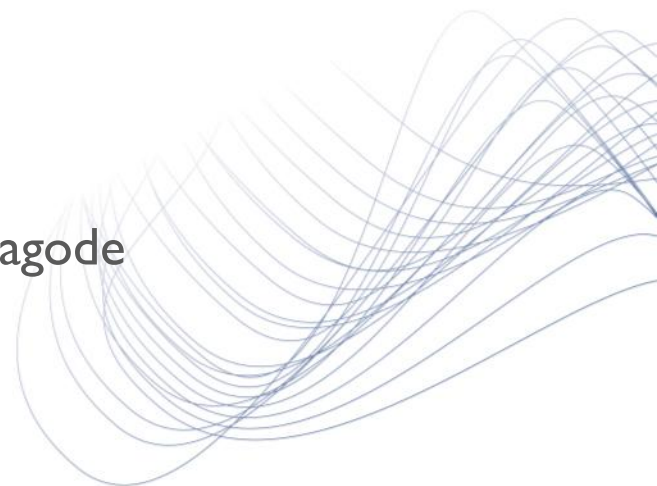




Strojni elementi 3

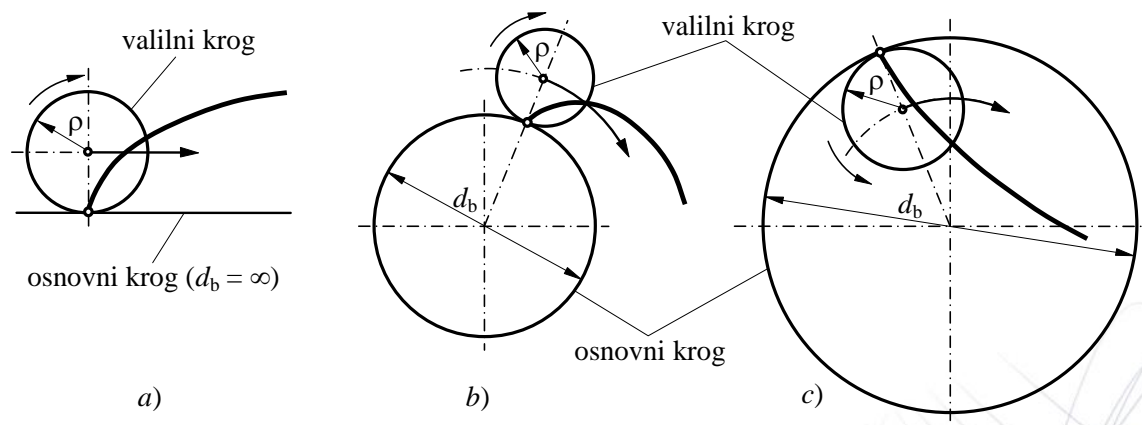
Valjaste zobniške dvojice

prof.dr. Marko Nagode



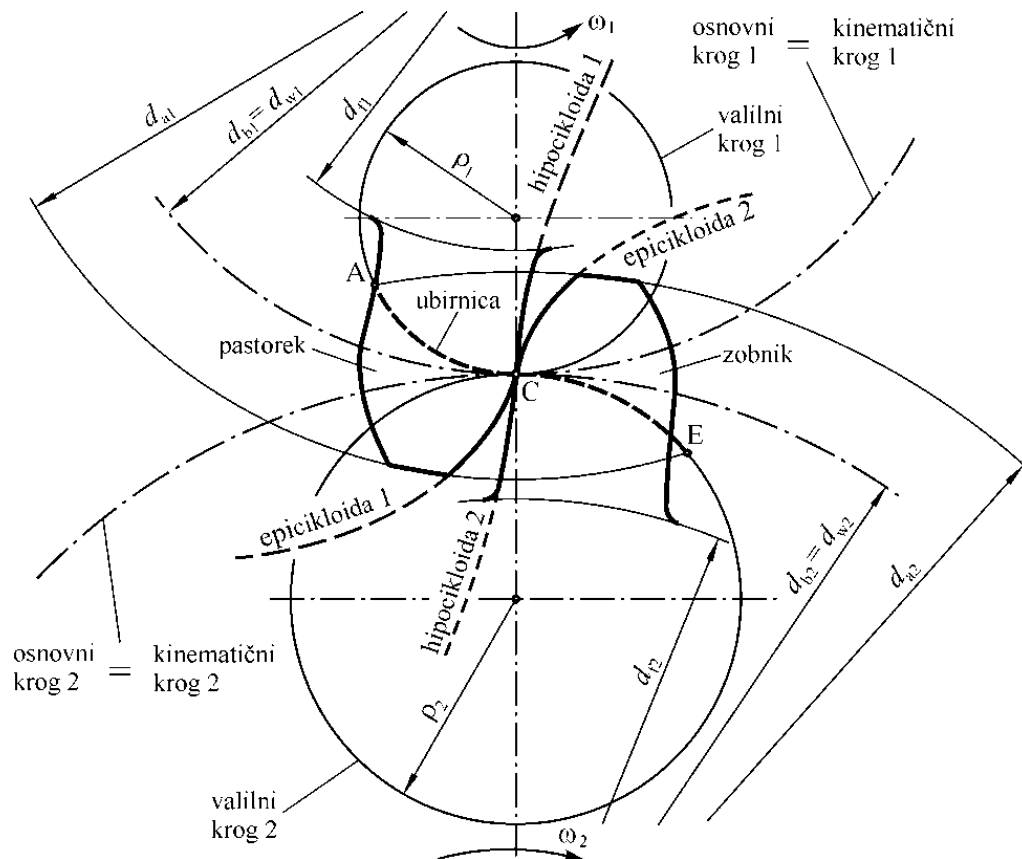


Shematski prikaz nastanka cikloid



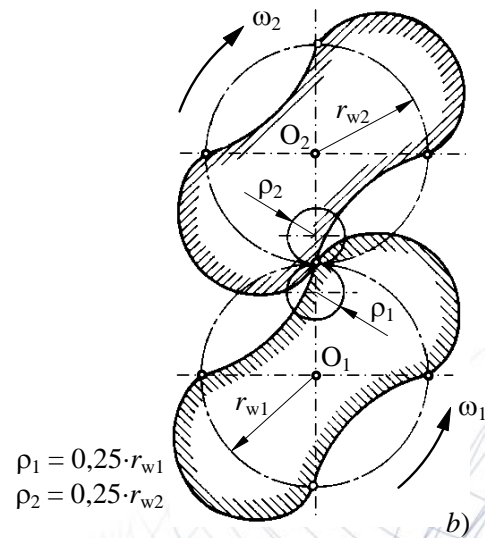
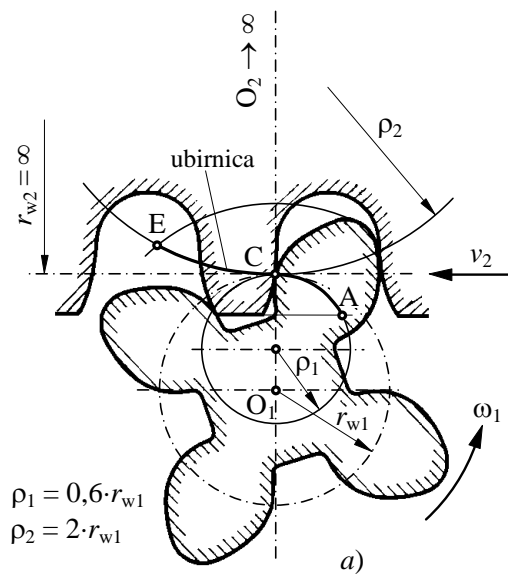


Zobniška dvojica s cikloidnim ozobjem



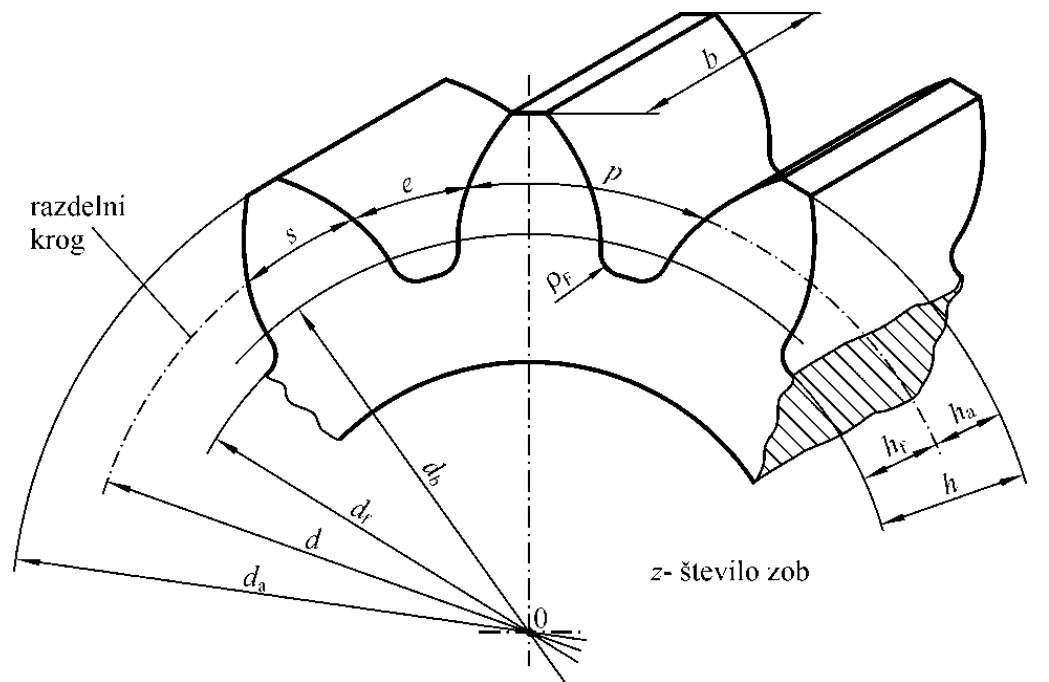


Primeri uporabe zobniških dvojic s cikloidnim ozobjem





Osnovne veličine ravnnozobega valjastega zobnika



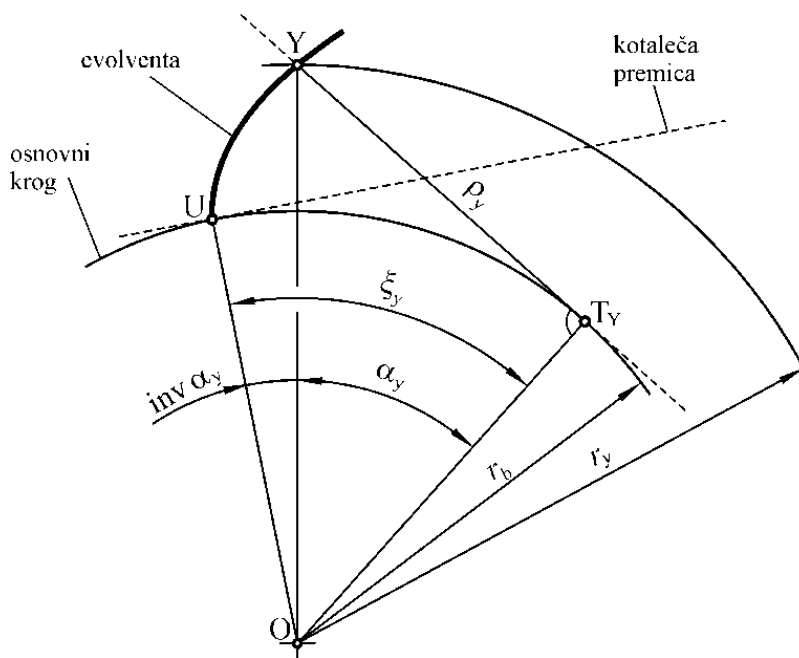
d_b premer osnovnega kroga
 d_r premer vznožnega kroga
 d premer razdelnega kroga
 d_a premer temenskega kroga

b širina zoba
 h višina zoba
 h_a višina zobnega vrha
 h_r višina zobnega korena

s debelina zoba
 e širina medzobne vrzeli
 p razdelek
 p_r zaokroženje v korenu zoba

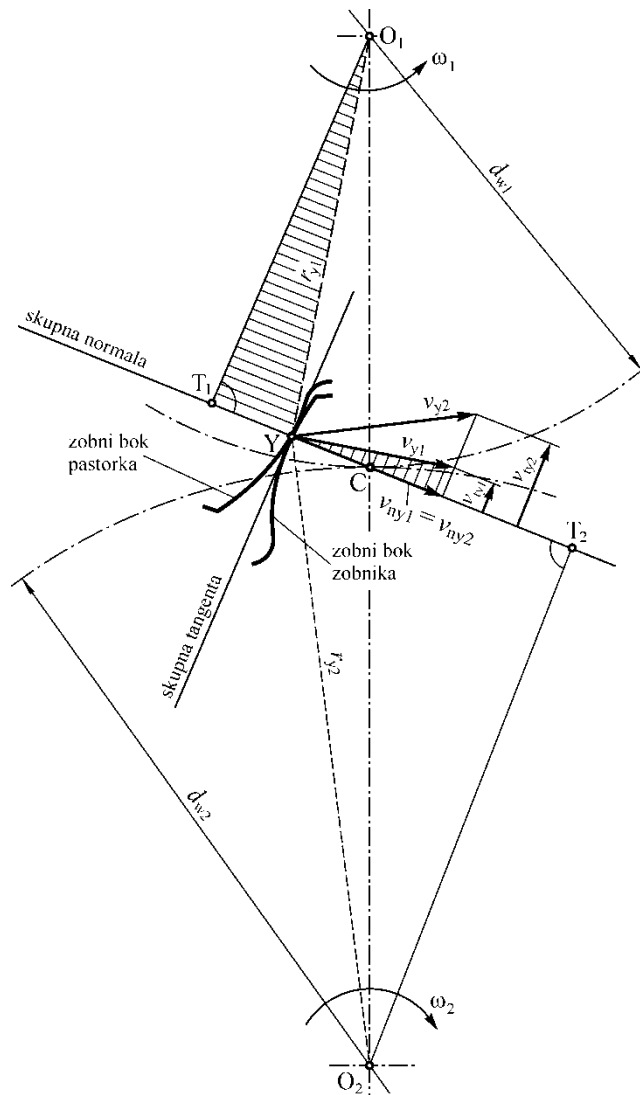


Veličine za določitev evolvente (involutne) funkcije



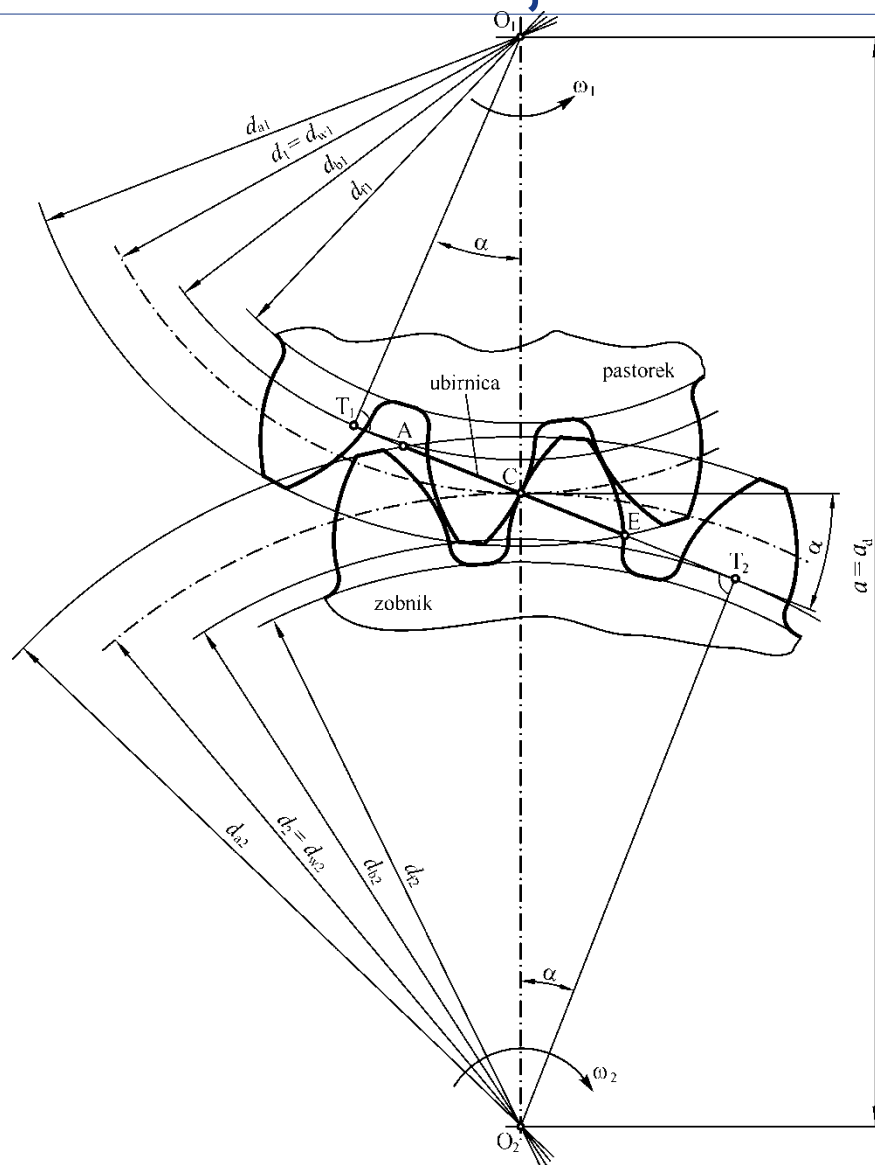


Ubiranje zobnih bokov pastorka in zobnika v poljubni ubirni točki Y



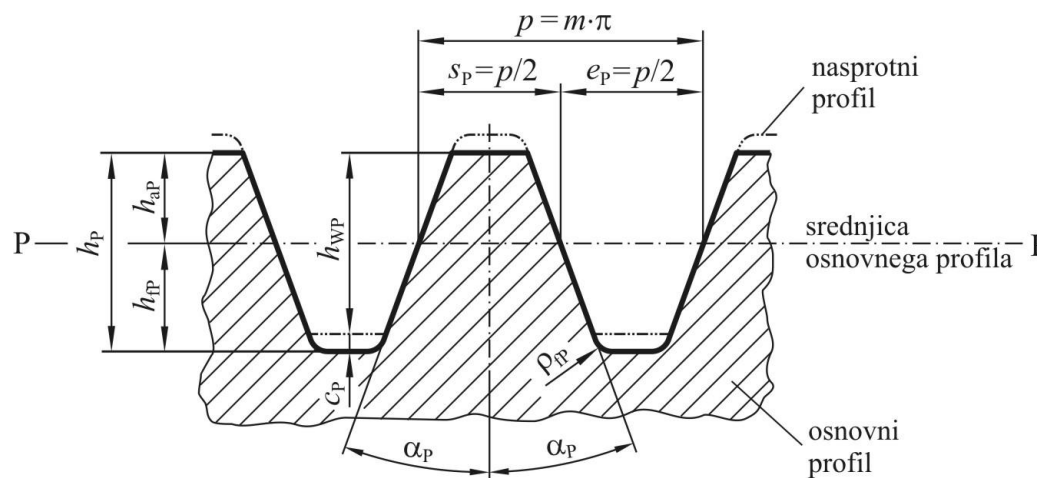
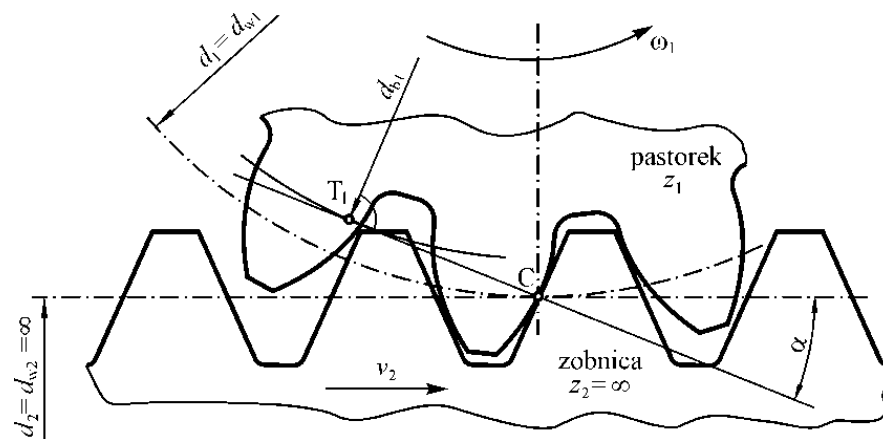


Osnovne veličine pri ubiranju valjaste zobniške dvojice z ravnim ozobjem



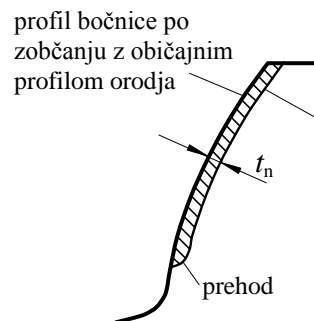
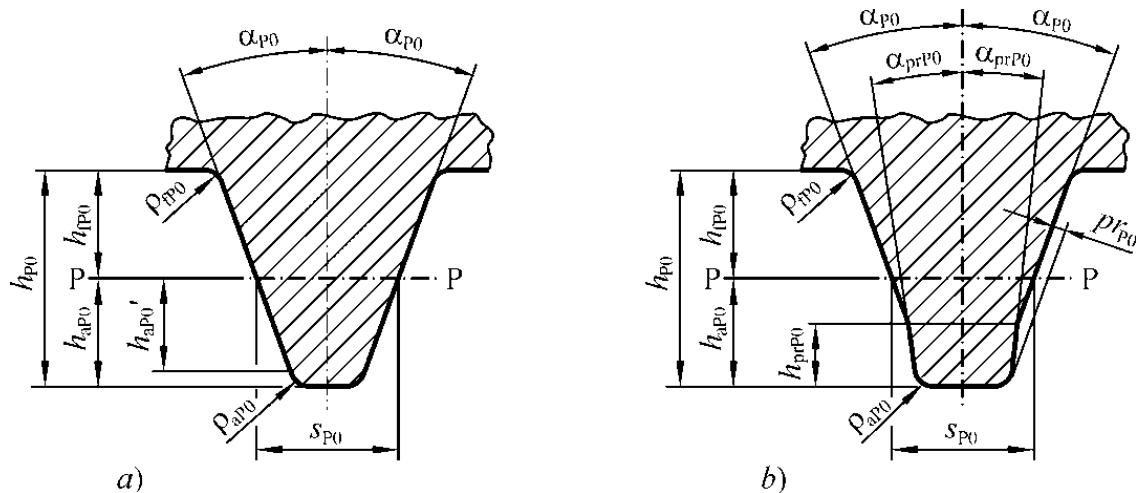


Valjasta zobniška dvojica z zobnico in osnovni profil zob zobnice po ISO 53 (DIN 867)

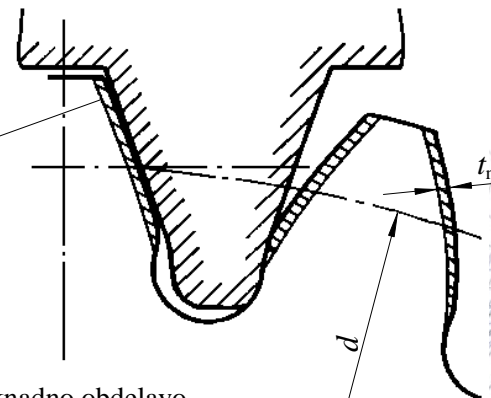




Profil orodja za zobčanje zobnikov po DIN 3960 in profil bočnice po zobčanju



profil bočnice po
naknadni obdelavi
(npr. brušenju)



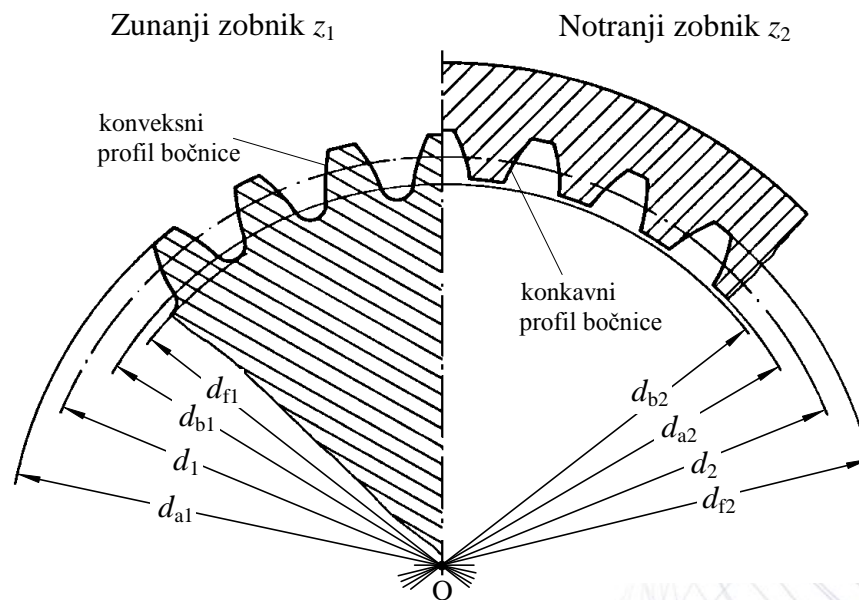
t_n dodatek za naknadno obdelavo

a)

b)

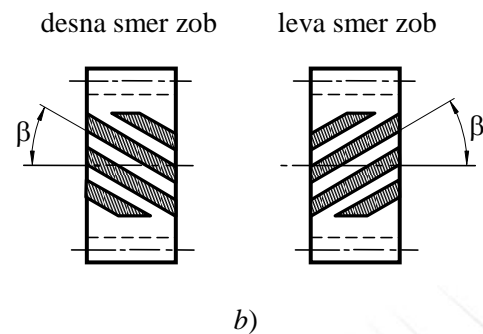
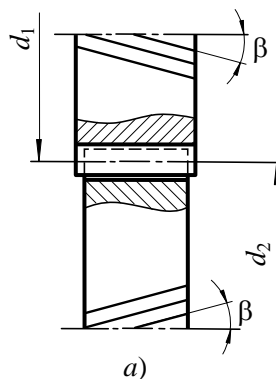


Nastanek notranjega zobnika



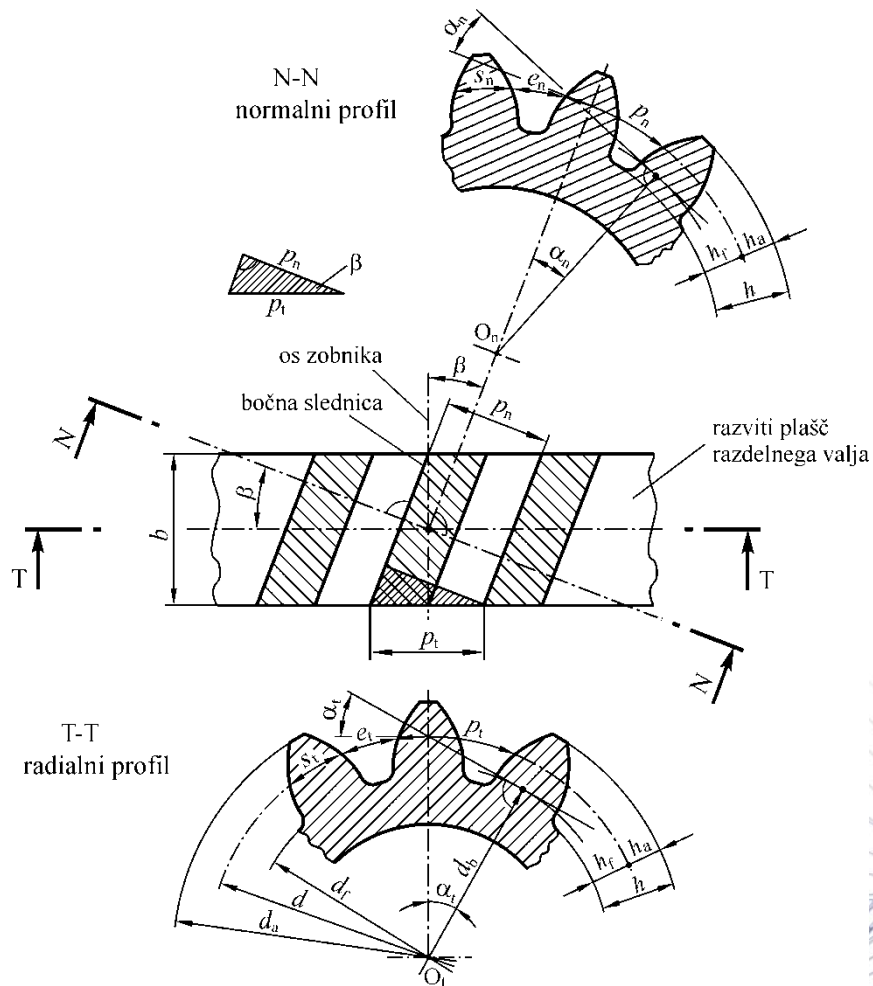


Zunanja valjasta zobniška dvojica s poševnim ozobjem in določitev smeri kota poševnosti zob



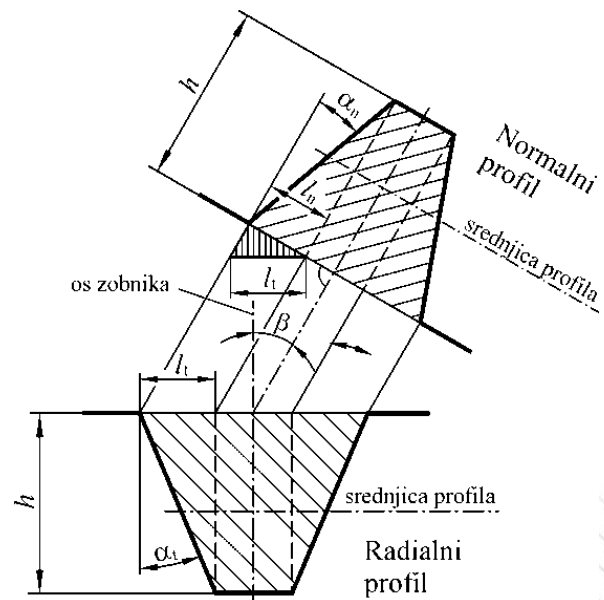
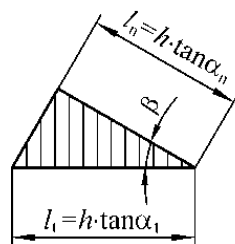


Radialni (T-T) in normalni (N-N) profil ozobnja poševnozobega zobnika



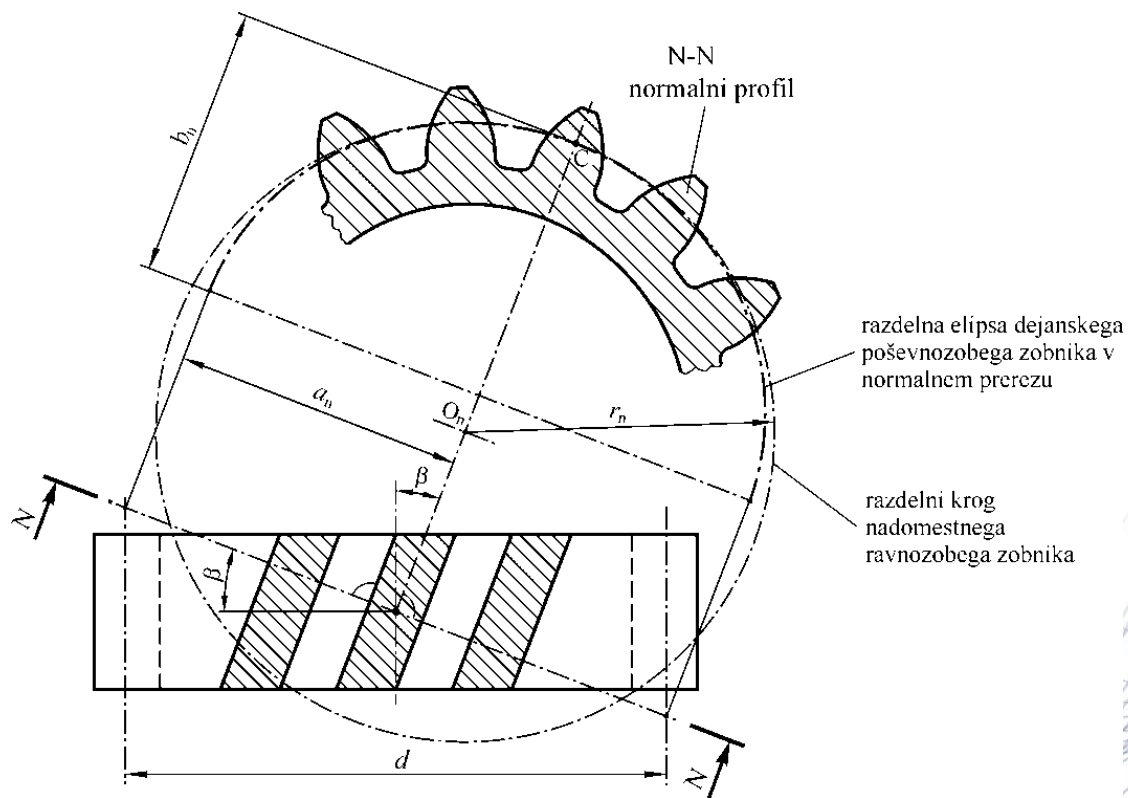


Radialni in normalni profil poševnozobe zobnice





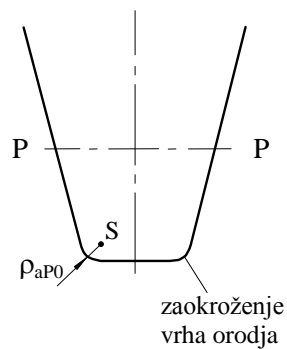
Nastanek nadomestnega valjastega zobnika



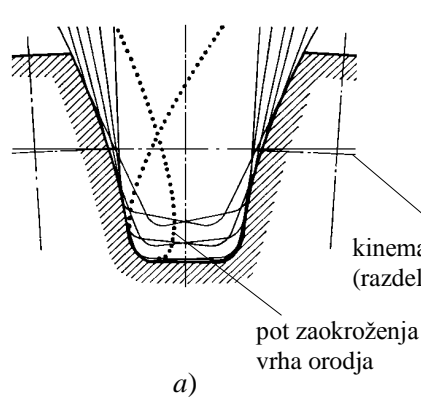


Odvalni postopek zobčanja zobnika z ravnim rezalnim grebenom

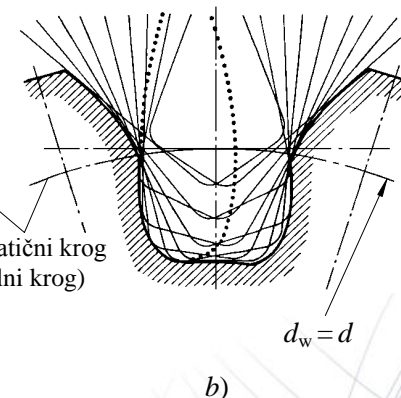
Ravni rezalni greben



$z = 50$

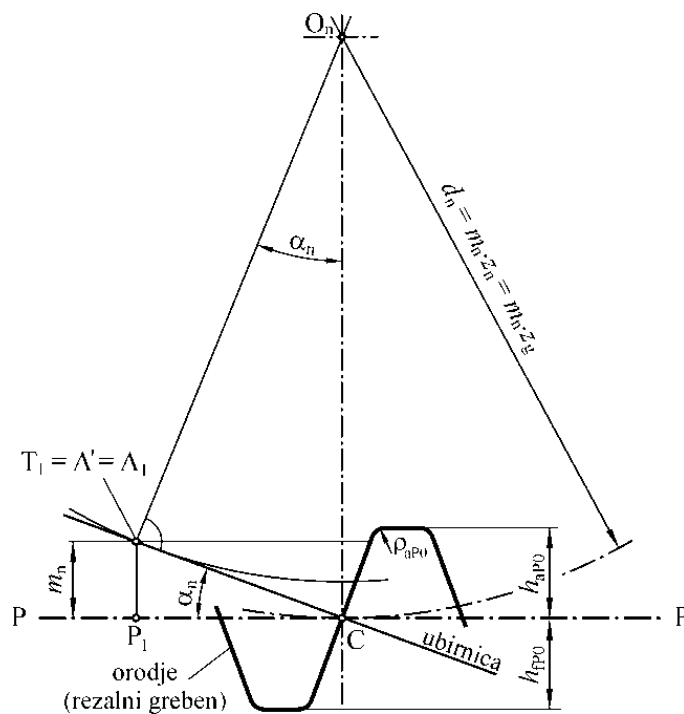


$z = 10$



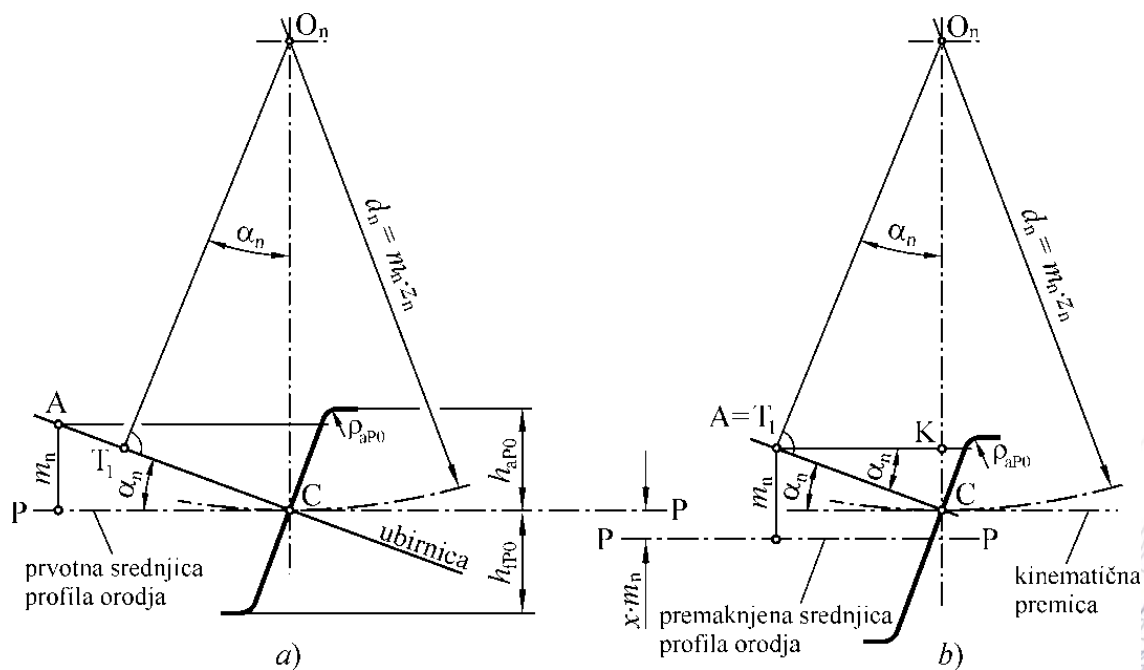


Veličine za določitev mejnega števila zob



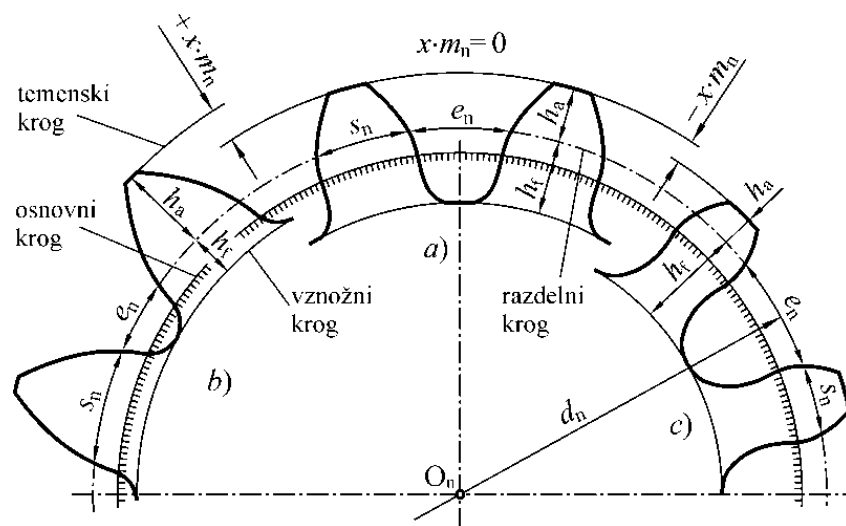


Premik profila osnovne zobnice



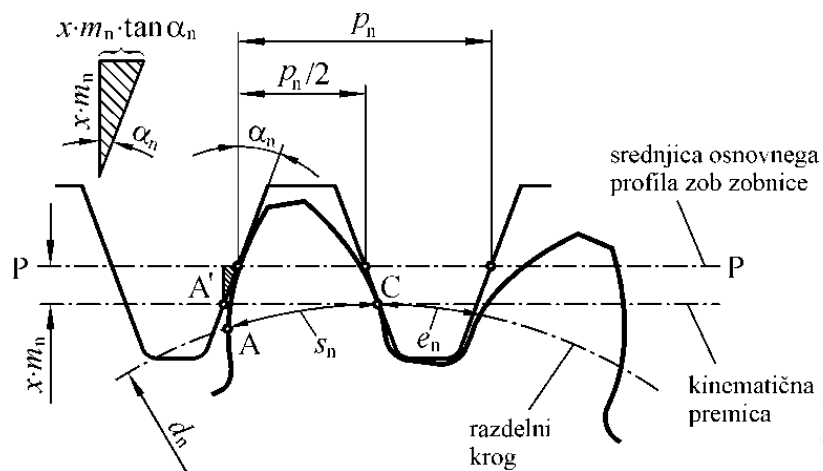


Oblika zob pri zunanjem zobniku z različnim profilnim premikom



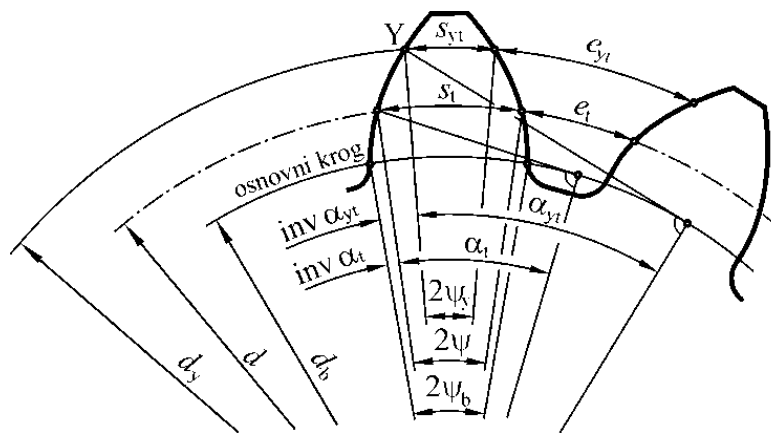


Zunanja zobniška dvojica z zobnico in profilnim premikom



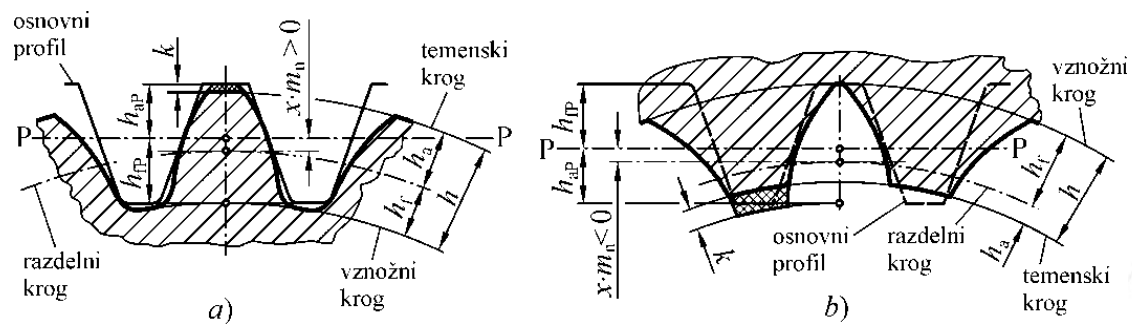


Radialna debelina zoba in radialna širina medzobne vrzeli



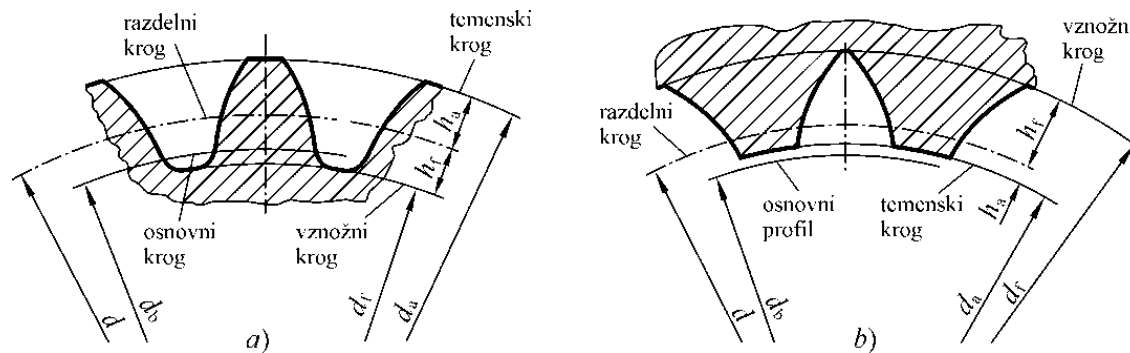


Višina zobnega korena in višina zobnega vrha



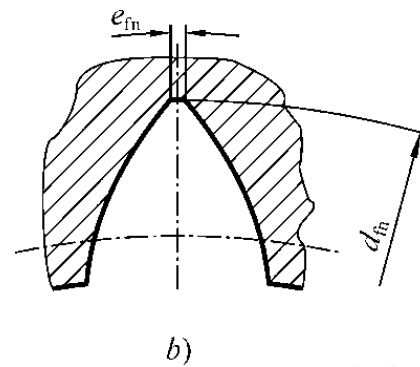
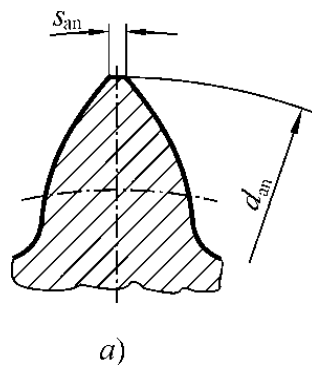


Premer vznožnega kroga in premer temenskega kroga



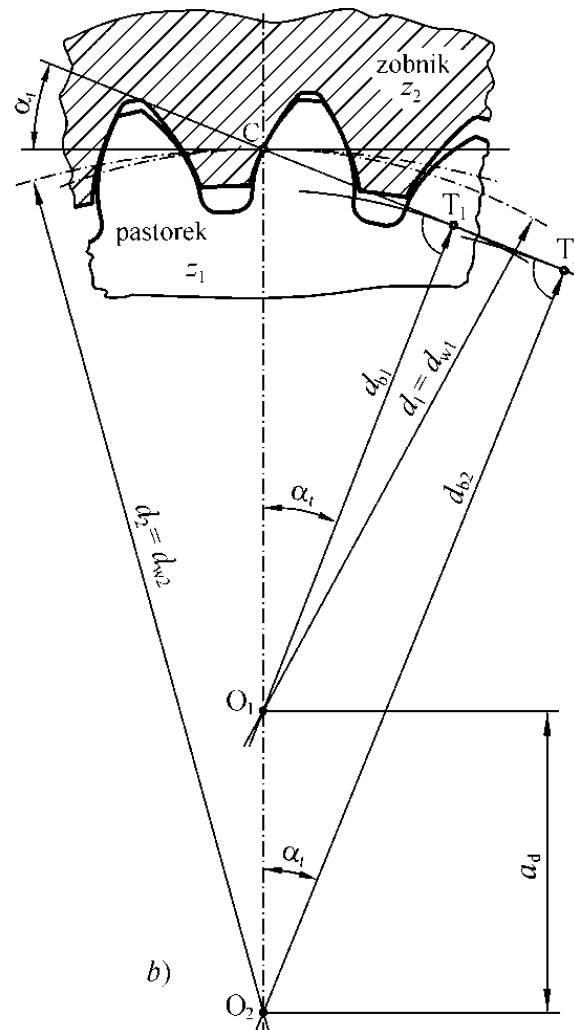
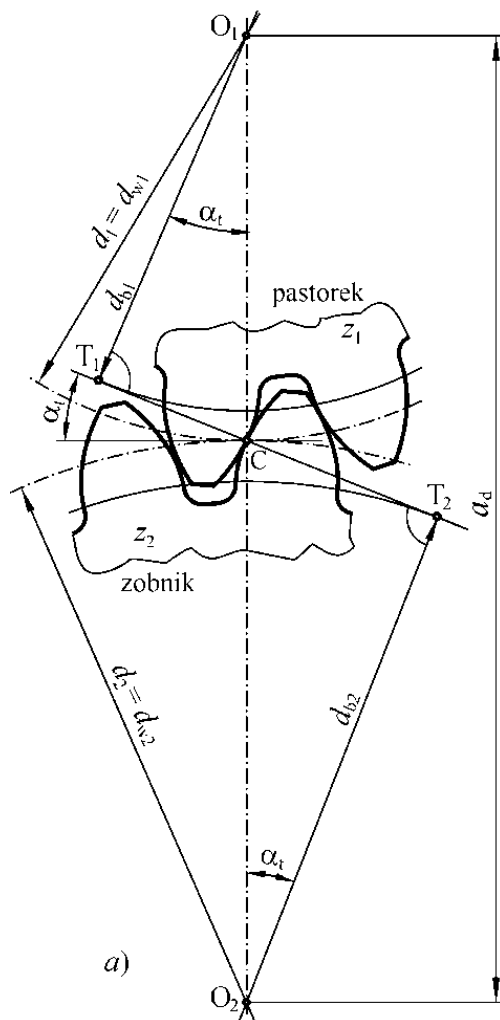


Normalna debelina zoba pri zunanjem zobniku in normalna širina medzobne vrzeli pri notranjem zobniku



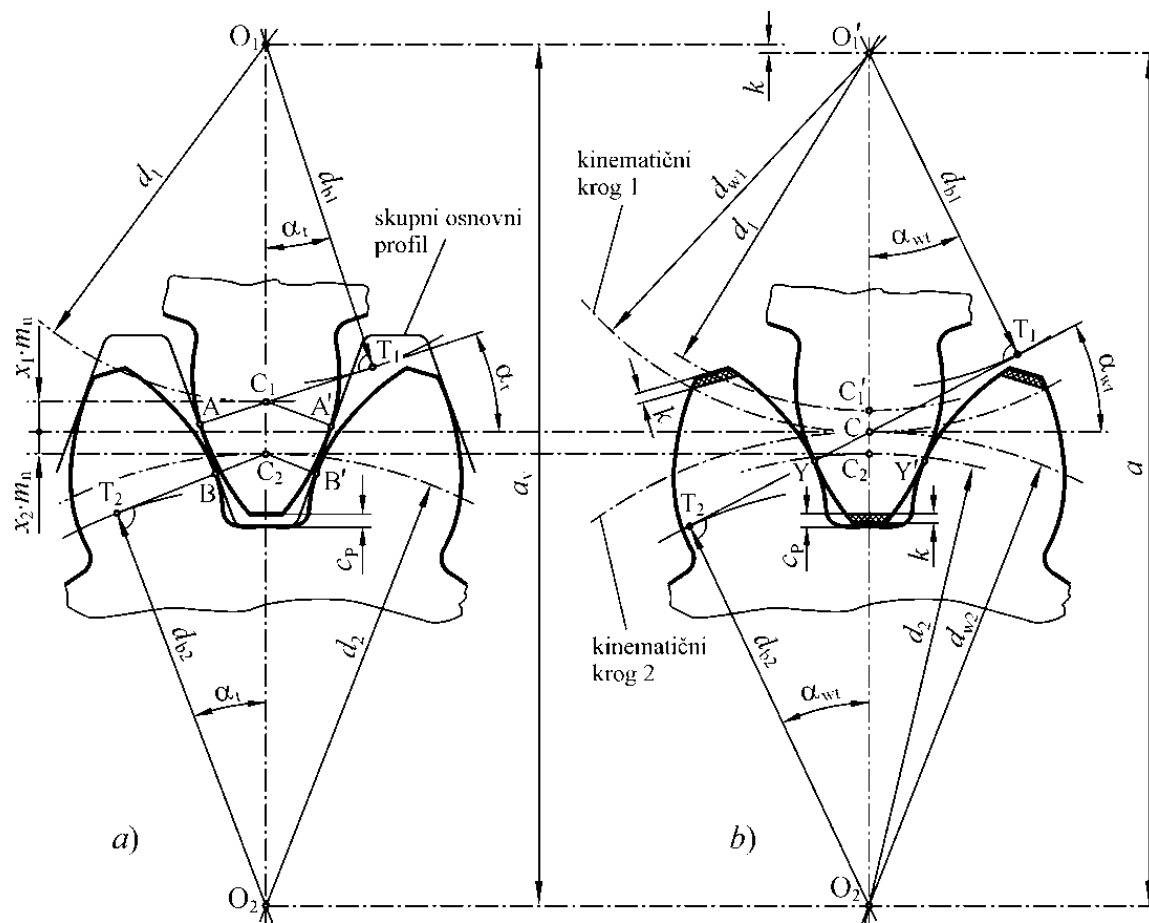


x-ničta valjasta zobniška dvojica



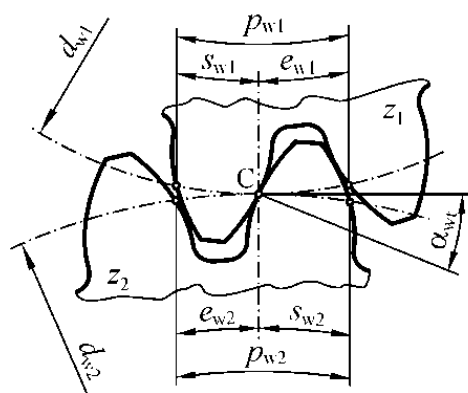


Določitev medosnega razmika x -te zobniške dvojice

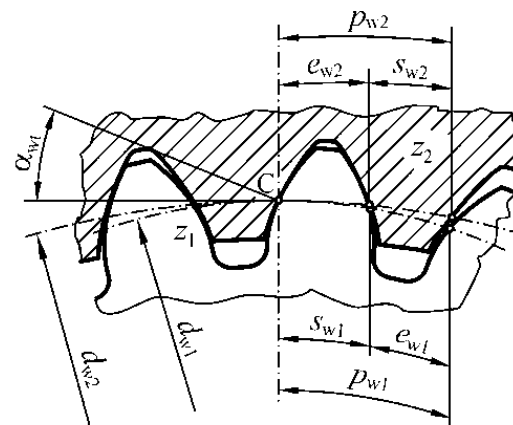




Debelina zoba, širina medzobne vrzeli in razdelek



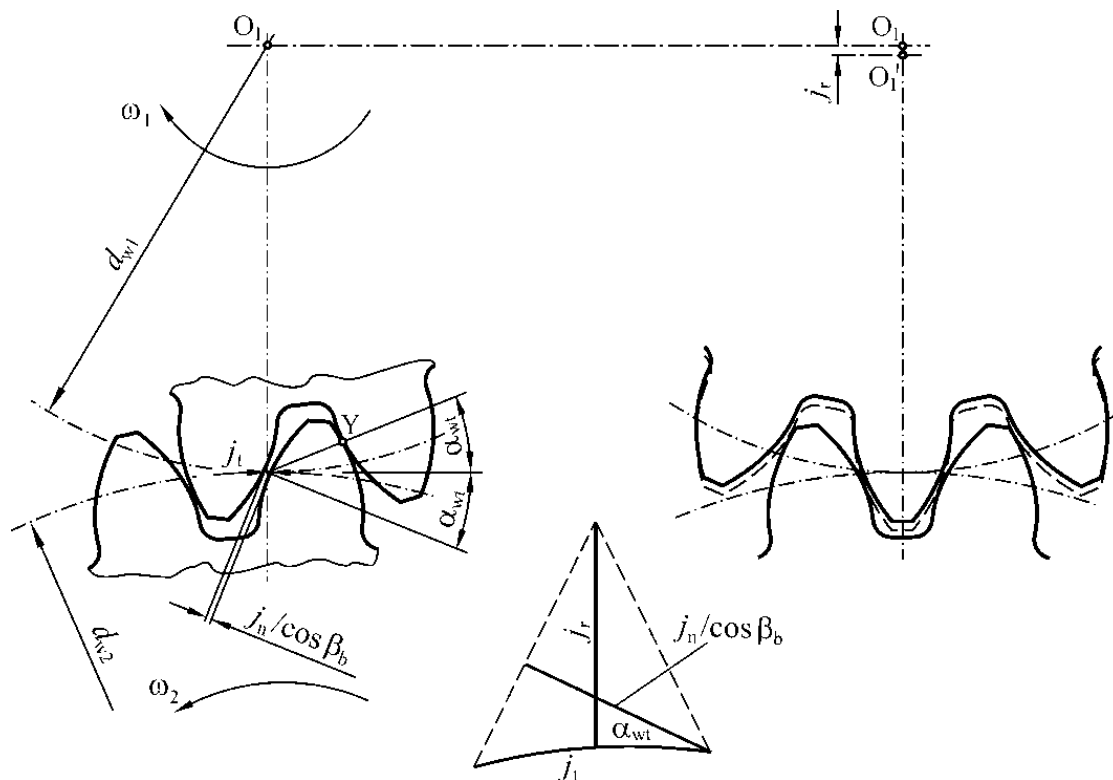
a)



b)

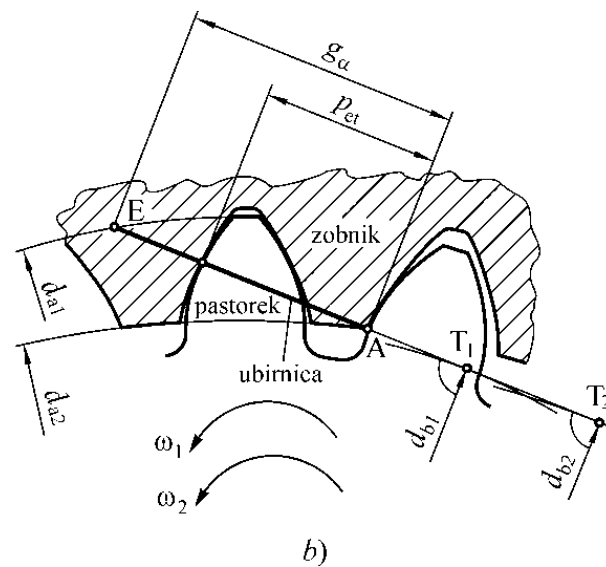
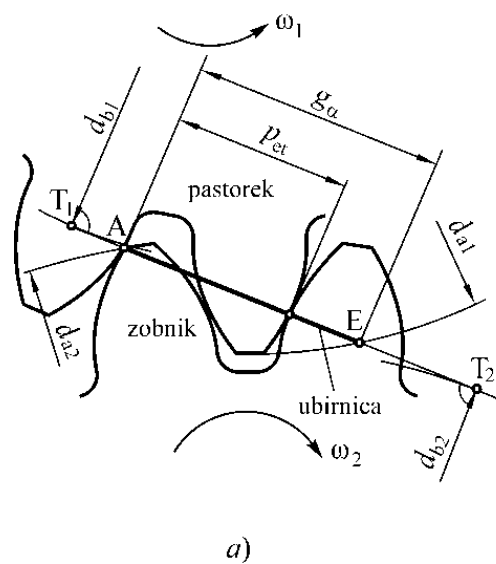


Krožni, normalni in radialni bočni razstop



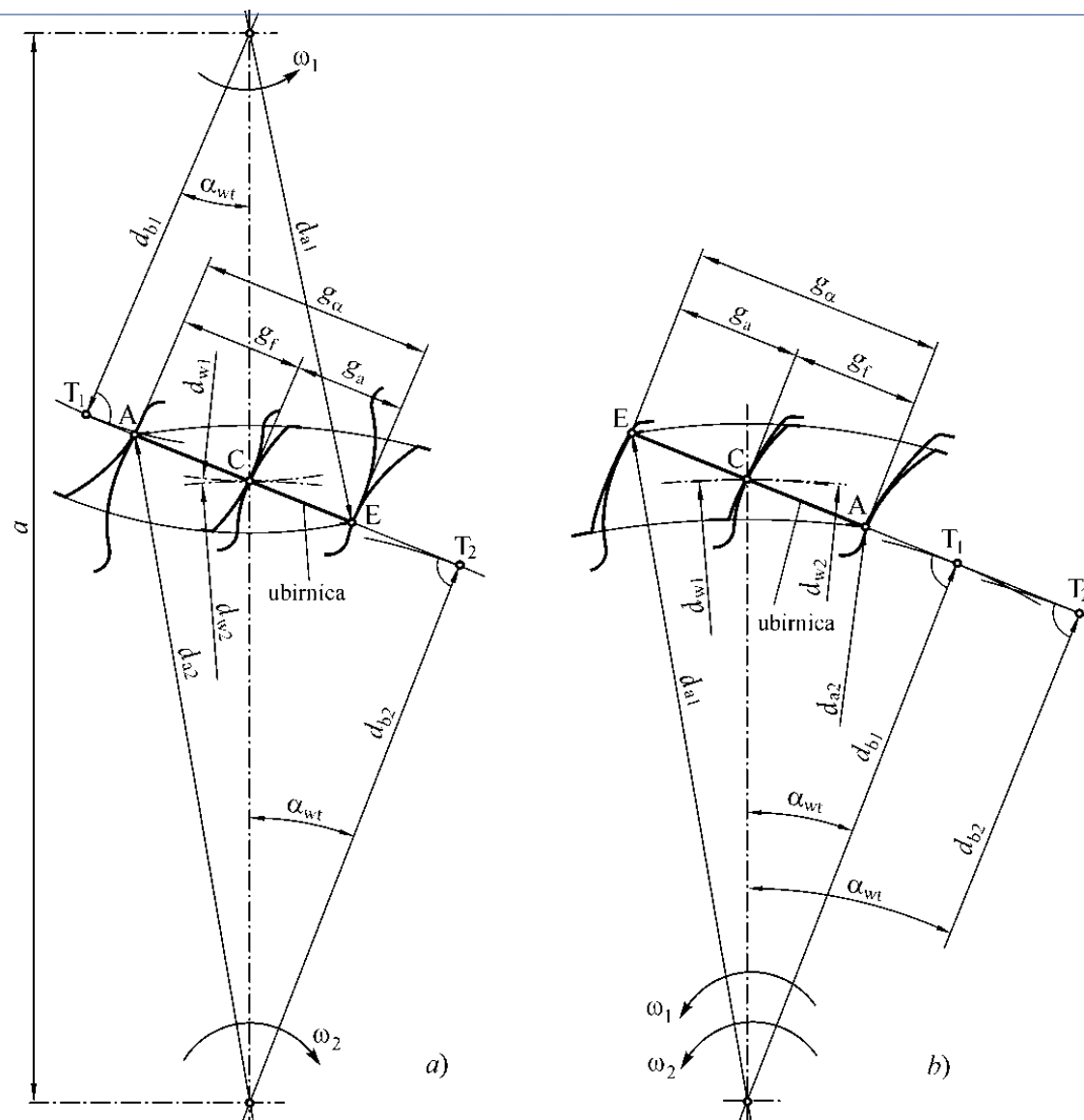


Dolžina ubirnice in ubirni razdelek





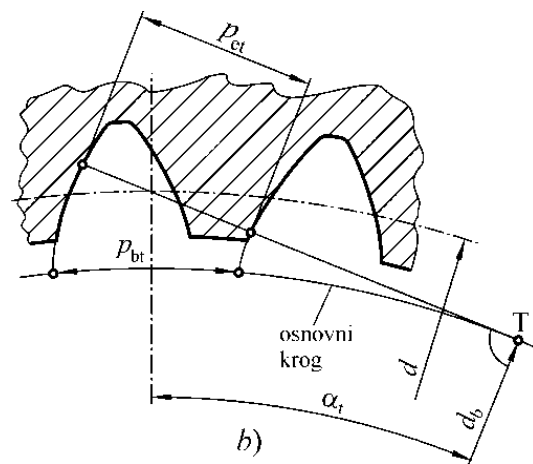
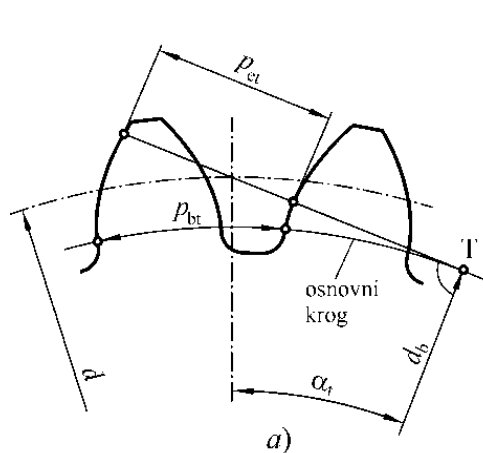
Geometrijske veličine za določitev dolžine ubirnice



Vir: Flašker Glodež Ren Zobniška gonila

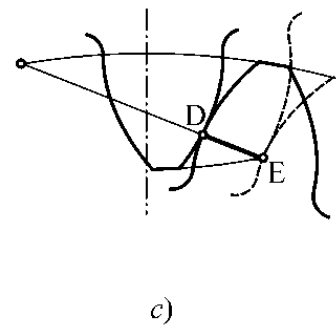
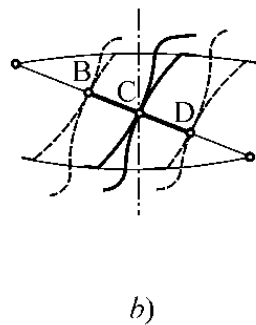
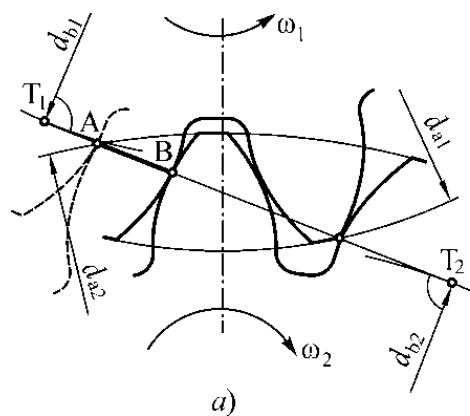


Ubirni razdelek in radialni razdelek na osnovnem krogu



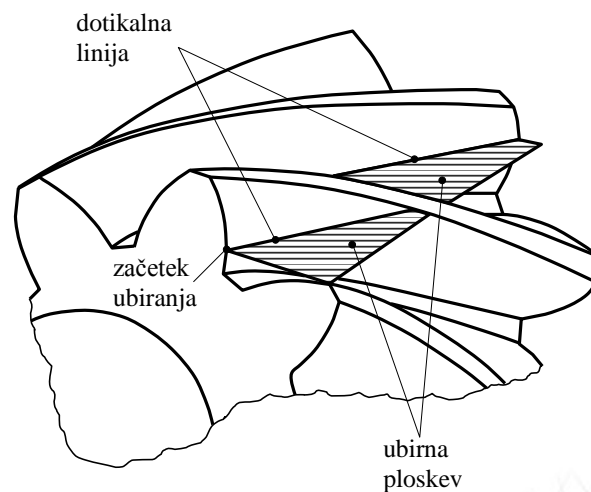


Ubiranje zunanje valjaste zobniške dvojice



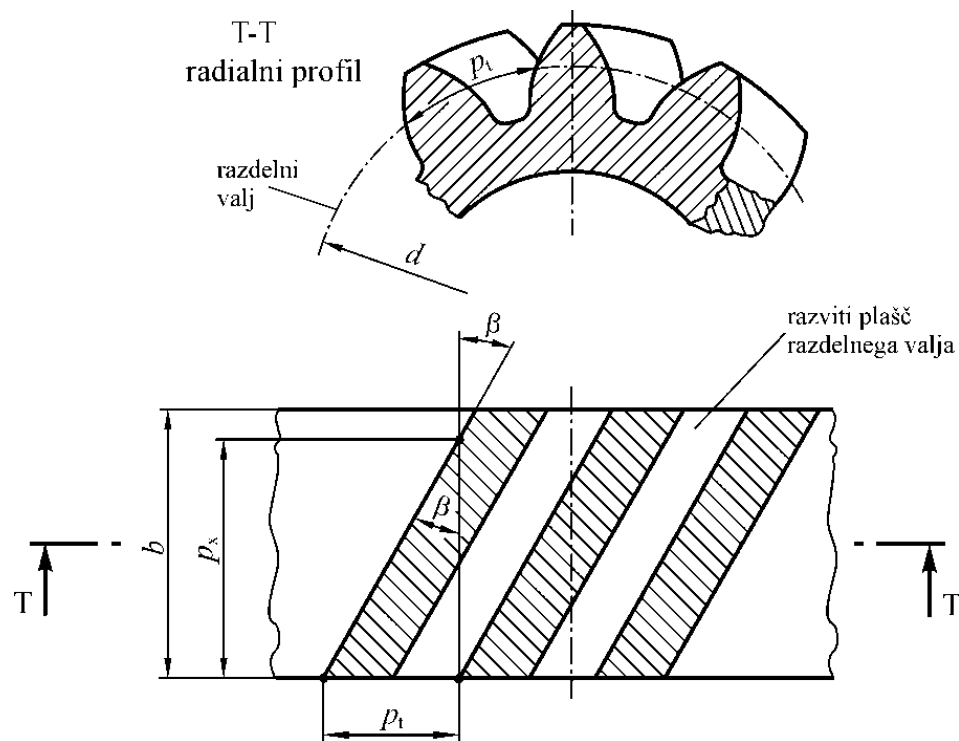


Shematski prikaz ubiranja poševnozobega zobnika



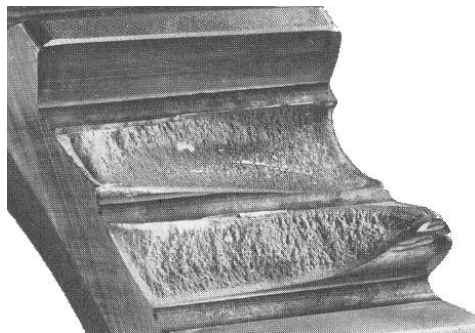


Osni razdelek pri poševnozobem valjastem zobniku

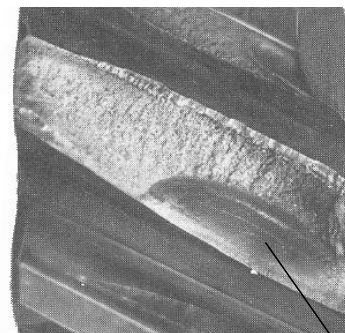




Zlom zoba in jamičenje zobnega boka

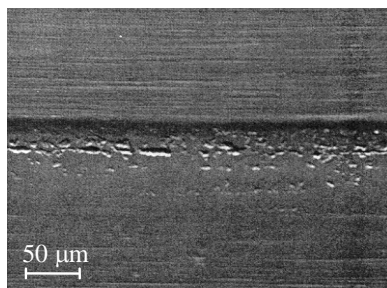


a)



b)

utrujenostna
razpoka



a)



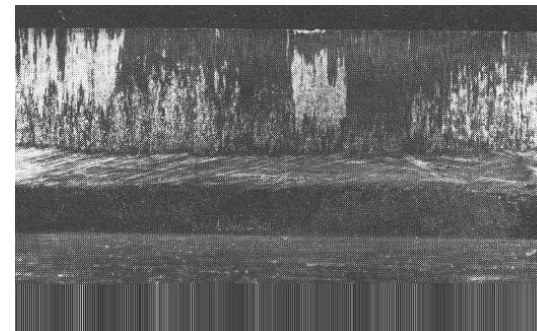
b)



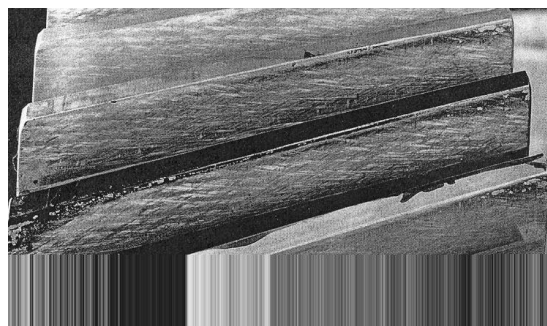
Razjedanje zobnega boka in obraba zobnega boka



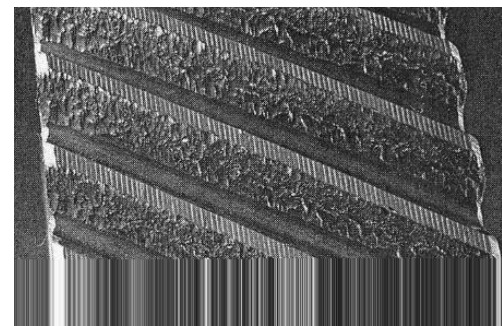
a)



b)



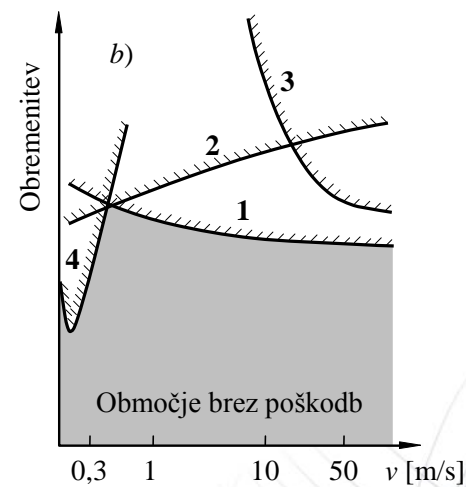
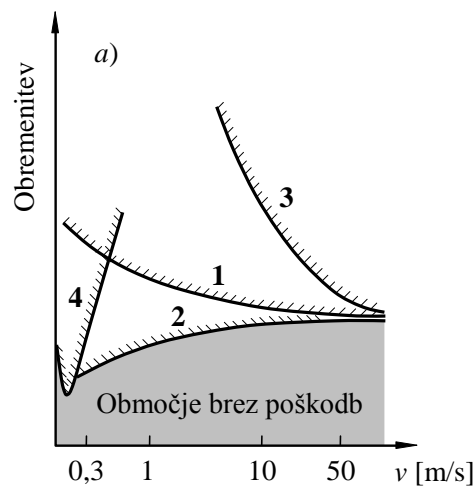
a)



b)



Mejna območja najpogostejših poškodb zobniških dvojic



1- zlom zoba, 2- jamičenje, 3- toplotno razjedanje, 4- obraba