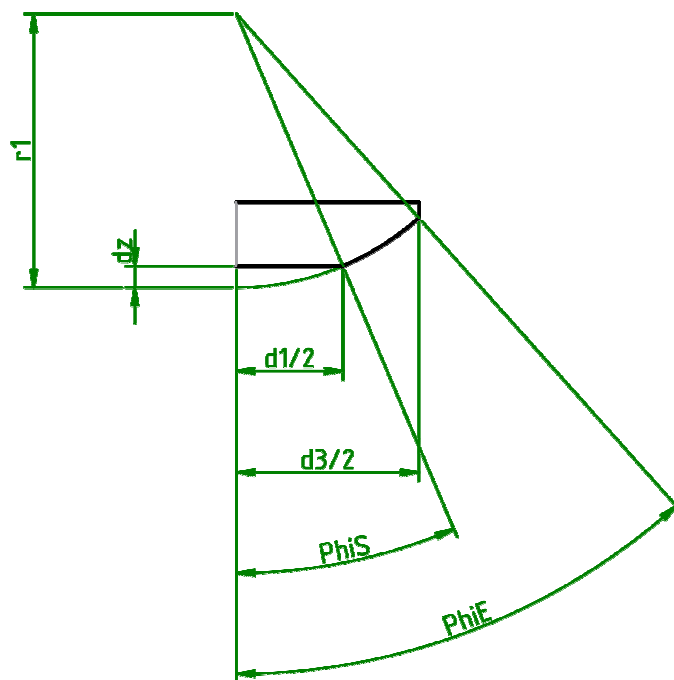
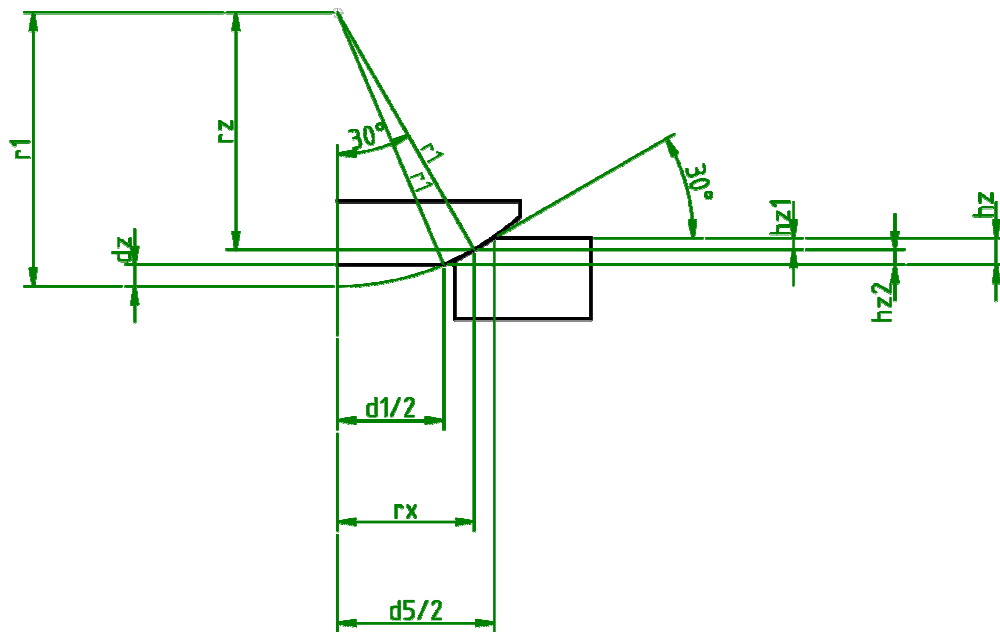


DIN6319 Calculation Overlap

hz

MaximaControl("restart")="Restart complete."

Sketch Map



System of Equations

$$G := \begin{cases} h_z = h_{z1} + h_{z2} \\ \tan(30^\circ) = \frac{h_{z1}}{\left(\frac{d_5}{2} - r_x\right)} \\ \tan(30^\circ) = \frac{r_x}{r_z} \\ r_1 = r_z + h_{z2} + d_z \\ \sin(30^\circ) = \frac{r_x}{r_1} \\ r_1^2 = \left(\frac{d_1}{2}\right)^2 + (r_1 - d_z)^2 \end{cases}$$

$$U := \text{Unknowns}(G) = \begin{bmatrix} d_1 \\ d_5 \\ d_z \\ h_z \\ h_{z1} \\ h_{z2} \\ r_1 \\ r_x \\ r_z \end{bmatrix}$$

$$L := \text{eliminate}\left(G; \begin{bmatrix} d_z \\ h_{z1} \\ h_{z2} \\ r_x \\ r_z \end{bmatrix}\right)$$

$$\text{Assign}\left(\text{Solve}\left(L; h_z\right)_2\right) = \frac{\sqrt{3} \cdot \left(d_5 + \sqrt{3} \cdot \sqrt{4 \cdot r_1^2 - d_1^2} - 4 \cdot r_1\right)}{6}$$

Example: Parameters of M20

$$d_1 := 21 \text{ mm}$$

$$d_5 := 31 \text{ mm}$$

$$r_1 := 27 \text{ mm}$$

Overlap

$$h_z = 2,6467 \text{ mm}$$
