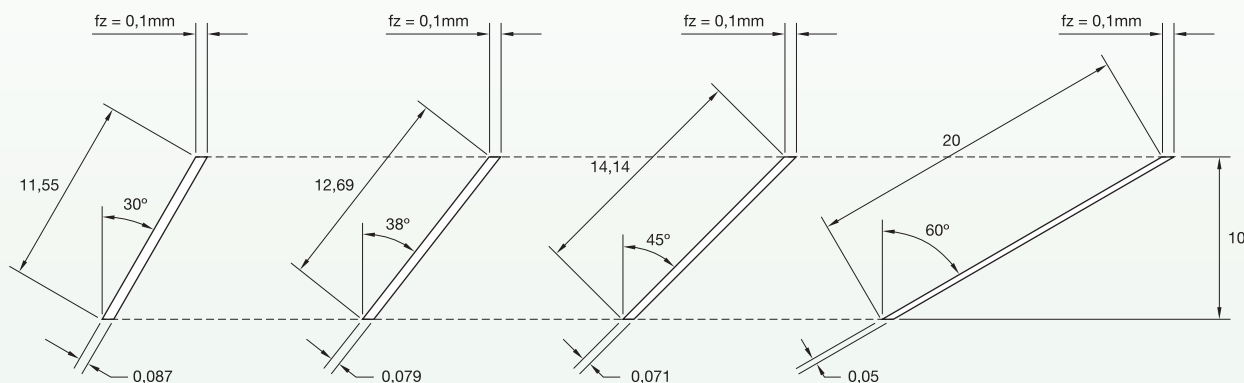


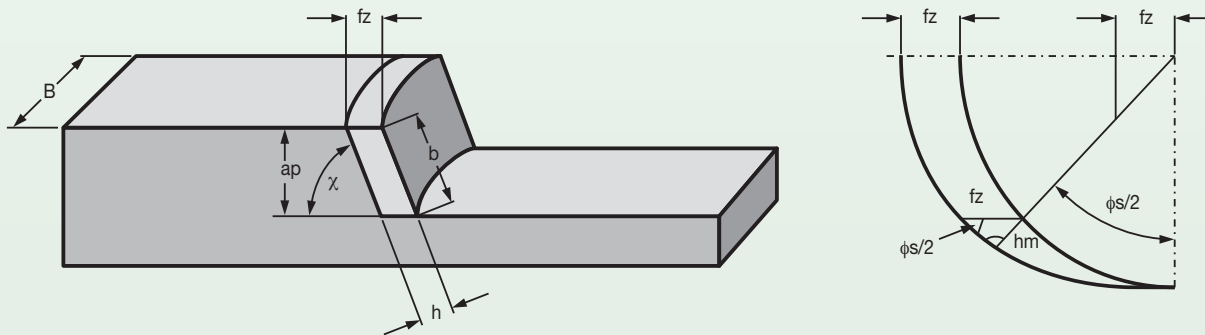
■ **Helix Angle and Chip Thickness**

The chip thickness (h) depends on the helix angle of the cutting edge. If the feed fz is constant, the chip thickness gets thinner as helix angle rises. That means with more helix angle, the chip gets thinner — or you can rise feed rate to increase productivity and load to the cutting edge.



■ **Calculation of Chip Thickness**

The chip thickness (h) is not constant, but defines the load of the cutting edge. By reducing the load on the cutting edge, machining at higher speeds is possible through the machining parameters. For easier calculation, use an average chip thickness hm. When calculating machining data this way cutting data may be compromised because the workpiece is often a different shape.



$$h_m = \frac{360^\circ}{\pi \cdot \phi_s} \cdot \frac{a_e}{D} \cdot f_z \cdot \sin \chi$$

- hm [mm] = average chip thickness
- phi_s [°] = engagement angle
- ae [mm] = width of engagement
- D1 [mm] = outer diameter tool
- fz [mm] = feed per tooth
- chi [°] = lead angle
- lambda [°] = helix angle *

* Solid End Mills: chi = 90° - lambda

NOTE: It makes no difference if the tool is solid or an indexable milling tool.