Internal gear

$$c.r=\left[\sqrt{r\_{ag}^{2}-r\_{bg}^{2}}-\sqrt{r\_{ap}^{2}-r\_{bp}^{2}}+Csin ∅\right]/pb$$

Interference prevention

For no interference the following eq. must be satisfied

$$\sqrt{r\_{ag}^{2}-r\_{bg}^{2}}>(r\_{bg}-r\_{bp})tan∅$$

Where

p= pinion

G =gear

a= addendum radius

b=base radius