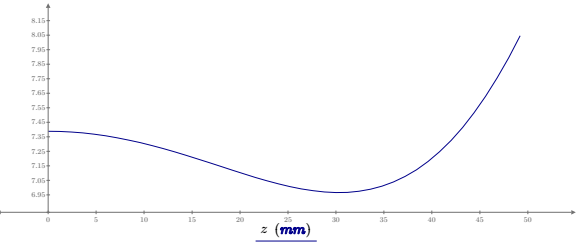
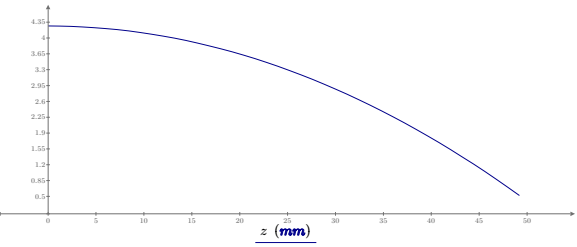
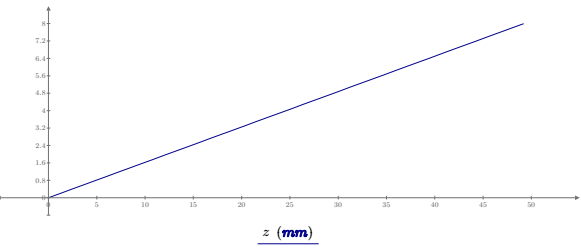
$$\tau_{sCC}(z) := \left(\frac{4 \cdot T_{CC}}{3 \cdot \pi \cdot \left(\frac{d_t}{2}\right)^2}\right) \cdot \left(1 - \left(\frac{z}{\frac{d_t}{2}}\right)^2\right)$$

$$\sigma_{CC}(z) := \frac{M_{CC}}{\pi \cdot \frac{d_t^4}{64}} \cdot z$$

$$\sigma_{id}(z) := \sqrt{\sigma_{CC}(z)^2 + 3\ \tau_{sCC}(z)^2}$$ Criterio di Von Mises







$$\sigma_{id}\left(\frac{d_t}{2}\right) = 8.532\ \frac{kgf}{mm^2}$$

$$\frac{a}{d_t} = 0.667$$

$$p := \frac{G_u + G_g + G_i}{2 \cdot a \cdot d_t} = 3.769\ \frac{kgf}{mm^2}$$

$$\tau_{maxl} := \frac{3}{2} \cdot \frac{G_g + G_u + G_i}{4 \cdot s_1 \cdot \left(l_1 - \frac{d_t}{2}\right)} = 3.778\ \frac{kgf}{mm^2}$$

$$\tau_{maxp} := \frac{3}{2} \cdot \frac{G_g + G_u + G_i}{4 \cdot s_2 \cdot \left(l_1 - \frac{d_t}{2}\right)} = 5.037\ \frac{kgf}{mm^2}$$