SPI Tool Editor supplies further information.

Documentation, tutorials and examples

The complete reference manual is provided as an Online-Help. The tutorial (SheetMetal Tutorial.pdf) provides detailed introduction to the functionalities of the product. You can access these files via the SOLIDWORKS Help menu. They are also available in the SPI program group in the Windows Start Menu. To read these documents a PDF reader (e.g. from Adobe) is required. The tutorial (SheetMetal Tutorial.pdf), the introduction document (Getting Started.pdf) and all samples files are located in the SPI installation subfolder `Documentation` in your file system.

Troubleshooting

If you encounter any problems with the installation process, then this may have one of the following causes:

- Another version of this SPI Software is already installed on the computer. Remove this version using the section "Software" respectively "Programs and Features" (Windows 10) in the Windows system control panel. Then try to install again.
- If the SPI installation program was downloaded from the internet, possibly the installer file might be corrupted. Please download the file again an try to install.

Special hints

Known problems

With version SPI SheetMetalWorks 2014 and higher new **DXF template files** will be delivered. If you want to perform an update of your installation, the new DXF template files will only be installed as ZIP archive and the old ones will still be used. This may lead to warning messages when starting the SPI command *Unfold Parameters*, for instance because new layers which are defined in the new DXF template files are missing. So do the following after updating your installation:

- Save your DXF template files first if you have customized these files (see also SPI folder structure and Important files and folders used by the SPI application).
- Rename your old DXF template files in your data path, for example in `OLD_UnfoldTemplate_mm.dxf` respectively `OLD_UnfoldTemplate_in.dxf`.
- Extract the ZIP archive to get the new DXF template files.
- The customizations you have made, if so, have to be done again in the new DXF template files.

The SPI configuration file SPI_ENV.CFG

The file `SPI_ENV.CFG` will be created in the subfolder `CONFIG` of the SPI installation folder during the installation, e.g.:

```
C:\Program Files\SPI GmbH\SPI SheetMetalWorks 2021\CONFIG\SPI_ENV.CFG
```

This file includes all SPI configuration variables and the current values which will be set on loading the SPI application.

The **SPI configuration variables** have the following meanings:

SPI_DATAPATH:	Folder for the general SPI data (tool data, material data etc.).
SPI_APPLDIRNAME:	For example **SPI GmbH\SPI SheetMetalWorks 2021**. Defines the part of the path name used for storing the local user settings in `C:\Users\Public\Documents`. The user settings are stored in subfolder SHEET. The folder SHEET contains all stored sheet metal options files, for example files like SPIUNFOLD*.INI which contain unfold parameter configurations and files like SPICOST*.INI with cost parameter configurations and files like SPITONGUEGROOVE*.INI with its parameter configurations, as well as the file SPIGLOBAL.INI which contains the current settings of the global application options, and the file SPIMANUFACTURING.INI which may contain settings for the manufacturing information attribute. If the parameter SPI_APPLDIRNAME is not set, the user settings will be stored in the folder for the general SPI Data.
SPI_TMPPATH:	Folder for temporary files. If not set the default Windows folder for temporary files for the current user is taken.
SPI_MSGLANG:	Abbreviation for the language version to use: **ger** (German) or **eng** (English).
SPI_UNITS_INCH:	**0** (use Metric measurements mm) or **1** (use Imperial measurements inches) as default.
SPI_CADSYSTEM:	Must be set to **SOLIDWORKS**.

The SPI folder structure

In the SPI installation folder there are the following subfolders:

BIN	Program files
CONFIG	Configuration files
HELP	Online-Help files
LIB	Addin-DLLs for SOLIDWORKS and other program and utility libraries
LIB64	Addin-DLL (64 bit) for SOLIDWORKS
MESSAGES	Message files
DOCUMENTATION	Tutorial and "Getting Started" in PDF format
DOCUMENTATION/EXAMPLES	SOLIDWORKS example files for "Getting Started"
DOCUMENTATION/TUTORIAL EXERCISES	SOLIDWORKS example files for the tutorial
DOCUMENTATION/TUTORIAL RESULTS	SOLIDWORKS example files for the tutorial

In the folder for the general SPI data there are the following subfolders:

CATALOG	Catalog with template files for the SPI Component Manager. Own component templates may be stored here.
DXF	Templates for DXF unfolding files
MATERIAL	Material data files
TOOLS	Tool database
TOOLS/CUSTOM	Customer section
TOOLS/CUSTOM/BODY	Prototype bodies
TOOLS/CUSTOM/CONTOUR	Contour files
TOOLS/CUSTOM/HELP	Tools help files
TOOLS/DEMO	Demo section
TOOLS/DEMO/BODY	
TOOLS/DEMO/CONTOUR	
TOOLS/DEMO/HELP	
TOOLS/TEMPLATES	Template files for punch and forming tools. These files will be used to create the punch and forming tools for the SOLIDWORKS Design Library. **Do not modify these files.**
TOOLS/SPI	User specific punch and forming tools for the SOLIDWORKS Design Library.
TOOLS/RECOGNITION	Files of the command **Learning Tool Recognition**.

In the **folder for the local user settings** there are the following subfolders:

SHEET	Sheet metal options files (unfold parameter configurations) and the file with the current settings of the application options.
SHEETMETAL BEND TABLES	SPI bend factor tables in SOLIDWORKS format

Important files and folders used by the SPI application

- The file SPI_ENV.CFG in subfolder **`CONFIG`** contains all required configuration data for running the SPI application.
- In subfolder **DXF** the template files **`UnfoldTemplate_mm.dxf`** and **`UnfoldTemplate_in.dxf`** are located which are used to create the DXF unfolding files.
- The file **`SPIGLOBAL.INI`** will be created in the subfolder `SHEET` of the local user settings after you have started the command *Application Options* in SPI SheetMetalWorks and exited the dialog with OK. In this file you can configure amongst others which document properties of a part should be transferred into the unfold file. Refer also to the Online Help of SPI SheetMetalWorks to get more information.
- The file **`SPIMANUFACTURING.INI`** will be created in the subfolder **`SHEET`** of the local user settings after you have created an unfolding the first time and the unfold parameter option *Replace Manufacturing Information* is set. Refer also to the description of the manufacturing information attribute in the Online Help of SPI SheetMetalWorks to get more information.
- The program library **`SpiSwShm.dll`** in subfolder **`LIB64`** represents the Add-In **SPI SheetMetalWorks** which will be loaded in SOLIDWORKS (refer also to Activation / Deactivation of the SPI application).
- In the folder for temporary files the SPI application will create a file named **`SPIERR.TXT`** containing all internal error messages which may have occurred running the SPI application.

Uninstall the SPI Software

Before uninstalling the software make sure that there are no data anymore in the SPI installation folder and in the folder for the general SPI data which you want to keep.

Create a backup of your customized material data and tool data if you want to keep it.

To uninstall the SPI application you can use the menu item "Uninstall" in the appropriate SPI program group in the Windows start menu. Or you may uninstall it using the item "Software" respectively "Programs and Features" (Windows 10) provided in the Windows system control panel.

When uninstalling the software the installer does not delete all files in the SPI installation folder respectively in the folder for the general SPI Data. Some user data will be kept. Please check these data and if required delete it manually using the Windows Explorer.

New functionalities and changes

The following section describes the enhancements of SPI SheetMetalWorks depending on the version.

Please review this section to keep informed about new and changed behavior of commands.

SPI SheetMetalWorks

2021 **SPI SheetMetalWorks 2021**

- Adapted for SOLIDWORKS 2021
- New commands for handling with multi part documents by assigning material data, start edges and by unfolding of these parts.
- SheetMetal Wizard for the option module **‚Schröder POS 3000‘**. This option module must be licensed separately. Further it is necessary that you have a license and the software from the company Schröder.
- You can add information for weldings – as attribute - to calculate this one with the module **SPI Calculator**.
- It exists a new command which can define processing steps for a sheet in order to calculate these with the module **SPI Calculator**.
- The configuration for the **SPI Calculator** is read from the file **SPI Calculator.json**.
- The command „**All attributes**“ shows also the processing- and weld bead attributes.
- At bend lines the NC information are positioned centrally. The count of decimal places is reduced for better reading.
- The default value of the unfolding parameters for sketch attribute **Foil evaporation** is changed.

2020.2 **SPI sheetMetalWorks 2020.2**

- Extended function $DRAWCIRCLE, $DRAWCENTERMARK, $DRAWHEXAGONWIDTHACROSSFLATS, $DRAWHEXAGONWIDTHACROSSCORNERS, $DRAWOBLONG in *SPIMANUFACTURING.INI* to output geometries as cut, information or engraving.
- Bugs for flange reliefs and for recognized tools are fixed.

2020.1 **SPI SheetMetalWorks 2020.1**

- The new optional module **SPI Calculator** is available. This module allows the calculation of costs. The optional module needs a separate license.

2020 **SPI SheetMetalWorks 2020**

- Adapted for SOLIDWORKS 2020.
- SPI SheetMetal Data Editor allows to define cutting machines and assign an unfold parameter set used for unfolding.
- SPI SheetMetal Data Editor allows to assign an unfold parameter set to bending machines.
- SPI SheetMetal Data Editor allows to assign individual predefined bend tools to bend machines.
- SPI SheetMetal Data Editor allows to import aliases of sheets with different properties but shared shortening tables.
- Added possibility to create unfolds for different bending and cutting machines at the same time. Each unfold can have its individual shortening, z-shortening and production radius settings for a bend machine.
  Added field functions to address bending and cutting machine names for file name generation.
- Sheet Metal Wizard allows to select a bending machine and its assigned tools.
- Ability to always output the core hole of a counter sink using tool recognition and *SPIMANUFACTURING.INI*.
- Extended function *$DRAWPATH* in *SPIMANUFACTURING.INI* to output geometries as cut, information or engraving.
- New attribute processing tool to assign to bends. For example, roll pinching tools.
- *Corner split attribute* allows 0 or negative value.

- Improvements to output of **NC information**. Added keyword CYCAD:ENGRAVING for **Cybelec** and **Bysoft** outputs.
  SPIGLOBAL.INI adds **user defined texts** for **Cybelec, Bysoft** and **User Defined NC-Output** which will be exported to the 2d output.
  Added the function *$(BendDirection)* to output the bend direction when user defined NC-Output is selected.
  Added $BendAngle() and *$BendRadius()* functions to create conditional outputs for bendangle and bendradius.
- NC-Texts are now aligned to the bendline.
- Added NC-Ouput to create DXF-files for **'Schröder POS 3000'**. This module requires a separate licence.
- Added text height parameter for GEO output.
- Bendmark attribute supports marks positioned at bendlines or bendzone lines for example to indicate start/end of a rolling bend.
- Option to add bend direction to **bend table**. Edit *SPIGLOBAL.INI* to get user defined text output.
- Option in *SPIGLOBAL.INI* whether changing the SPI Material will change SolidWorks material as well or not.
- Various bug fixing.

2019 **SPI SheetMetalWorks 2019**

- Adapted for SOLIDWORKS 2019.
- The unfold parameter of a part can now be definied specifically for machines. Thats make it possible e.g., that you can define for your bend machine a DXF output with activated bend lines and for your laser machine a DXF output with deactivated bend lines. Now you can create the different DXF files for your bend machine and laser machine together at once for instance with the command "Unfolding".
- The **Unfold Target STEP** supports now the output of forming tools, holes in bends and flanges on holes.
- The **Sheet Metal Assistant** starts now much faster at the first running.
- The order of the selectable manufacturing info texts depends now on the order in the file *MANUFACINFOTEXTLIST.TXT*.
- The file *MANUFACINFOTEXTLIST.TXT* can now be used as read only and with write protection.
- The wrong orientation of manfacturing info texts in the drawing output and command preview was fixed.
- Minor bug for linked bend lines was fixed.

2018.2 **SPI SheetMetalWorks 2018.2**

Adapted for SOLIDWORKS 2018
The functionality is the same as in **SPI SheetMetalWorks 2020.1**.

2018.1 **SPI SheetMetalWorks 2018.1**

- Adapted for SOLIDWORKS 2018
- The functionality is the same as in **SPI SheetMetalWorks 2019**.

2018 **SPI SheetMetalWorks 2018**

- Adapted for SOLIDWORKS 2018.
- The **Projecting contour** command is available in part documents with multiple bodies. Also contours with a gap to the face may be applied and linked to this face.
- The **Tongue and Groove Joints** command is available in part documents with multiple bodies.
- When assigning material data to sheet metal parts in assemblies it is possible to set the **preferred tools**, defined in the SPI technology database, automatically.
- **Virtual parts** in assemblies will be unfolded too.
- It is possible to define replacement geometry for the **manufacturing information**. The geometry may consist of lines and arcs.
- **Field variables** are allowed when entering the manufacturing information in the Property Manager of the **Learning tool recognition**.
- There is an **automatic mode** for the relief stamp type **Smooth**. This mode guarantees a smooth transition in the bent state.
- With the relief attribute of type **No Smooth** it is possible to **deactivate the automatic smoothing** at a flange side. This will prevent a modification of the model at this point.
- A relief stamp attribute for a flange always takes precedence over an automatic corner relief.
- There is the new **unfold destination STEP**. First, it creates the 2D unfolding and then transforms it into a bent 3D model in STEP format.

- The **SPI Material Data Editor** now supports the data import from *TruTops Boost*.

2017 **SPI SheetMetalWorks 2017**

- Adapted for SOLIDWORKS 2017.
- New command to create **Tongue and Groove Joints** to connect two sheet metal parts in assemblies with each other.
- Now, you can invoke the command **Register Addin at SOLIDWORKS** directly from the SPI program group *SPI SheetMetalWorks 2017* in the Windows Start Menu. It will run *As Administrator* automatically.

2016.2 **SPI SheetMetalWorks 2016.2**

- Bug-fixes in the **SPI SheetMetal Data Editor**.

2016.1 **SPI SheetMetalWorks 2016.1**

- Refurbishment of the material management: The **SPI SheetMetal Data Editor**.
- There is a new product to display GEO files and its associated information: The **SPI GEO Viewer**.
- Support of **multibody parts** when assigning material data and unfolding bodies.
- By using the new **Learning Tool Recognition** it is possible to assign persistent tool data to a solid tool shape.
- **Special forming** is a new forming tool type in the **SPI Tool Editor**, for all tools that are unclassifiable as a parametric tool class.
- Improved drawing of tool contours or contours with manufacturing information into the unfolding.
- Unidentifiable formings are now classified as an unknown forming in a geometric manner. Thereby, they will be added to the unfolding in the shape of a clean manufacturing info contour.
- In the Unfold Parameters dialog the **Tool Draw Mode** *No Detection* was introduced.
- If the **Tool Draw Mode** is set to *Contour* the tool recognition is active now during the unfolding process. The contours of recognized tools continue to be added to the unfolding, but with the line properties of **Manufacturing Contour** (previously usually *Inner Error Lines*).
- Inaccurate positioning of the SOLIDWORKS Louver into the unfolding is fixed.
- Same orientation of symmetrical tools in an unfolding.
- Now, you can use the **manufacturing information attribute** also for contours including segments which are neither a line nor an arc.
- In the **manufacturing information attribute** a text is no longer required.
- **Replacement of manufacturing information** was enhanced by an *oblong*, a *hexagon* and a *center mark*.
- **Manufacturing information texts** to assign to contours **may come from a text file** to be available for selection by the user.
- Support of SOLIDWORKS configurations with the unfolding views in a drawing. Now there can be **different configurations** of the same body on the same drawing sheet.
- When assigning the material data to the components of an assembly you can choose whether the **sheet metal thickness shall be kept** or not.
- When unfolding the components with material data in an assembly the **start edge will be determined automatically** if not fixed already.
- Revision of the command to **split a face**.
- With the new command **All attributes** all attributes that are assigned to the model can be displayed. Thus it is possible to get a quick overview. You can also delete these attributes with the same command.
- Additional support of the press brake **NC program BySoft** by adding appropriate data to the unfolding.
- When **configuring the bend table** for the DXF file you can also choose the entries for the bend table header. In this connection there is a new entry in the header regarding the **dimensions of the unfolding** (length x width).
- Improved preview of the corner split attributes.
- Improvements of the laser flex reliefs.
- **Manufacturing information attributes** will now be supported when unfolding a face.
- **Sketch attributes** will now be supported when unfolding a face.
- The **start edge for the unfolding** does not need to be a straight edge anymore. Thus an unfolding of circular sheets is possible even when there are no straight edges.

2016 **SPI SheetMetalWorks 2016**

- Adapted for SOLIDWORKS 2016

2015 **SPI SheetMetalWorks 2015**

- Adapted for SOLIDWORKS 2015

- The new command **Set Production Radius** let you replace the model radii of the filleted bends by the production radii in all SOLIDWORKS sheet metal features.
- Easier handling with SOLIDWORKS part configurations. In the Sheet Metal Wizard you can set the **material data and unfold parameters** alternatively only **for the active configuration or for all configurations**.
- With the new command **Unfold all configurations** you can unfold the part in all configurations in one step.
- In the **Material Editor** you can define a **preferred bending tool** for a sheet metal thickness. With the benefit that whenever you choose the thickness and the material in the **Sheet Metal Wizard**, this tool will be preselected.
- With the new option **Create and assign bend table** in the **Sheet Metal Wizard** you can create a SOLIDWORKS bend table with the shortening values and assign it to the sheet metal feature.
- The **correction method DIN 6935** is now available to calculate the bend zones in the unfolding.
- Every **manufacturing information text** which is assigned by a manufacturing information attribute may be replaced in the unfolding, for instance by a circular contour. This can be done using the new unfold option *Replace Manufacturing Information* and the file SPIMANUFACTURING.INI.
- For forming tools in the **Tool Editor** you can set a **Processing Sample** (instead of a tool ID) for use in the unfolding.
- For the bend table the new column **bend line length** is available.
- Custom document properties containing a file path can now be used to define a path with the field variable $DocCust, for example to define an unfold destination.
- When defining a bend mark attribute also the marginal angles 0° and 180° for border- and simplify angle are possible.
- In the bend marking of type *circle* the border angle was ignored in some cases. This fault was rectified.
- Some errors are fixed which could occur if no bending tool was choosen in the **Sheet Metal Wizard**, so the unfolding was calculated using DIN 6935.

2014 **SPI SheetMetalWorks 2014**

- Adapted for SOLIDWORKS 2014.
- Edges which represent border edges in the unfolding can be moved in the unfolding by attaching an **Offset Attribute** to it.
- The **Corner Split Attribute** was enhanced by an *Overlap Ratio* which may be specified to define the relation between the edges.
- The laser relief type **Laser Flex** was enhanced by the new parameter *Kerf Depth*. The resulting kerf facilitates the bending process.
- There are two new **Bend Mark Types**: *Center Mark* and *Centerline*.
- **Sketch points** can be transferred **into the unfolding as markings** using the Sketch Attributes.
- In the NC Unfold Parameters for **Press Brake Control** there is the new option *Custom*. If this option is set a configurable text can be specified which will be shown in the unfolding at the bend lines.
- For the **GEO Export** it is now possible to configure further properties, such as *Rotation*, *MiniNest*, *TwinLine*, *TwinLine-X* and *TwinLine-Y*, to be transferred into the GEO unfold file.
- A **mapping of the names** for the **custom defined document properties** set by SPI SheetMetalWorks, such as material data and the cost parameters, may now be defined in the file SPIGLOBAL.INI.
- The **unfolding into a PDF file** was added to the unfold destinations. PDF has its own tab in the unfold parameters dialog. When unfolding the PDF document will be generated from the SOLIDWORKS drawing. If *Drawing* is not set as an unfold destination the unfold process will create a new temporary drawing. This new drawing will be closed after the generation of the PDF document, without saving it.
- Now **any combination of unfold destinations** are supported. So the definition of the unfold destinations will not be done in the tab *Display* anymore, but in the tabs for each export format (Drawing, DXF, GEO, WiCAM, PDF).
- After the start of the unfold command the free combination of the unfold destinations is possible. Further enhancements are to start the Unfold Parameters dialog directly or to change the path name for each unfold destination individually.
- When unfolding an assembly the free combination of the unfold destinations is also supported..

- Now it is possible to **assign an action** (external program) **to each unfold destination** (GEO, DXF, WICAM or PDF file). This action will be processed automatically when the unfolding has finished. The assignment may be done globally using the Application Options command or individually in the Unfold Parameters dialog in the tab *Actions*.
- The command **Update Unfolding** which can be invoked in the context of a drawing, was renamed to **Update Unfolding Views**. It updates only the unfold views, independent of the unfold destinations specified in the part document. This command is located in the pulldown menu of the drawing.
- **Toroidal and spherically faces** are now supported when unfolding one face or attaching a facet attribute to a face.
- If the user has assigned **Body Info** to the part using the Sheet Metal Wizard, and the part will be unfolded into a DXF file including a bend line table, this Body Info will also be shown in the bend line table.
- Improvement of the identification and smoothing of corners and reliefs.
- Shortening attributes will now be considered even if the model has no bending tool assigned, i. e. the *Shortening as per DIN 6935* will be used as default.
- The grouping of bend lines in the GEO export was corrected.
- The positioning of laser reliefs and reliefs of type *Corner Blend* was corrected if the model radius and the production radius differ.
- SPI SheetMetalWorks 2014 includes the **SPI Component Manager 2014** where the transition **Round-Squared, chamfered** was corrected.
- The meaning of the SPI configuration variable SPI_APPLDIRNAME has changed. If this variable is not set, the user specific settings will be stored in the folder for the General SPI Data in the corresponding subfolders, instead of storing it in the SPI installation folder as before.

2013 **SPI SheetMetalWorks 2013**

- Adaptions to changes in SOLIDWORKS 2013.
- This version supports the unfolding of **Corner Blends**. For this you can attach relief attributes of type *Corner Blend* to the corners of the model. These attributes will be taken into account when unfolding the model.
- The **Unfolding of Freeform Surfaces** and the **Facet Attributes** were fundamentally enhanced. There are various possibilities to control the unfolding result. The unfolding process optimizes the calculated bends. In a preview you may control the calculation. Furthermore none-tangential connections will now be supported.
- In the context of the enhanced functionality of unfolding freeform surfaces the command *Unfold Facets* is obsolete and was removed. With the command *Facet Attributes* you are now able to get a preview of the calculated facets.
- The **Manufacturing Info Attribute** was enhanced. Now you can set the text height explicitly. Furthermore you may choose between different display modes, for instance the representation of a text as tool ID is possible.
- With the new command **Sketch Attributes** you can designate sketches to be taken over into the unfolding and the way they will be represented in the unfolding, for instance as open cut contour.
- In the unfold parameters dialog you can use the **GEO Line Properties** to assign the new color **Invisible**. All element types which have this color assigned, will be ignored when creating the GEO file output.
- In the unfold parameters dialog you can use the **DXF Line Properties** to assign the new layer **SPI_UNF-HID**. By default this layer is switched off and frozen. So you are able to control that specific element types will not be displayed in the DXF output. For example, you may create a bend table in the drawing, but using this layer you can determine not to show this bend table in the DXF (if the corresponding line type is set to *BYLAYER*). Note that you have installed the updated DXF template files.
- Enhancements in the **GEO and WiCAM export**: Document properties and other properties of the part can be transferred into the unfold file. This is configurable in an INI file.
- SPI WiCAM Interface: When setting the tool draw mode to *Text* additional technology information of the tool will be exported, in case this information is provided by the technology database.
- Correction in the SPI WiCAM Interface when exporting visible contours which have a manufacturing information attribute attached: These contours are written in the output file in such a way that they are not interpreted as inner contours when reading the file in the PN4000 system. The PN4000 system will ignore them.

- Enhancements in the Cybelec press brake control to support Bystronic press brakes: The names of piston and die are written.
- When the unfold destination is a drawing, the bend line table will now be created on a scale of 1:1.
- When unfolding an assembly, the messages shown in the protocol were adapted. Only in special cases the messages are now shown as errors.
- Using the SOLIDWORKS Help menu a connection to the **SPI Online Support** can be established, for instance to start a support session.
- This version includes the **SPI Component Manager 2013** with new components.
- SPI Tool Editor: The import of punch tools from TruTops Bend does not stop anymore if there are duplicate names of punch tools encountered. In this case the first tool found will be imported.
- The term *Stamp Tool* was replaced by the new term *Forming Tool*.
- The licensing process for node-locked licenses has changed. If prior to this a license for a software option module was given and based on a network card or hardware ID, you need now a new password which can be required from SPI or your local dealer.

2012 SPI SheetMetalWorks 2012

- Adaptions to changes in SOLIDWORKS 2012.
- For this version the description of the changes in SPI SheetMetalWorks Version 2011.1 is also valid.
- The performance of the update of an unfolding in a drawing document was improved.
- This version includes the **SPI Component Manager 2012**.
- The modelling of the cone and the transition Round to Round was improved in SPI Component Manager 2012. So chamfered edges will not be created anymore.
- The following new standard components are added: Simple Box and Box with Cap.

2011.1 SPI SheetMetalWorks 2011.1

- The folder structure has changed. The tutorial, the document "Getting started" and all sample files are now located in the SPI installation subfolder *Documentation*.
- When using a time-limited demo license you need a connection to the internet during working with SPI SheetMetalWorks. If there is none a license cannot be granted.
- The licensing process for node-locked licenses based on a network card has changed. In this case the passwords have also been changed. If prior to this a license was given based on a network card, you need now a new password which can be required from SPI or your local dealer.
- This version supports the new TruTops version 2.3 from company TRUMPF. If the SPI TruTops Interface is licensed you are now able to import the bend factors from the new TruTops Bend database using the supplied SPI Material Editor into the SPI material management. Also the GEO files created by the SPI unfolding may be read by this new TruTops version.
- The new optional module **SPI WiCAM Interface** is availabe which allows the direct export of the unfolding data into a XML file. This XML file can be imported by the software PN4000 of company WiCAM. The optional module needs a separate license.
- There are new attributes to assign Manufacturing Information to contours in the 3D model. In the unfolding these manufacturing information will then be shown as text instead of the contour.
- The performance of the output of the unfolding into a drawing was improved.
- The intersection between bend lines und corner relieves was improved.
- Sheet Metal Wizard: When working with files containing more than 1 solid body it is now possible to determine also the body which should get the SPI material data by selecting the face. As new functionality you are also able to remove already assigned material data.
- When starting the SPI unfolding command and "GEO file" is not selected as unfold destination and there is no license for the SPI TruTops Interface, an error message will not be displayed anymore.
- In some cases the alignment of the unfolding was not correct. This behavior was corrected.
- The radii shown in the bend line table created by the SPI unfolding were false when working with shortening tables imported from TruTops Bend. Now the correct production radii are shown instead of the modelling radii.

2011 SPI SheetMetalWorks 2011

- Adaption to changes in SOLIDWORKS 2011.
- All the functionality for data exchange with TRUMPF TruTops products has been incorporated into a new product option "SPI TruTops Interface". The functionality of the "SPI TruTops Interface" is available only, if you bought the corresponding license. If you want to

use this interace you must check the option "SPI TruTops Interface" when registering at SPI using the "SPI License Wizard".

- Unfolding of all SPI sheet metal parts in a whole assembly. From an active assembly there is a new command which allows to unfold all SPI sheet metal parts in this assembly in one step.
- For all parts in an active assembly it is also possible to change the SPI material data and the SPI unfold parameters in one single step. This is helpful for the assembly components from the SPI Component Manager.
- Flexible definitions for the names of unfold files generated by the SPI unfolder. The default names for SPI unfold files can be set globally by an application parameter. These names can be combined by specifying place holders for part names, folder names, configuration names and other commonly used items. This default can be overridden for a specific document by changing the corresponding SPI unfold parameter.
- The parameter group "Drawing" is renamed to "Display", because this name is a better description of the content of this parameter group. The group "Lines" is now renamed to "Drawing", because in no more contains only line colors. It allows to define the sheet name for the unfolding in the drawing document.
- The parameter group "General" in the SPI unfold parameters now provides a default value for the Unfold Destination (Drawing, GEO, DXF) which is used in the SPI unfold command.
- The SPI sample material database now contains a TRUMPF compatible material "SS" (1.4301), which helps to test the TruTops Bend Interface. The two bend tools illustrate that for the same thickness and the same bending angle different production radii appear.
- Now all new network cards are accepted for licensing the software.
- Due to technical reasons, the attributes like "SPI Unfold Start Edge" are no more visible in the Feature Manager for new documents.

2010.1sp1 SPI SheetMetalWorks 2010.1sp1

- New SPI Component Manager for sheet metal and ducting parts.
- In the SPI Costs Calculation it is now possible to add a value for set up costs.
- in the SPI Costs Calculation it is possible now to save cost parameters as configurations for later use.
- If you activate automatic relief generation for filleted bends, the the Smoothing factor is adapted accordingly.
- The unfold parameters for freeform surfaces are now switched to more tolerant values by default.
- Hint: There was no english 2010.1 version, due to a delay in internationalization of the new SPI component manager.

2010 SPI SheetMetalWorks 2010

- Adaptions to SOLIDWORKS 2010.
- The SPI commands now appear in the SOLIDWORKS Command Manager automatically.
- **Identification of forming tools**. All stamp tools which are added from the SPI tools folder in the SOLIDWORKS design library are converted in the SPI unfolding to symbols or textual information.
- **Assignment of Z bend tools to joggles**. If a TruTops Bend Z bend tool is assigned to the two bends of a joggle, then these two bends are exported to the GEO file with the appropriate bending method. Then they are recognized by TruTops bend as a single Z bend.
- **New flexible forms of laser cuttings.** The definition of reliefs has been expanded by two new forms of laser cuttings. Variant 1 defines a simple linear cut. Variant 2 is a very flexible form that can be used for any cutting constellation and also allows for controlling the width of the resulting spacing.
- The import of inch shortening values from a TruTops 2.0.2 inch database is now possible.
- The SPI tool editor allows to synchronize TRUMPF forming tools from TruTops Punch with the SPI database. This is possible for all kinds of stamp tools which SPI and TRUMPF have in common. For these tools the corresponding TruTops Punch tool ids will be written to the GEO file.
- SPI provides a set of additional SOLIDWORKS form features, which can be identified in the flat pattern. They are added to the SOLIDWORKS design library automatically.
- Additionally to 2D sketches also planar elements on unconsumed 3D sketches are transformed as markings to the flat pattern. Additionally 2D and 3D sketches enclosed by "composite curves" will be unfolded. "Composite curves" appear sometimes in models imported from the CAD-System "Pro/Engineer".
- Notice: SPI currently does not support multiple bodies in one part document. We plan to have a full support for multiple bodies in the next release.

- The TruTops Bend import now handles Z-bend tools (offset bends).

2009 SPI SheetMetalWorks 2009

- Adaptions to SOLIDWORKS 2009.
- The unfolder now can optionally unfold unused sketches attached to planar faces as markings. Refer to the drawing unfold parameters.
- The TruTops import functionality in the material editor now recognizes tool lists.
- The setup tool is replaced by a new faster one.
- The hardlock support is now available for X64 operating systems too.

2008 SPI SheetMetalWorks 2008

- Adaptions to SOLIDWORKS 2008 and its new user interface.
- Important: Service Pack 1 or higher for SOLIDWORKS 2008 required.
- Further adaptions to Windows Vista.
- Unfortunately the hardlock support is not available for X64 operating systems.
- The bend factor tables created from SPI for SOLIDWORKS are no more stored at the SOLIDWORKS Installation (C:\Program Files\SOLIDWORKS\lang\german\Sheetmetal Bend Tables). Now they are stored at "SPI_DATAPATH\Sheetmetal Bend Tables". This path is added to the SOLIDWORKS search path for bend factor tables.
- The new sheetmetal weldment features are suppressed before unfolding.

2007.1 SPI SheetMetalWorks 2007.1

- This version runs with SOLIDWORKS x64 Edition too.
- Unfortunately the hardlock support is not available for X64 operating systems.
- Adapted for Windows Vista. The material- and tool data (SPI_DATAPATH) are now stored as default in the folder
  C:\Documents and Settings\All Users\Documents\SPI GmbH\SPI SheetMetalWorks
  (c:\users\public\documents\SPI GmbH\SPI SheetMetalWorks for Vista).
  Unfold parameter configurations are now stored per user in the folder
  c:\documents and settings\ \Local Settings\Application Data\SPI GmbH
  (c:\users\\Appdata\Local\SPI GmbH for Vista)
- The file versions of the SPI material- and tool databases (MATERIAL.* , TDB.*) are increased. This cause that older versions of SPI can not read these files. But old files can be read by this new version.
- Enhancements in the TruTops Bend / ToPs 600 interface.
- A tutorial and a getting started document is now available directly from the software.
- The online help, the tutorial and the gettings started can be found in the SOLIDWORKS help menu.
- The menu item "About SPI" is moved to the help menu of SOLIDWORKS and now called "About SPI SheetMetalWorks".

2007 SPI SheetMetalWorks 2007 and 2006.2
2006.2

- Adaptations to SheetMetalWorks 2007. Version 2006.2 and 2007 have the same functionality..
- Corrected material editor regarding to ToPs 600 interface.

2006.1 SPI SheetMetalWorks 2006.1

- It is now possible to save specific sets of unfold parameters with a name for later use.
- The material editor now allows to define bending tool groups and has better capabilities to enter piston and die tool combinations.
- Improved direct import of TRUMPF ToPs 600 material and bending tool data into the material editor. It is possible to import the bending tool names itself instead of only importing the bending tool groups.
- Enhanced treatment of hems. There are no more special bending tools beginning with "H-" for hems. Now any tool is suitable for hems, if there are bend factors for an opening angle of 0 deg in the bend factor table. So the H- tools are no more existent. Possibly some 3D models must be adjusted.
- The tool editor now allows to import the following punch stamp data from a TRUMPF ToPs 300 database:
  - Standard punch: Oblong round, Radial Slot, Rectangle Round, Rectangle Sharp, Round, Square Round, Sqare Sharp, Triangle Round.
  - Relief: Oblong, Round, Square, Square diagonal
- Enhanced online help for the SPI material and tool editor programs.
- The SPI unfold command allows now to create a DXF or ToPs GEO file directly. In these file all bending process data (radius, angle, tool name) for ToPs 600 are included.
- The sheet metal wizard was revised and uses a SOLIDWORKS PropertySheet now.

- The term " **machine** " is now replaced by " **bending tool** " consequently. So in the material editor now the tables depend on material and bending tools. And the sheet metal assistant asks for a "bending tool" instead of a "machine". The shortening attribute now also deals with "bending tools". This does not affect your old SPI material databases (MATERIAL.MM, MATERIAL.IN).

2006 SPI SheetMetalWorks 2006

- Adaptation regarding to changes in SOLIDWORKS 2006
- Optional bend mark generation for bends.
- Bend mark attributes for individual control for each bend
- Relief attributes for manual control over the relief generation of the SPI unfolding
- Enhanced graphical preview

2005 SPI SheetMetalWorks 2005

- Version naming similar to SOLIDWORKS.
- The new command "split face" can split a sheet metal face. It attaches a split corner attribute to the split line automatically.
- Similar to freeform surfaces now also for cylindrical and conical surfaces the SPI unfold command can create a set of bend lines.
- The command "unfold facets" show the calculated bends directly at the 3D model. All opening angles are shown too.
- The corner split attributes now support unsymmetrical corner conditions.
- The geometric elements mentioned in the unfold log are now marked in the graphics screen. This helps to identify errors.
- The attribute commands now support a graphical preview.

8.0 SPI SheetMetalWorks 8.0

- **Adaption to SOLIDWORKS 2005.** This version now works only with SOLIDWORKS 2005.
- Like SOLIDWORKS itself the SPI unfolding functionality can now unfold bends which have an inner bend radius of 0 and an outer radius of thickness. This capability must be switched on by the unfold parameter "mixed sharp cornered" in the section "Precision" of the SPI unfold parameters.
- The shortening attribute now allows to attach specific shortening values on mixed bends too.
- The material editor now accepts a value of 0 for the radius in a shortening table. This is the value which is used for bend allowance calculation for a mixed bend.
- Corrections and enhancements

7.2 SPI SheetMetalWorks 7.2

- Some corrections and enhancements
- Possible blocking in material wizard while edit in place corrected.
- Potential crash while unfolding old drawings corrected.
- Instable behaviour when the eDrawings module is active corrected..

7.0 SPI SheetMetalWorks 7

- Revised user interface.
- SOLIDWORKS versions prior to 2003 are no more supported.
- Adapted to new GUI and application guidelines of SOLIDWORKS
- New flexible licensing mechanism. Allows single user licenses using soft- or hardlocks and networks licenses.
- Shortening attributes are introduced.
- Creation of bend lines for freeform surfaces (lofted bends)
- Facet-attributes controls the amount of bend lines for freeform surfaces

6.0 SPI SheetMetalWorks 6 and prior versions

- Runs with SOLIDWORKS Version 2001plus and higher.