

An individual calculation method of the developed length can be applied to each arc element

What's New? – Rel. 5.4

The developed length in roll form design

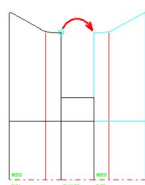
The developed length of each arc segment and with it the strip width normally is calculated dependent on sheet thickness, bend radius and angle. In reality, however, there are more dependencies. Also the material, the bending method and the bend angle sequence have influence. Anyway, this was the result of most recent research at the PtU of the Technical University of Darmstadt (Germany) and this insight meets the experience of the roll form designers.

This influence cannot be handled by a universally valid calculation method, but has to be defined individually and empirically. In the new release of the roll form design software **PROFIL** a separate calculation method can be applied to each arc segment. The user can select between a standard method, such as Oehler, DIN, centerline, or define user methods that can be equipped with empirical corrections. The latter are important in case larger angle increase is necessary because of limited count of stands and subsequently occurring deep drawing effects. Another important application is stiffening corrugations, whereupon standard calculation methods fail.

The new dialog window (see picture) gives an overview of the existing calculation methods, enables defining user methods, and applying the methods to the profile's arc elements. In this window, the position of the neutral line is shown as a graph dependent on ri/s (ratio inner radius/sheet thickness).

Extended mirror functions

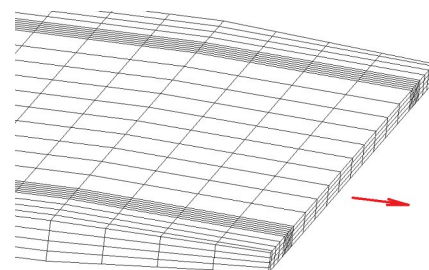
If rolls exist twice in case of symmetric profiles, they easily can be created by mirroring.



In the new release of the roll form design software **PROFIL** extended functions are available: Mirroring at the reference point and any user defined point, also mirroring to the opposite shaft.

Threading the profile lead end into the roller stand

If the roll forming tools should be verified by using the FEA (Finite Element Analysis) simulation, the quite short sheet section must be threaded correctly into the roller stands. In the new release of the roll form design software **PROFIL** the user can select between several options to enable correct threading: Reducing the speed while entering the roller stand. Guiding the nodes at the profile lead end forces safe threading of the profile into the next roller stands and prevents pushing against the rollers. Guiding the nodes at the profile tail end replaces the missing subsequent strip behind it and prevents up and down oscillation.



Alternatively, the sheet lead edges can be chamfered in width and in thickness direction. This improves threading. If precut blanks should be roll formed, guiding and chamfering can be switched off in order to simulate also this process correctly.

Extended count of profile elements and roll corner points

In order to process also high complicated profiles, in the new release of the roll form design software **PROFIL** the count of profile elements has been increased to 199. This also applies to the count of roll corner points accordingly.

Extended plausibility check

In order to create unambiguous 3D models for CAD transfer and for FEA simulation, all user data are checked in the roll form design software **PROFIL**. Now the plausibility check has been extended to double or superfluous roll corner points and if the bore-hole fits to the roll.

More info: www.ubeco.com