

3D Interface – Solid Works to ASCO (SW2ASCO)

Special ASCO tool for **importing 3D models** from SolidWorks into the ASCO sheet-metal system. SW2ASCO converts the 3D operations automatically in such a way that the subsequent machine-aided programming (AutoTooling ASCO-NC) already recognizes all special tools (such as louvers, dimples, threads etc. ...) and also special operation types (cutting, engraving, fits etc. ...) and immediately produces the complete specifications for the correct generation of NC data.

The handling is quite easy: the user designs his sheet-metal parts as usual in SolidWorks. **Special tools** which create only holes of any shape are simply recognized by the programming through their form, provided that this form also is assigned to a tool on the ASCO side. The user need not take anything into account here.



The design engineer produces **threads** using the Hole Wizard or through a "cosmetic thread". SW2ASCO then evaluates the threads produced in this way. For each thread, SW2ASCO generates a graphic symbol containing all the information in

geometric form. This symbol is recognized by the ASCO software (through the standard symbol detection) and converted into NC data for the correct tools to suit the machine, material and thickness. For the conversion, it is possible to set whether the threads are to be produced directly on a punching or punch/laser combi machine or produced later at a separate machine (in which case it is possible that only the tap hole is generated).

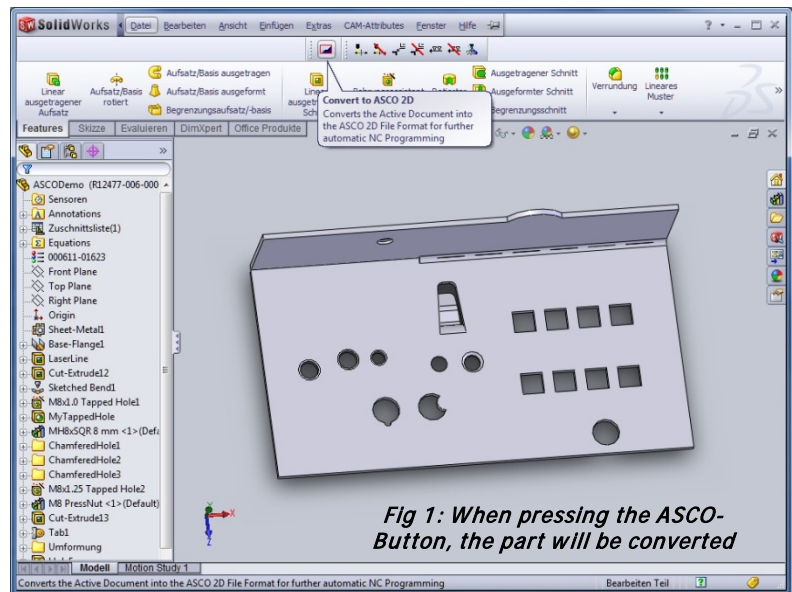


Fig 1: When pressing the ASCO-Button, the part will be converted

Forming operations are designed in SolidWorks using forming tool / library features. The design engineer can influence the placing outline (sketch) in the form itself. This geometry is passed through as a symbol by SW2ASCO and then interpreted by ASCO-NC as described above. To ensure clear interpretation by the AutoTooling ASCO-NC, the sketches must be different. In particular, a sketch may not be a complete component of another sketch. To differentiate forming from the upper or lower surface, the same sketches are generated in different colours. ASCO then uses the colour to detect the processing direction. Further information, such as the material and the grinding direction (add-in) are passed on directly by SW2ASCO.

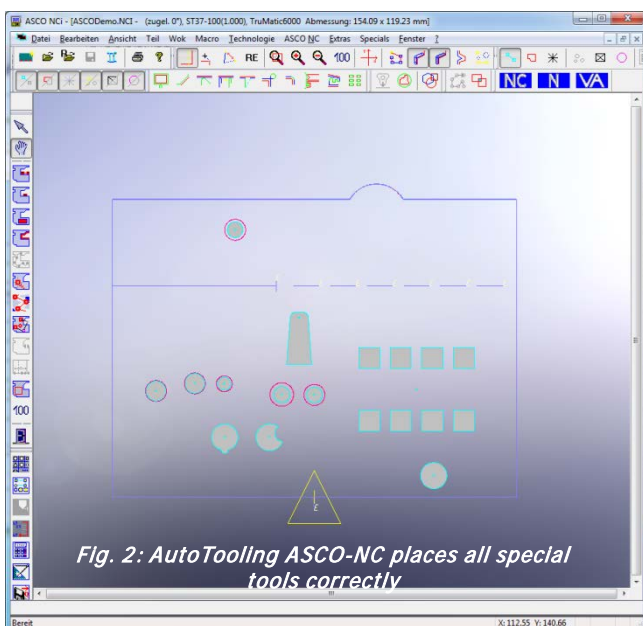


Fig. 2: AutoTooling ASCO-NC places all special tools correctly

The conversion process is started by pressing the ASCO button in SolidWorks (see Fig. 1).

<< ASCO then automatically generates the NC data for the selected machine. The programmer can look at the part with ASCO-NCi and change it if necessary.

In addition to the special operations, ASCO supports a number of features, such as:

- Patterns**
- Fits (with tolerances)**
- Continuous beading**
- Engraving**
- Slits**

The possibility of suppressing certain features also belongs to the performance scope. Besides the special tools for formed sections and threads, the

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design engineer will want to pass further information on to production. For example, the request that certain contours must be cut with lasers for reasons of precision. For this purpose, ASCO DATA has developed a special **add-in** (CAM-attributes) for SolidWorks.

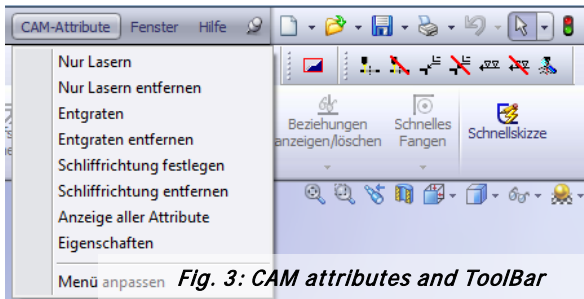


Fig. 3: CAM attributes and ToolBar

<<This add-in provides the possibilities of setting and removing laser attributes and displaying existing attributes. Apart from the laser attribute, it is currently also possible to set attributes for deburring and grinding direction. A laser attribute for "Never lead in here" would also be conceivable; the add-in is extendable.

>>If the design engineer wants to set laser attributes, he first has to select the holes and then call up the function "Add Laser Attribute". A property page then opens in SolidWorks with the corresponding possibilities.

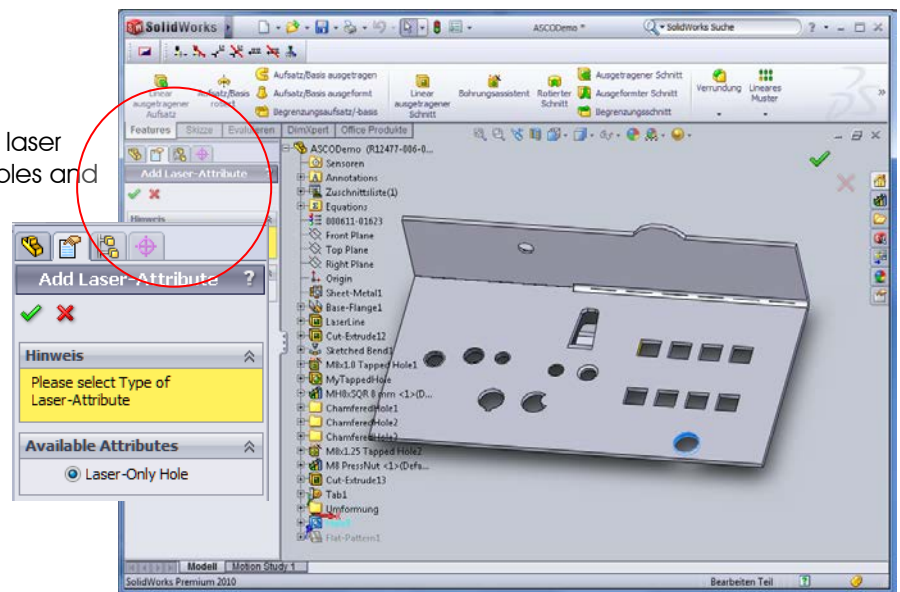
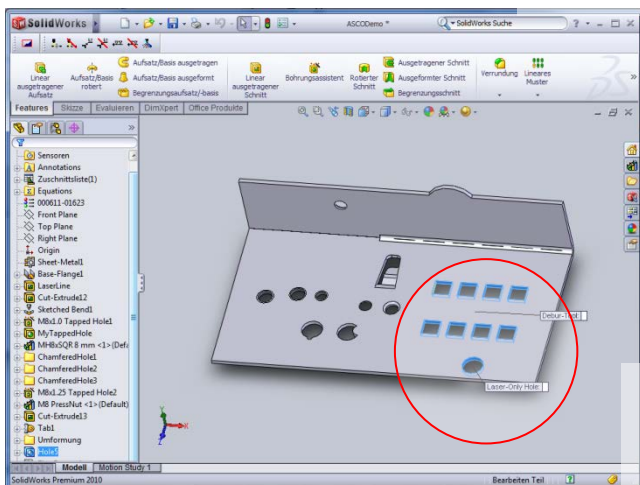


Fig. 4: Assigning of attributes using SolidWorks properties



<<To keep an overview as to which contours already have attributes, the design engineer can activate a CallOut (special button). This shows, on the part, all contours which already have attributes, and indicates in addition the type of attribute.

Fig. 5: Using a SolidWorks CallOut, design engineers can highlight all attributed contours

- SW2ASCO is only one of many possibilities of integrating CAD and CAM more closely.
- SW2ASCO can also run in automated "batch" mode, with the corresponding evaluation of the SolidWorks configurations.
- Amongst other formats, SW2ASCO can also export DXF or ToPs-GEO files directly; if required, the Bending Assistant ASCO-BA can be used in this process, with all the necessary bending information for direct offline generation of bending programs. Separate product information sheets are available on this topic.

ASCO: simply good