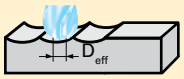
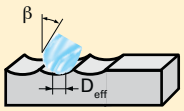
12. Copy milling

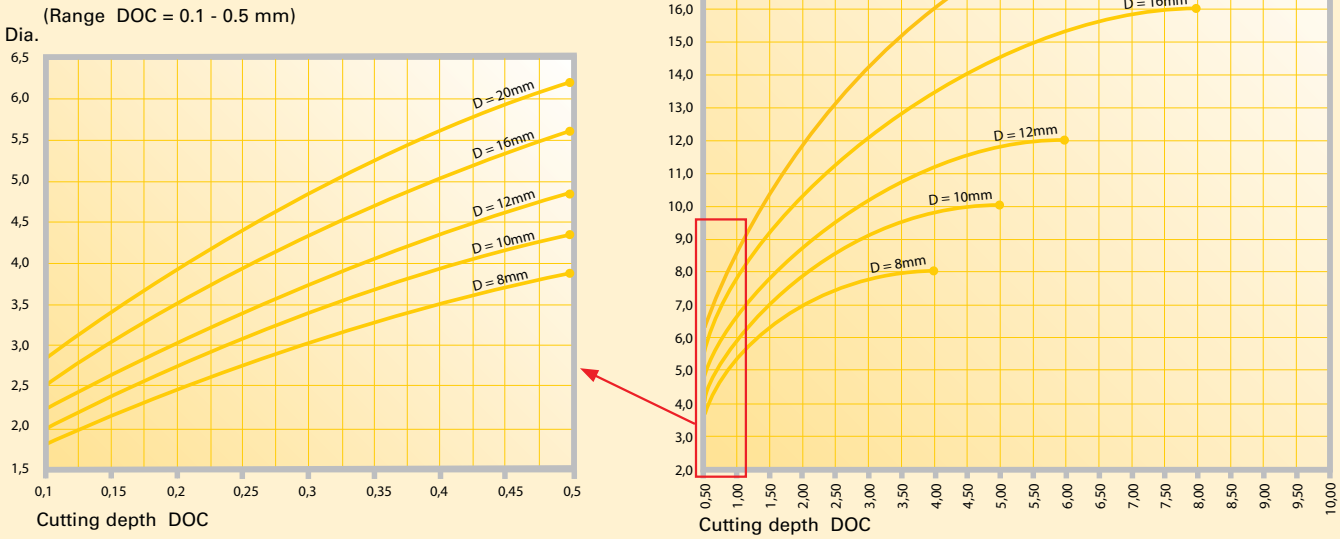
For cutting depths DOC<0.5xD, the engaged effective diameter D_{eff} must be applied to calculate the speed. With the spindle not engaged, the effective diameter is calculated according to the illustration below. To increase tool life, we recommend machining with tilted spindle. The tilt angle must be taken into account when calculating the effective diameter D_{eff}.



$$D_{(eff)} = 2 \cdot \sqrt{D \cdot DOC - DOC^2}$$



$$D_{(eff)} = D \cdot \sin\left[\beta + \arccos\left(\frac{D - 2DOC}{D}\right)\right]$$



Modifying the cutting width WOC results in improved Surface finish quality of the workpiece (reduced peak-to-valley height)

$$R_{th} = \frac{D}{2} - \sqrt{\frac{D^2 - WOC^2}{4}}$$