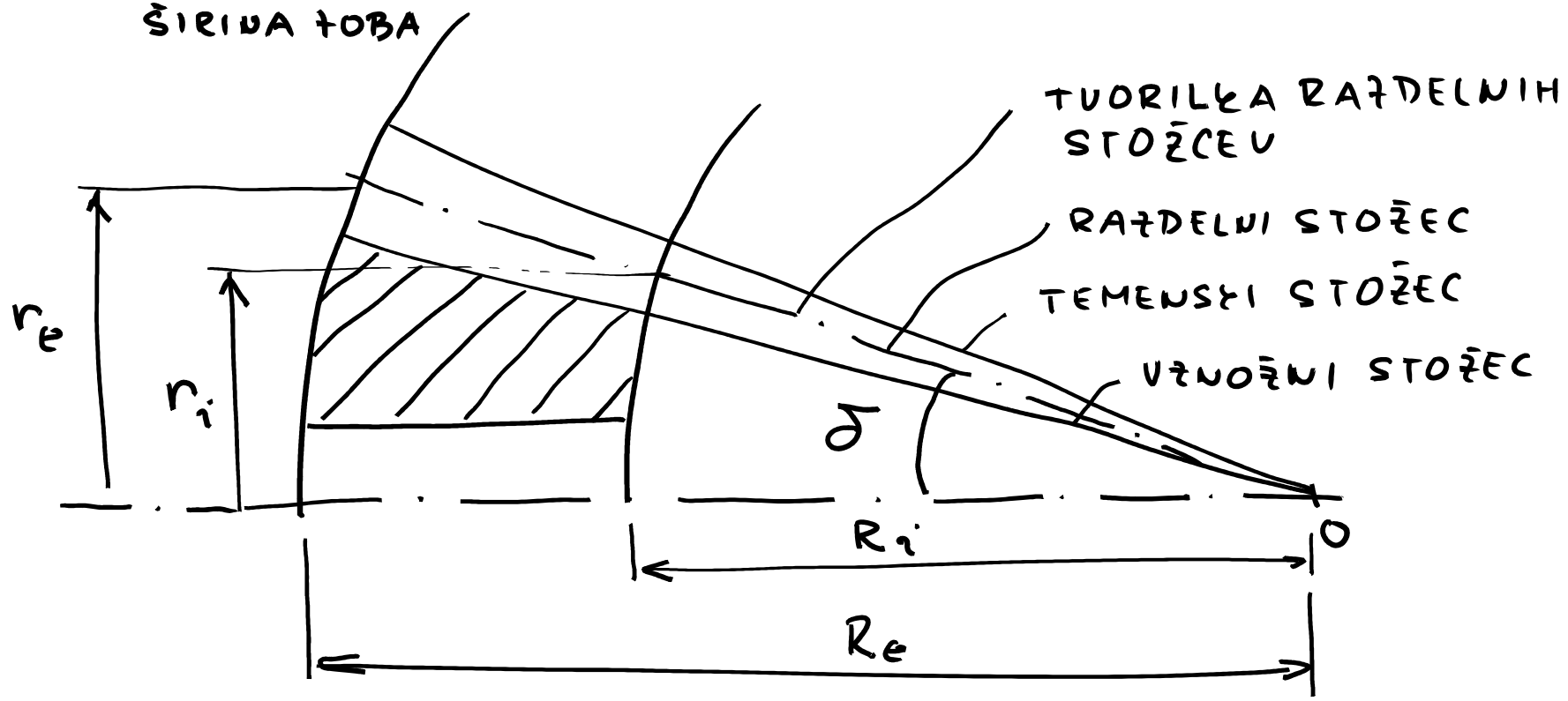
STOŽČASTE ZOBNIŠKE DVOJICE

LOČIMO - DVOJICE Z RAVNIMI, POŠEVNIMI IN UKRIVLJENIMI ZOBMI

$b = R_e - R_i$
ŠIRINA ZOBA

R_i NOTRANJI POLMER
R_e ZUNANJI POLMER



δ KOT RAZDELNEGA STOŽCA

$d_i = 2r_i$ PREMER RAZDELNEGA KROGA NA NOTRANJI STRANI RAZDELNEGA STOŽCA

$d_e = 2r_e$ PREMER RAZDELNEGA KROGA NA ZUNANJI STRANI RAZDELNEGA STOŽCA

MODUL NI KONSTANTEN!

m_e, m_i, m_m

KO PODAJAMO MODUL, POVEMO m_e ALI m_m

IZBRANI MODUL (m_e ALI m_m) JE STANDARDNI

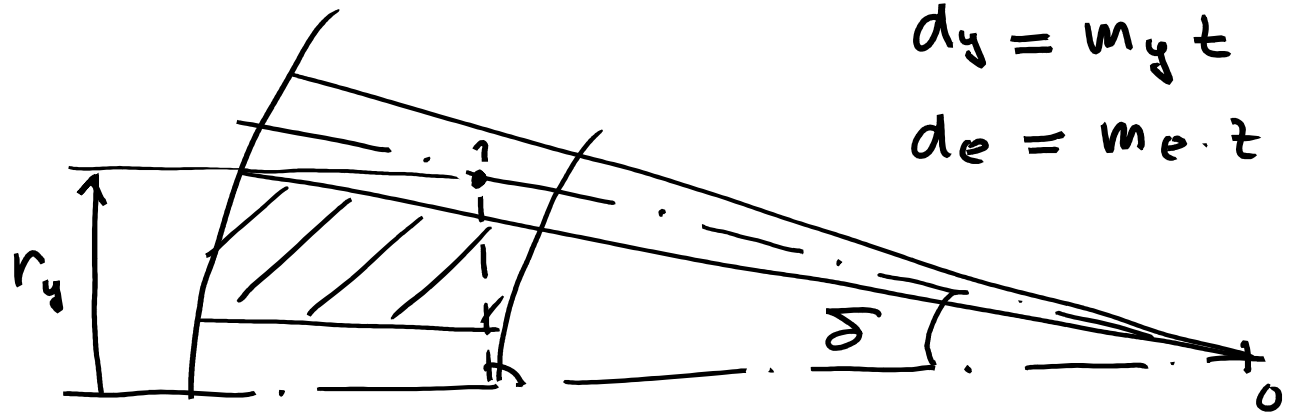
$R_e = R_i = \infty \rightarrow m_e = m_m = m_i \rightarrow$ STOŽČASTI ZOBNIK PREIDE V VALJASTI ZOBNIK $\rightarrow$ STOŽEC PREIDE V VALJ OTIROMA KROG

BOČNICA JE EVOLOGELNA EVOLUENTA

$\overline{01} = R_y$

$d_y = m_y \cdot z$

$d_e = m_e \cdot z$



$$\sin\delta = \frac{r_y}{R_y} \quad ; \quad \sin\delta = \frac{r_e}{R_e}$$

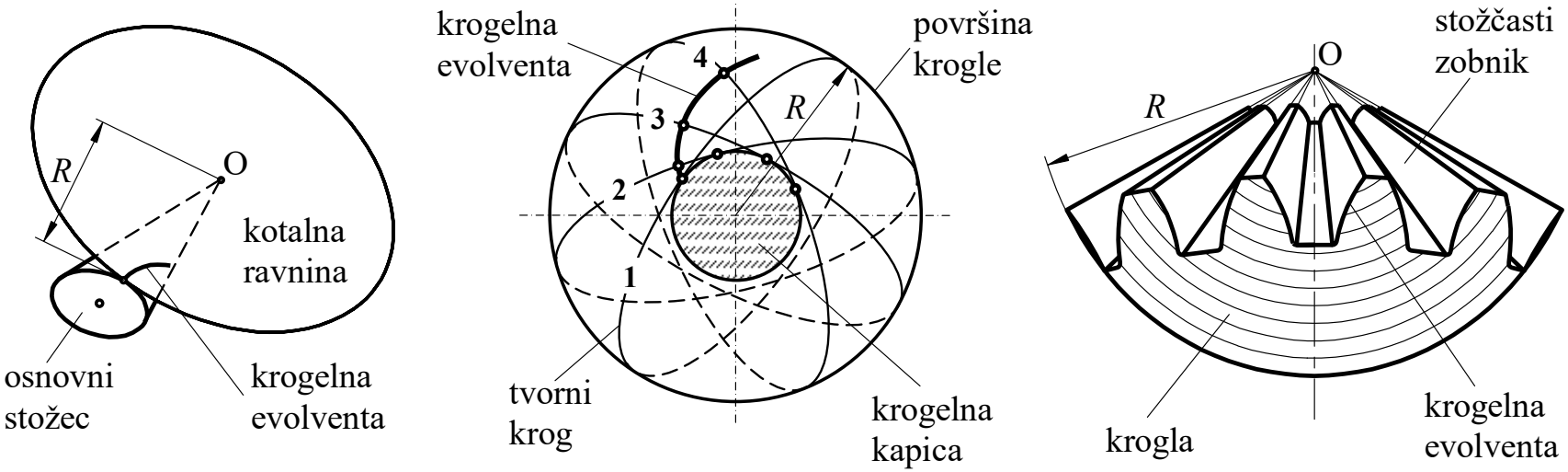
$$\frac{d_y}{z R_y} = \frac{d_e}{z R_e}$$

$$\frac{m_y z}{R_y} = \frac{m_e z}{R_e}$$

$$m_y = \frac{R_y}{R_e} m_e$$

PRI UREDNOTENJU ZOBNIKA JE MERODAJEN m_m

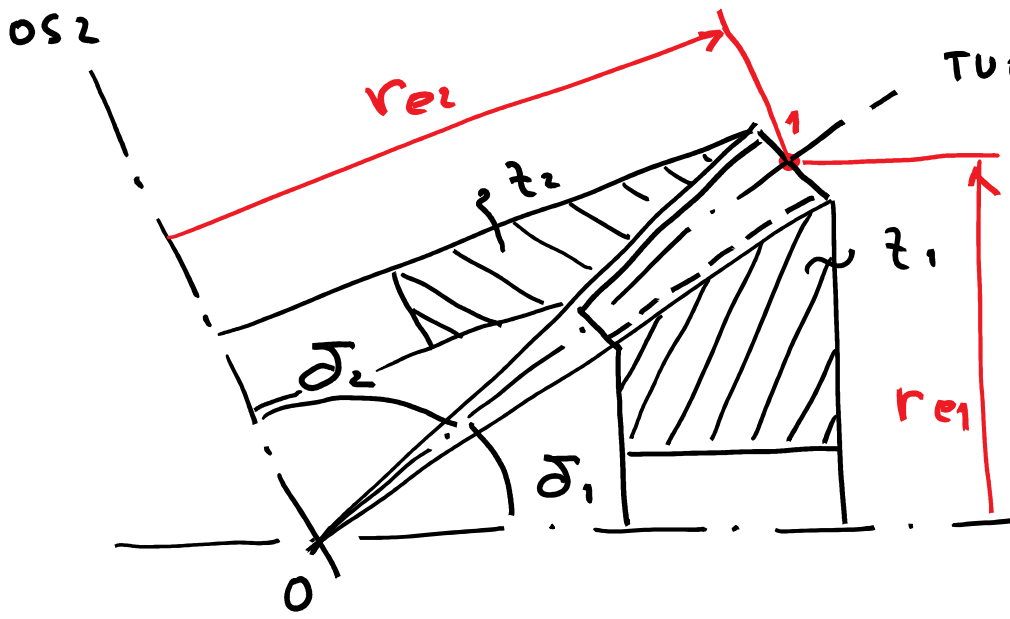
KROGELNA EVOLVENTA



a) *b*) *c*)

GLEJ LE SLIKO a)

OSNOVNE VELIČINE PRI UBIRANJU STOŽČASTE ZOBNIŠKE DVOJICE



TVORILKA RAZDELNIH STOŽCEV

$\overline{01} = R_e$

POZNAMO:

$\Sigma = \delta_1 + \delta_2$

KOT MED OSEMA

OS 1

$u = \frac{z_2}{z_1}$ OZOBNO RAZMERJE

$$\sin\delta_1 = \frac{r_{e1}}{R_e} \; ; \quad \sin\delta_2 = \frac{r_{e2}}{R_e}$$

$$\sin\delta_1 = \frac{d_{e1}}{2R_e} = \frac{m_e z_1}{2 r_{e2}} \qquad \sin\delta_2 = \frac{m_e z_1}{m_e z_2} \qquad \sin\delta_2 = \frac{1}{u}\sin\delta_2$$

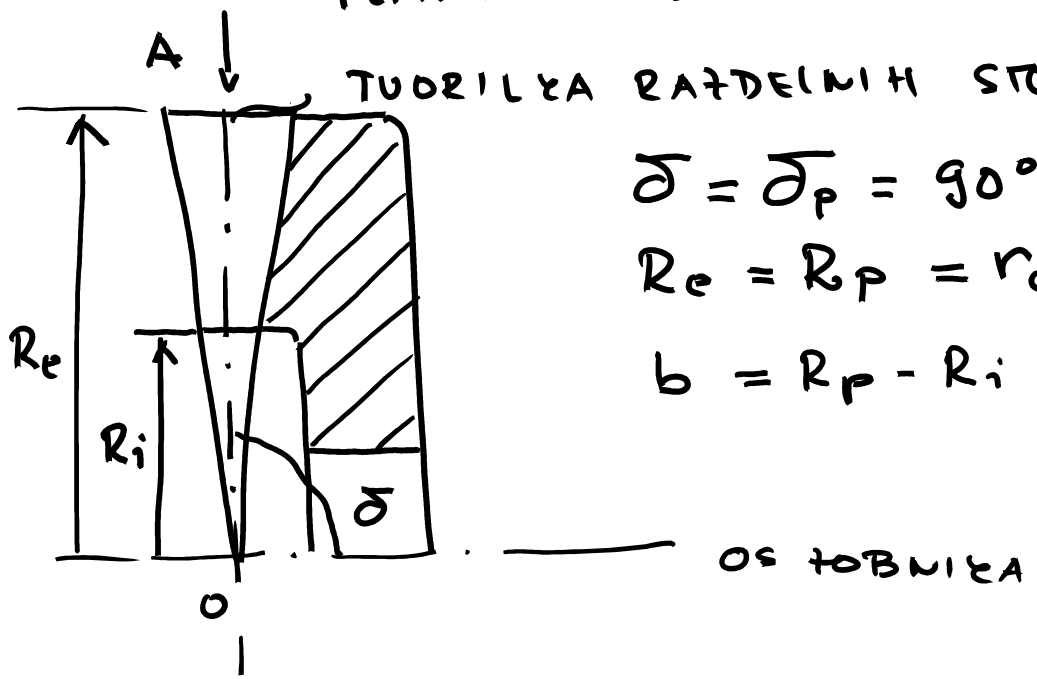
$$\sin\delta_1 = \frac{1}{u}\sin(\Sigma - \delta_1) = \frac{1}{u}(\sin\Sigma\cos\delta_1 - \sin\delta_1\cos\Sigma)$$

$$u = \frac{\sin\Sigma}{\operatorname{tg}\delta_1} - \cos\Sigma$$

$$\frac{\sin\Sigma}{\operatorname{tg}\delta_1} = u + \cos\Sigma$$

$$\operatorname{tg}\delta_1 = \frac{\sin\Sigma}{u + \cos\Sigma} \quad ; \quad \delta_2 = \Sigma - \delta_1$$

PLANI STOŽČASTI ZOBNIK



TVORILKA RAZDELNIH STOŽCEV

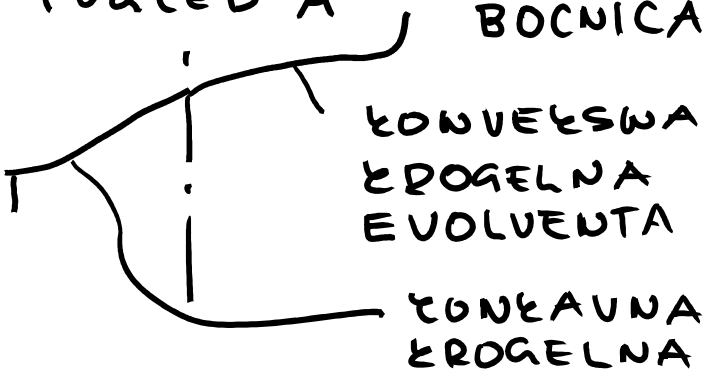
$\delta = \delta_p = 90°$

$R_e = R_p = r_e$

$b = R_p - R_i$

OS ZOBNIKA

POGLED A



BOČNICA

KONVEKSNA KROGELNA EVOLVENTA

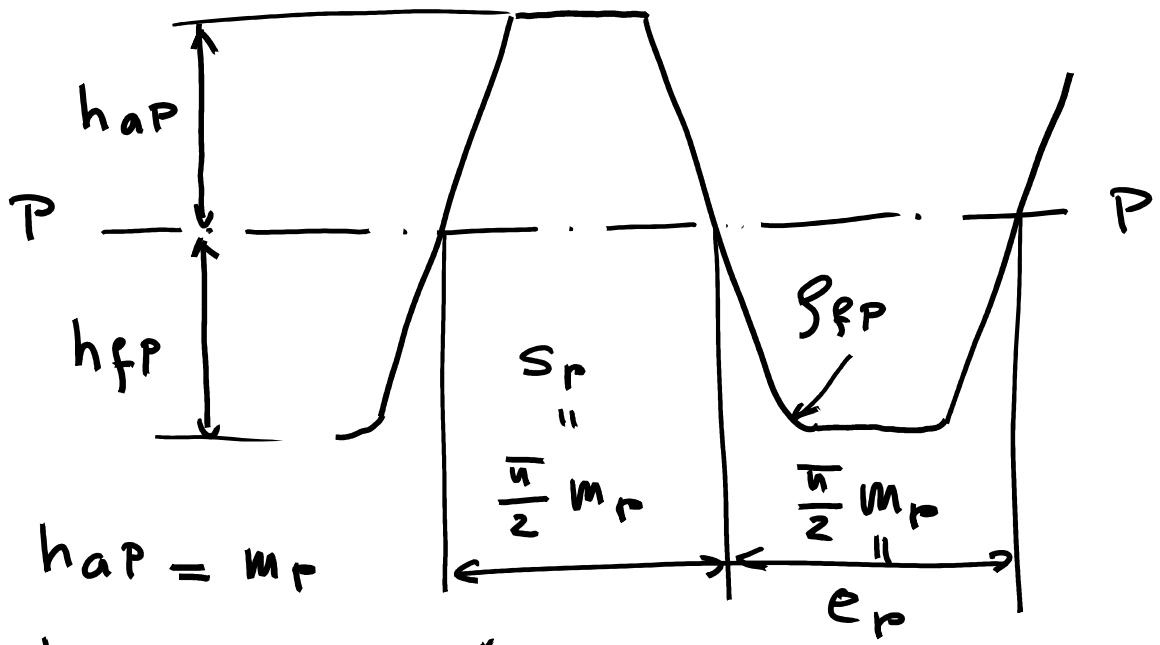
KONKAVNA KROGELNA EVOLVENTA

ČE GRE $R_p = \infty$ →

KROGELNA EVOLVENTA PREIDE V RAVNO ČRTO

OSNOVNI PROFIL ZOB RAVNOZOBIH STOŽČASTIH ZOBNIKOV

$$m_i = m_e = m_p$$



$$p_P = s_P + e_P = \pi m_P$$

$$h_{aP} = m_P$$

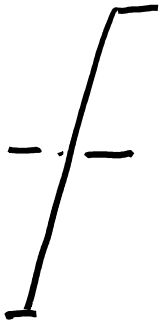
$$h_{fP} = m_P + \frac{c_P^* m_P}{c_P}$$

$$\rho_{fP} = \rho_{fP}^* m_P$$

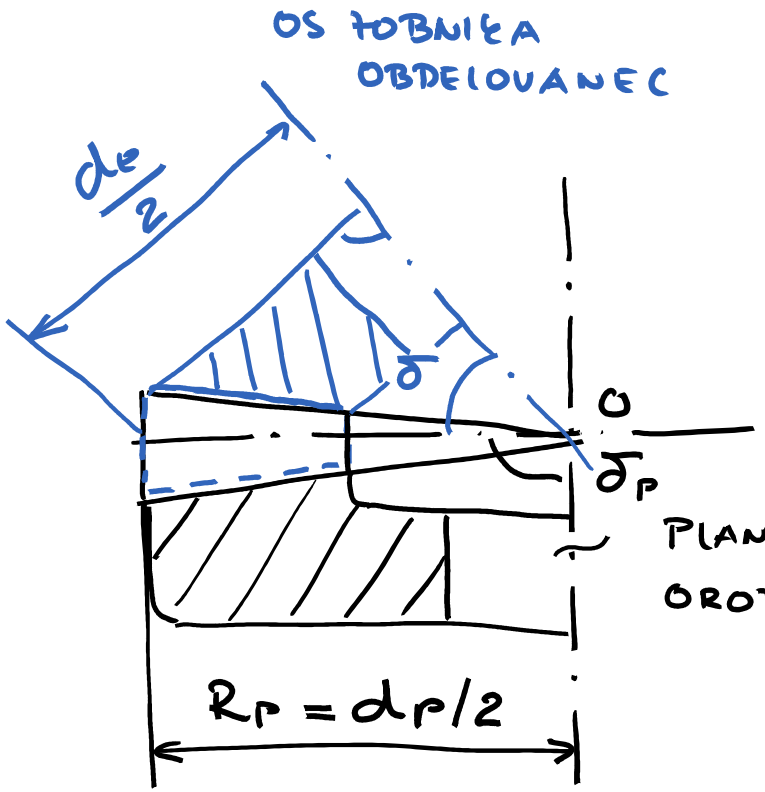
$$h_P = h_{aP} + h_{fP}$$

PROFIL ORODJA ZA ZOBČANJE RAVNOZOBIH STOŽČASTIH ZOBNIKOV

ČE JE
PROFIL ORODJA
ZUNANJSKO ZUNANJA KROGELNA EVOLVENTA,
IMA ZOBNIK, KI GA IZDELUJEMO ZOBE Z BOČNICO, KI
JE KROGELNA EVOLVENTA



ČE JE PROFIL ORODJA
RAVEN, IMA ZOBNIK, KI GA IZDELUJEMO ZOBE
Z BOČNICO, KI JE OKTOIDA



$$\sin\delta = \frac{d_e}{2R_p} = \frac{d_e}{d_p} = \frac{m_e z}{m_e z_p}$$

$$z_p = \frac{z}{\sin\delta}$$

REALNO ŠTEVILO ZOB PLANEGA ZOBNIKA

$$z_p = \frac{z_1}{\sin\delta_1} = \frac{z_2}{\sin\delta_2}$$

STOŽČASTO ZOBNIŠKO DVOJICO LAHKO SESTAVLJATA LE TAKŠNA ZOBNIKA, KI STA OBA DOLOČENA NA OSNOVI ISTEGA PLANEGA ZOBNIKA!

$$z_p = \frac{z_1}{\sin\delta_1} = \frac{z_2}{\sin\delta_2} \qquad \check{\Sigma} = \delta_1 + \delta_2$$

$$\frac{z_2}{z_1} = u = \frac{\sin\delta_2}{\sin\delta_1} = \frac{\sin(\Sigma - \delta_1)}{\sin\delta_1} = \frac{\sin\Sigma\cos\delta_1 - \sin\delta_1\cos\Sigma}{\sin\delta_1}$$

$$u = \frac{\sin\Sigma}{\operatorname{tg}\delta_1} - \cos\Sigma$$

$$u + \cos\Sigma = \frac{\sin\Sigma}{\operatorname{tg}\delta_1}$$

$$\operatorname{tg}\delta_1 = \frac{\sin\Sigma}{u + \cos\Sigma}$$

$$\Sigma = 90°$$

$$\operatorname{tg}\delta_1 = \frac{1}{u} = \frac{z_1}{z_2} = \frac{\sin\delta_1}{\cos\delta_1}$$

$$\frac{z_1}{\sin\delta_1} = z_p = \frac{z_2}{\cos\delta_1}$$

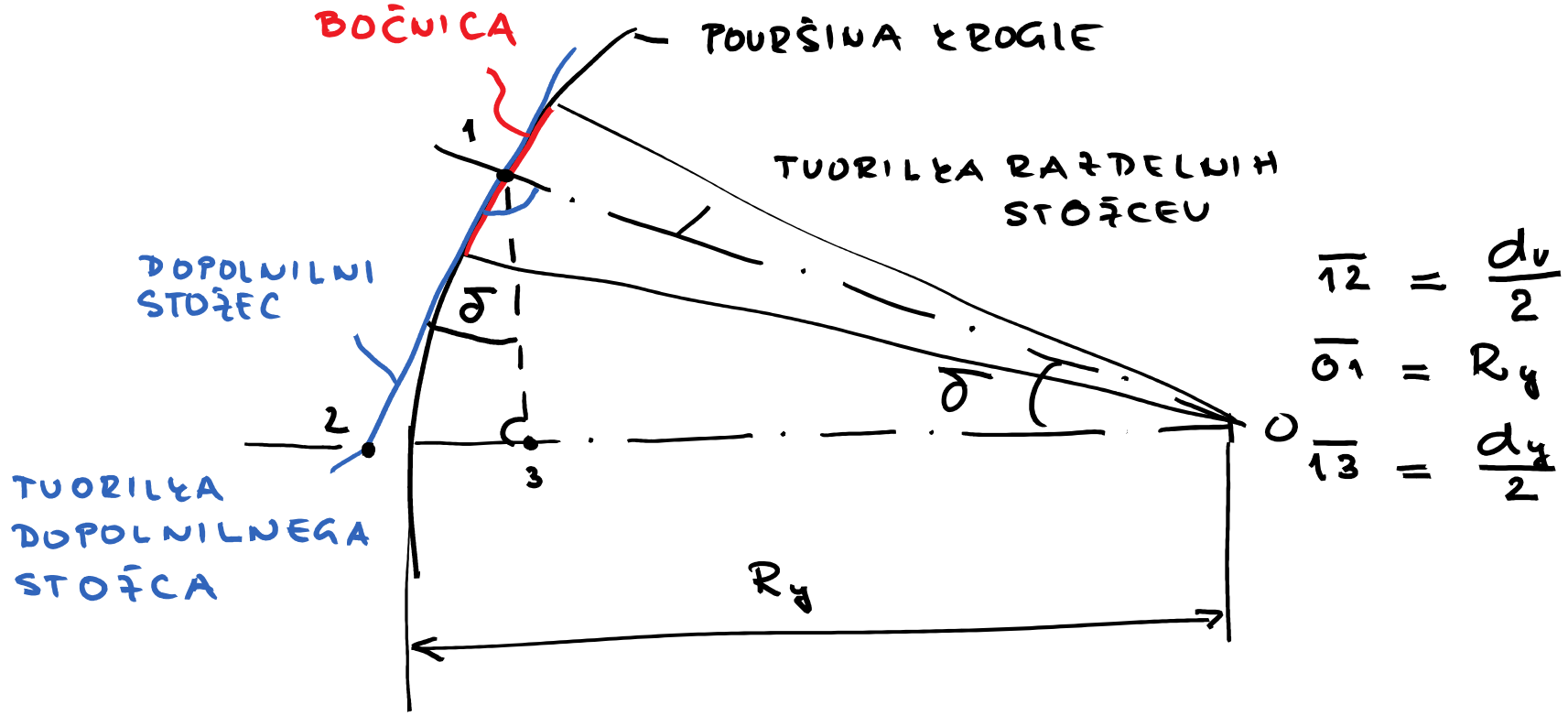
$$z_1 = z_p \sin\delta_1$$

$$z_2 = z_p \cos\delta_1$$

$$z_1^2 + z_2^2 = z_p^2 \left(\sin^2\delta_1 + \cos^2\delta_1 \right) = z_p^2 \qquad (\sin^2\delta_1 + \cos^2\delta_1 = 1)$$

$$z_p = \sqrt{z_1^2 + z_2^2}$$

DOPOLNILNI STOŽEC IN DOPOLNILNO VALJASTO OTOBJE



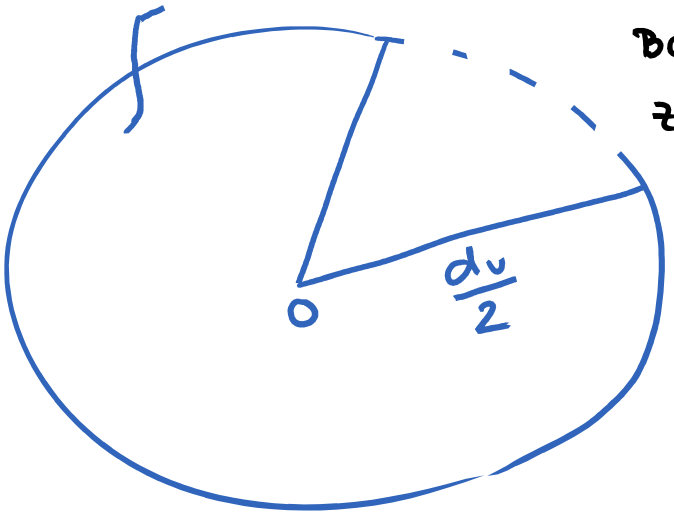
BOČNICA - PROSTORSKA KRIVULJA ZOBNA EVOLVENTA ALI OKTOIDA

PROJICIRAMO BOČNICO NA DOPOLNILNI STOŽEC. MANJŠA NAPAKA JE POSLEDICA

$$\cos\delta = \frac{d_1 z}{z d_v} = \frac{m_t z}{m_t z_v}$$

$$z_v = \frac{z}{\cos\delta}$$

ŠTEVILO ZOB DOPOLNILNEGA VALJASTEGA ZOBNIKA JE REALNO ŠTEVILO



BOČNICA DOPOLNILNEGA VALJASTEGA ZOBNIKA JE PRIBLIŽNO EVOLVENTA

$$z_{v1} = \frac{z_1}{\cos\delta_1}$$

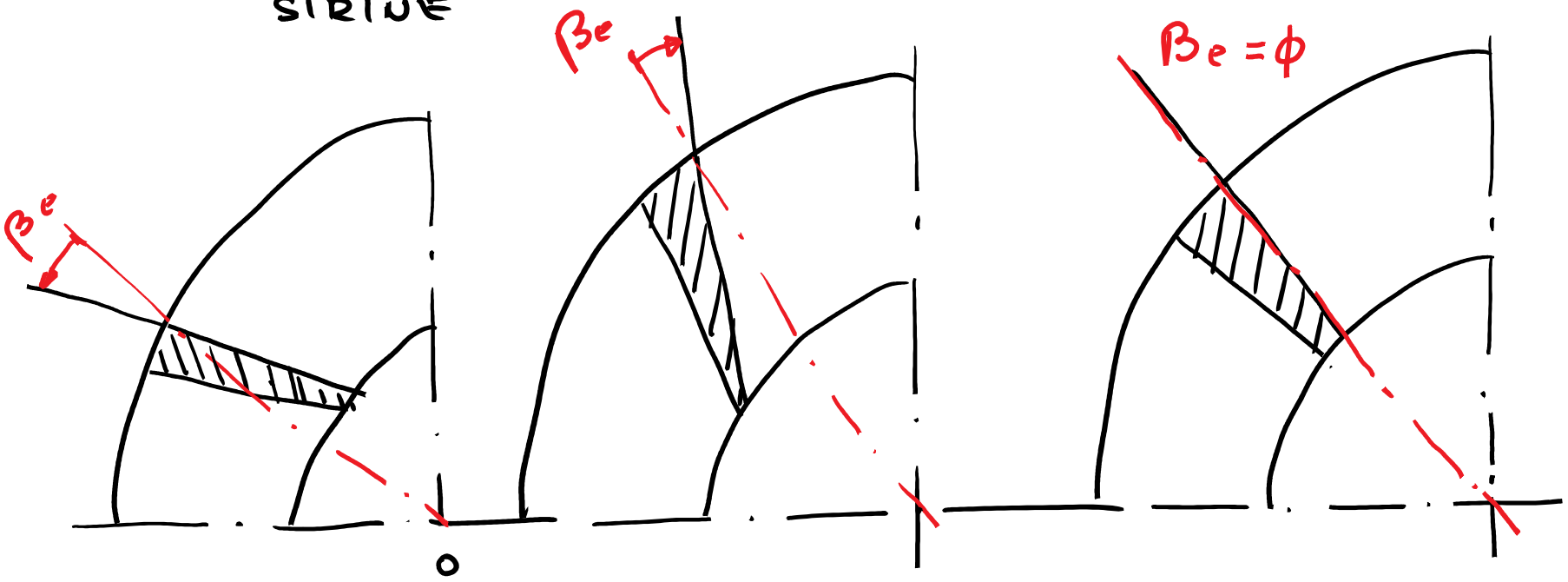
$$z_{v2} = \frac{z_2}{\cos\delta_2}$$

$$u_v = \frac{z_{v2}}{z_{v1}}$$

STOŽČASTE ZOBNIŠKE DVOJICE S POŠEVNIM ZOBOM

β_e KOT POŠEVNOSTI ZOB NA ZUNANJI DELILNI RAZDELILNEGA STOŽCA

β_m KOT POŠEVNOSTI ZOB NA SREDINI ZOBNE ŠIRINE



LEVA SMER ZOB DESNA SMER ZOB RAVNO ZOBJE