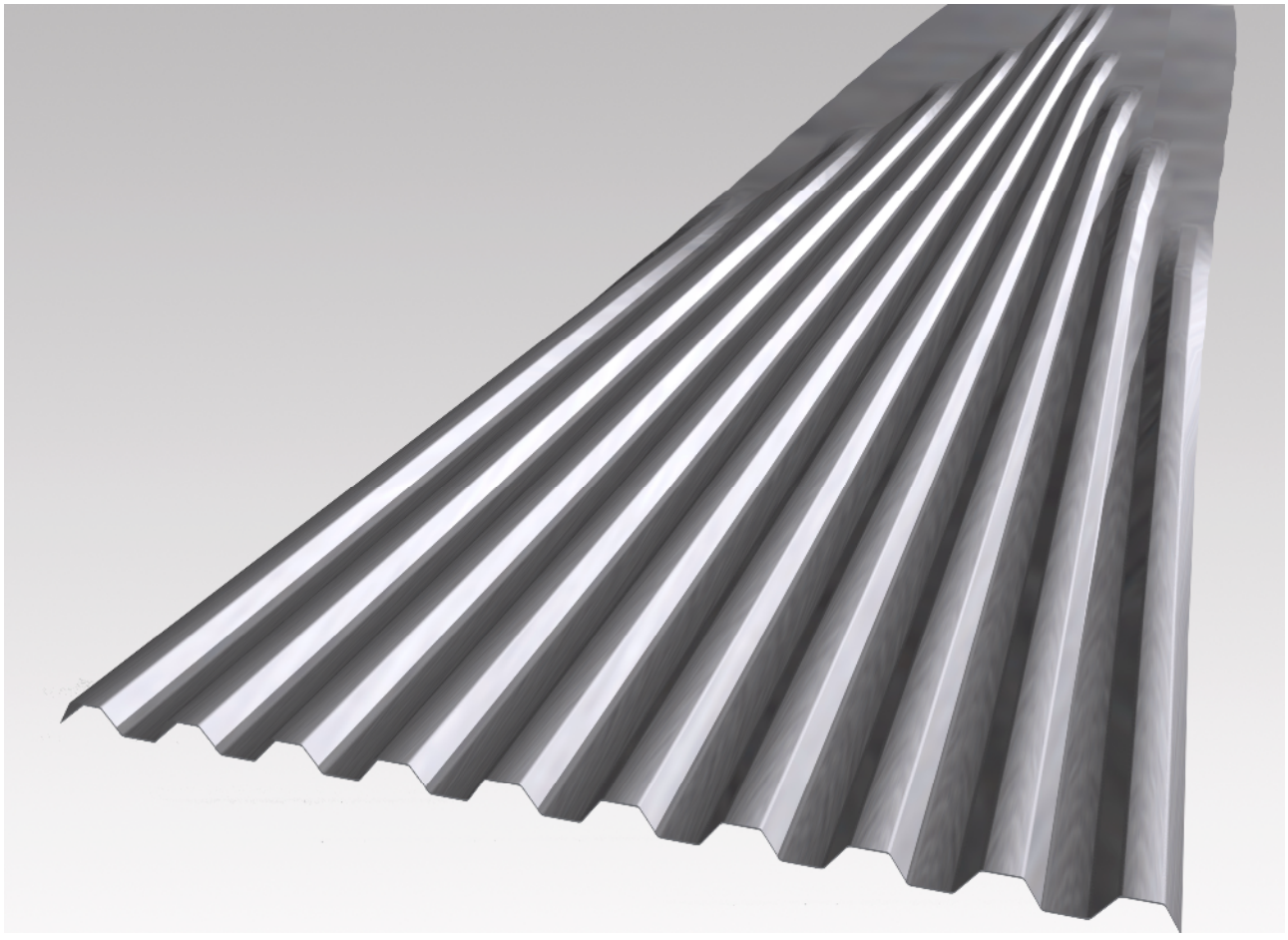
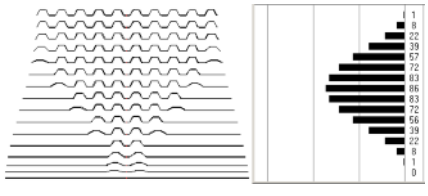


Trapezoidal Profile Forming

When wide sheet metal strips are roll formed to a trapezoidal profile, the course of the band edge has a crucial influence on the quality of the product.

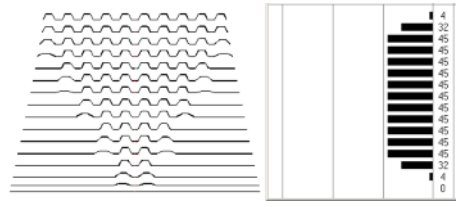
On the one hand the course must be as short as possible in order to form the band edge elastically only. The shortest connection between two points is the straight line - but the band edge is creased both at the machine entrance and exit. This is why the second important point of view for choosing the right band edge course is the tangential transition at entrance and exit. In practise, a linear function with fillet radii is often used or a cosine function.

After designing the final trapezoidal profile (by function Trapezoidal Profile or by CAD drawing), PROFIL creates the flower pattern for a trapezoidal profile automatically, either with cosine band edge course or linear course with user defined fillet radii as desired.

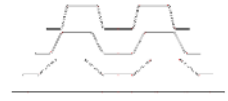


The **cosine band edge course** (left) creates a sine course of the stress of band edge (right). The advantage of this method is the very smooth transition both from the entering flat sheet and to the ready product leaving the machine.

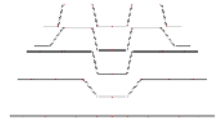
The **linear band edge course** (next column, left) creates a linear course of the stress of band edge (right) and with it the smallest count of roll forming stands. Fillet radii at the machine entrance and exit prevent creases.



The roll forming process always starts with the inner trapezoids. This is why the material should be able to "flow" to the inside during bending. The user can select if the entire trapezoid or the trapezoid's flank should be formed simultaneously.



The **trapezoid is formed simultaneously**: fewer stands are needed. Problem: when the material is impeded to "flow" to the inside, this may cause deep drawing effects.



The **trapezoid's flank is formed simultaneously**: more stands are necessary, the material can better "flow" to the inside. Problem: the band edge moves up and down, this causes higher stress. The stress can be reduced by center line forming.

More info: www.ubeco.com