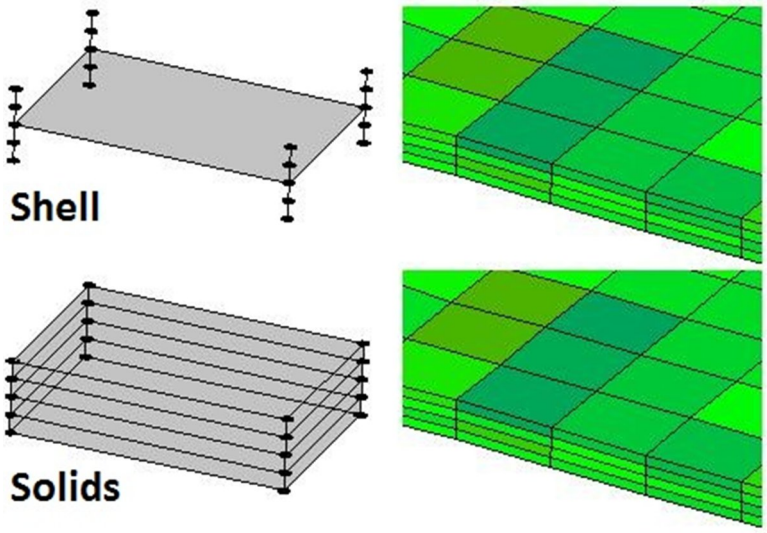

Shell element type with 5 integration points in thickness direction (top),
Solid element type with 4 solids in thickness direction (bottom). On the right the result each.

What's New? – Rel. 5.3

Shell elements or solid elements?

As defined, roll forming is a pure bending method. On the shop floor, however, often massive forming occurs additionally, sometimes desirably, often undesirably. This hardly cannot be avoided, if a hem should be folded at the sheet edge with a few roll stands only. Other applications are: Desired sheet thickness modifications like e.g. forming a notch into the sheet or forming outer radii that are smaller than the sheet thickness. Deep drawing effects often occur undesirably, e.g. if two or more bending zones on one profile side are formed at the same time and the sheet edges are prevented to "flow" into the roll stand.

The designer wants to have a reliable prediction about the result of these effects; for this the finite element analysis (FEA) is particularly suitable. In doing so, between shell and solid elements can be selected. Shell elements are well suited for pure bending; the calculation is quick and effective. However, limits exist if massive forming occurs. In this case solid elements are better, the calculation, however, needs more time.

In the new **PROFIL** release the designer can select between shell and solid elements dependent on his application. The software creates the simulation model for the FEA system LS-DYNA automatically. In case of solid model, selection among 2, 4, 6, or more elements in sheet thickness direction is possible.

More info: **www.ubeco.com**

Extended CAD interface

The goal of the software development has been: The new **PROFIL** user should continue using his preferred CAD system and should not waste his time with learning a new CAD system. For this reason **PROFIL** was designed to work closely with any CAD system and to allow drawing data transfer in both directions.

The drawing data are transferred not only by file formats like **DXF**, **STEP**, and others, but also via the very comfortable ActiveX interface (known also as COM interface). In this process the drawing data are written directly into the just opened CAD document or read from the document respectively by using a Windows service. Besides **AutoCAD** and **SolidWorks** the new **PROFIL** release also contains the ActiveX interface to **SolidEdge** and **BricsCAD**.

AutoCAD (2D and 3D)

SolidWorks (2D and 3D)

New: **SolidEdge** (preliminary 2D only)

New: **BricsCAD** (preliminary 2D only)