



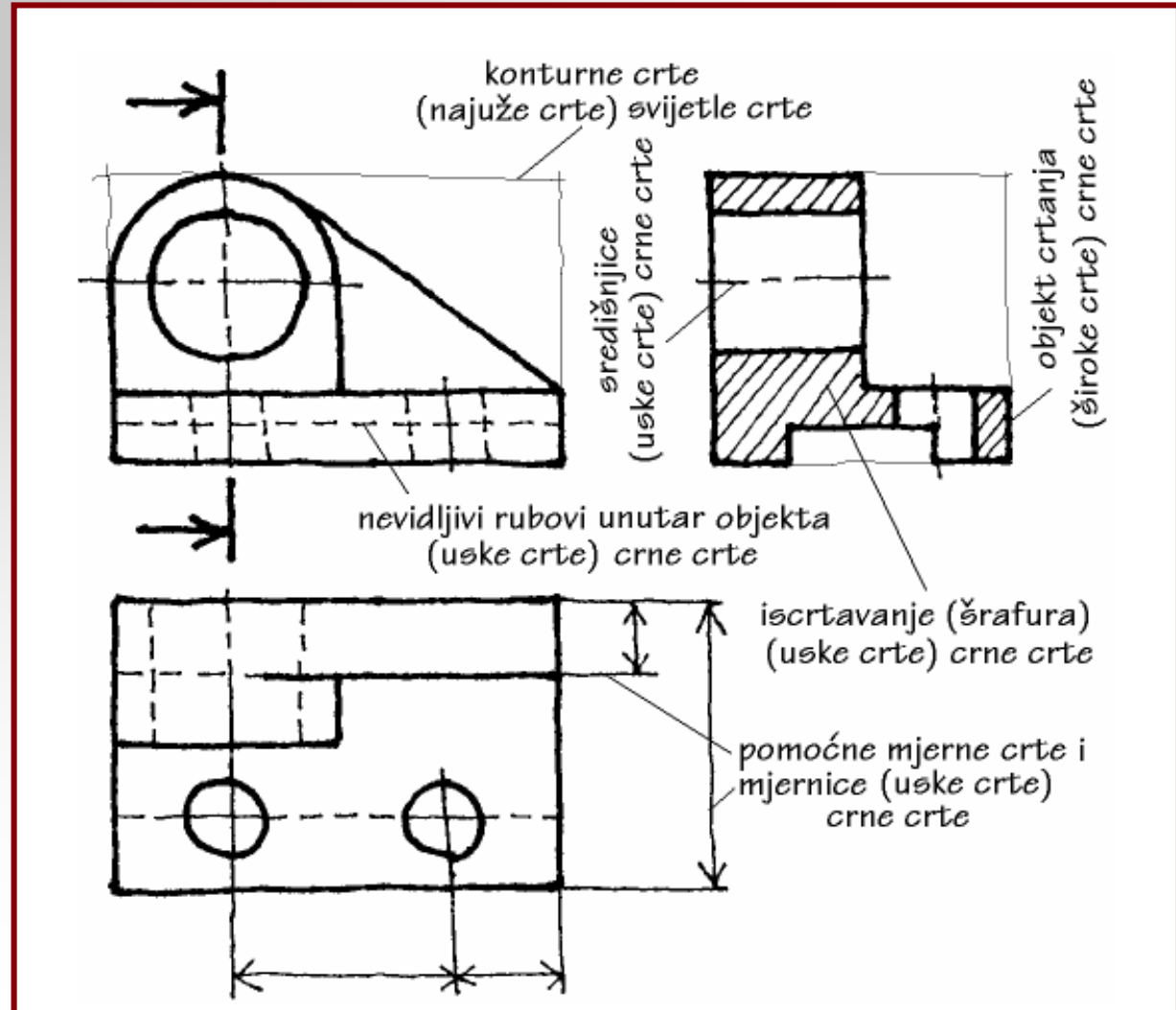
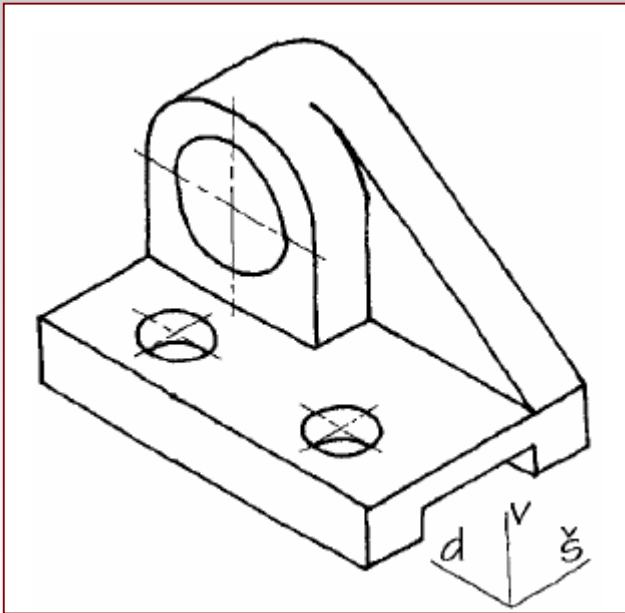
TEHNIČKO CRTANJE

Skiciranje
Pojednostavljeno prikazivanje

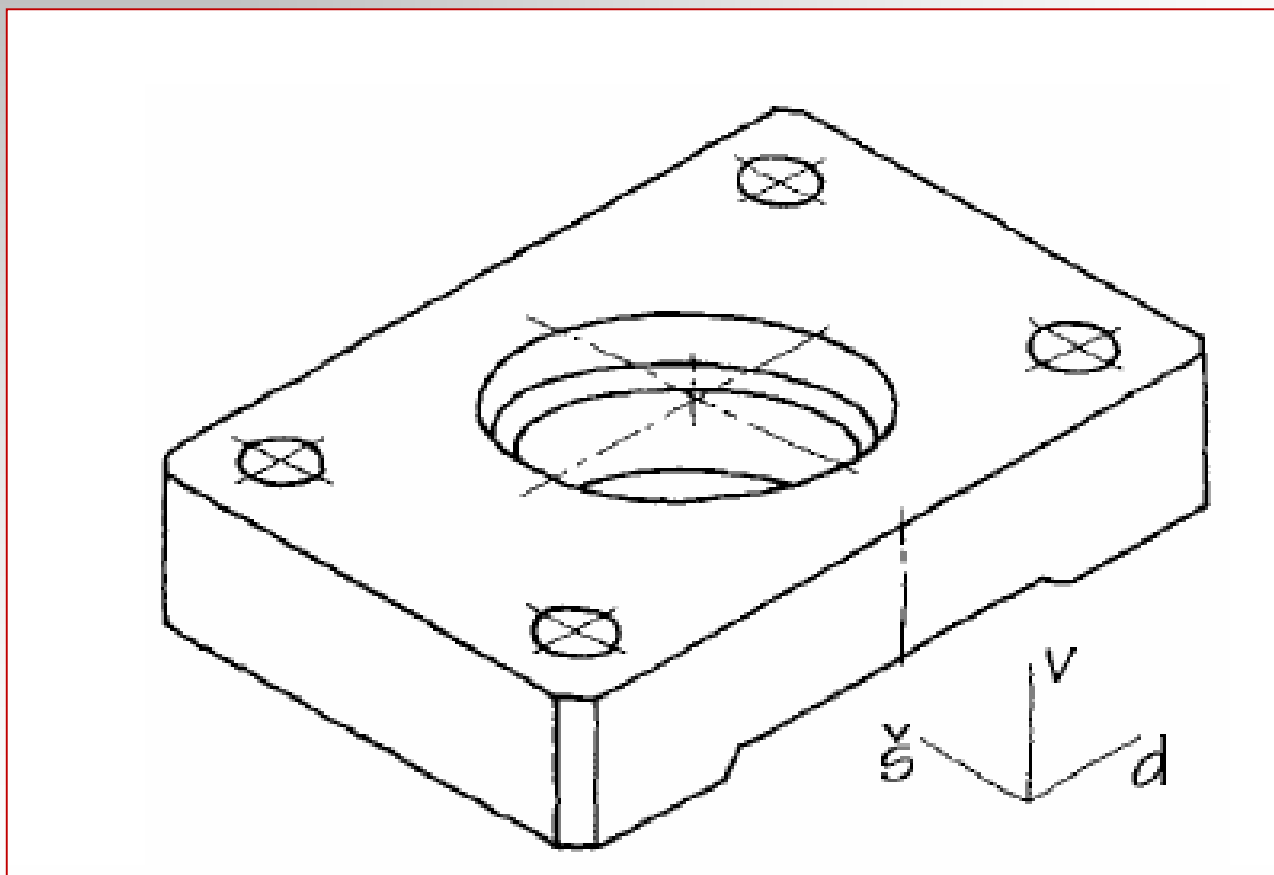
dr Snežana Ćirić Kostić

SKICIRANJE

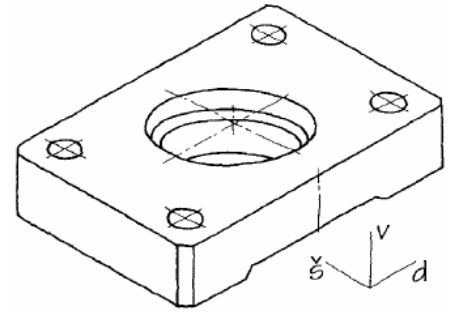
Cilj izrade skice je da se napravi brzo grafičko predstavljanje neke ideje



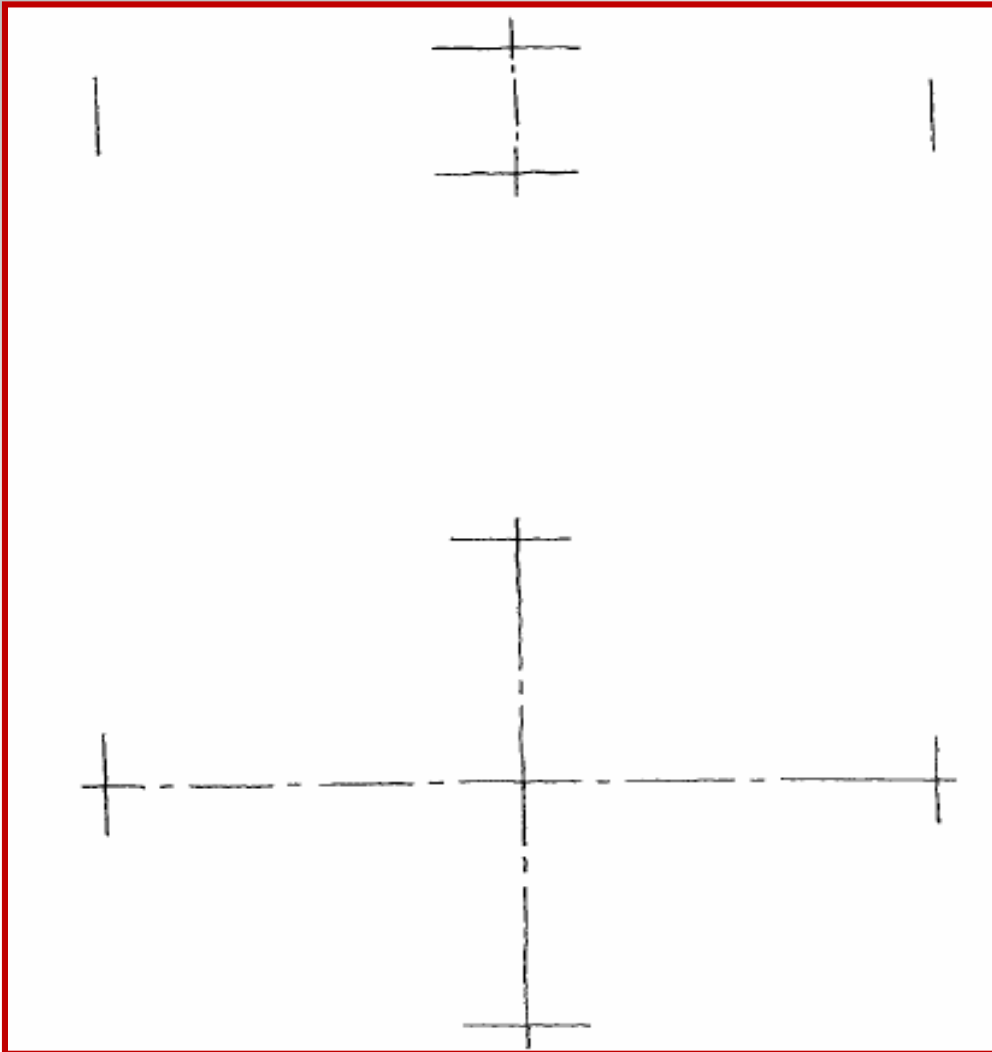
Skica dela u izometriji



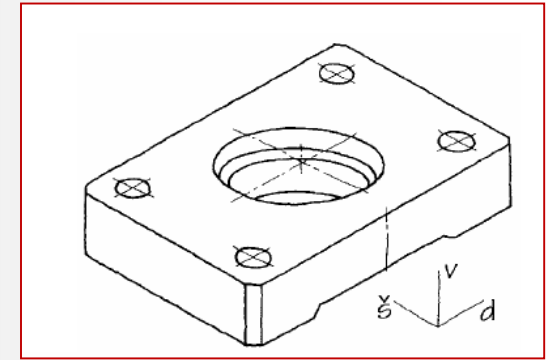
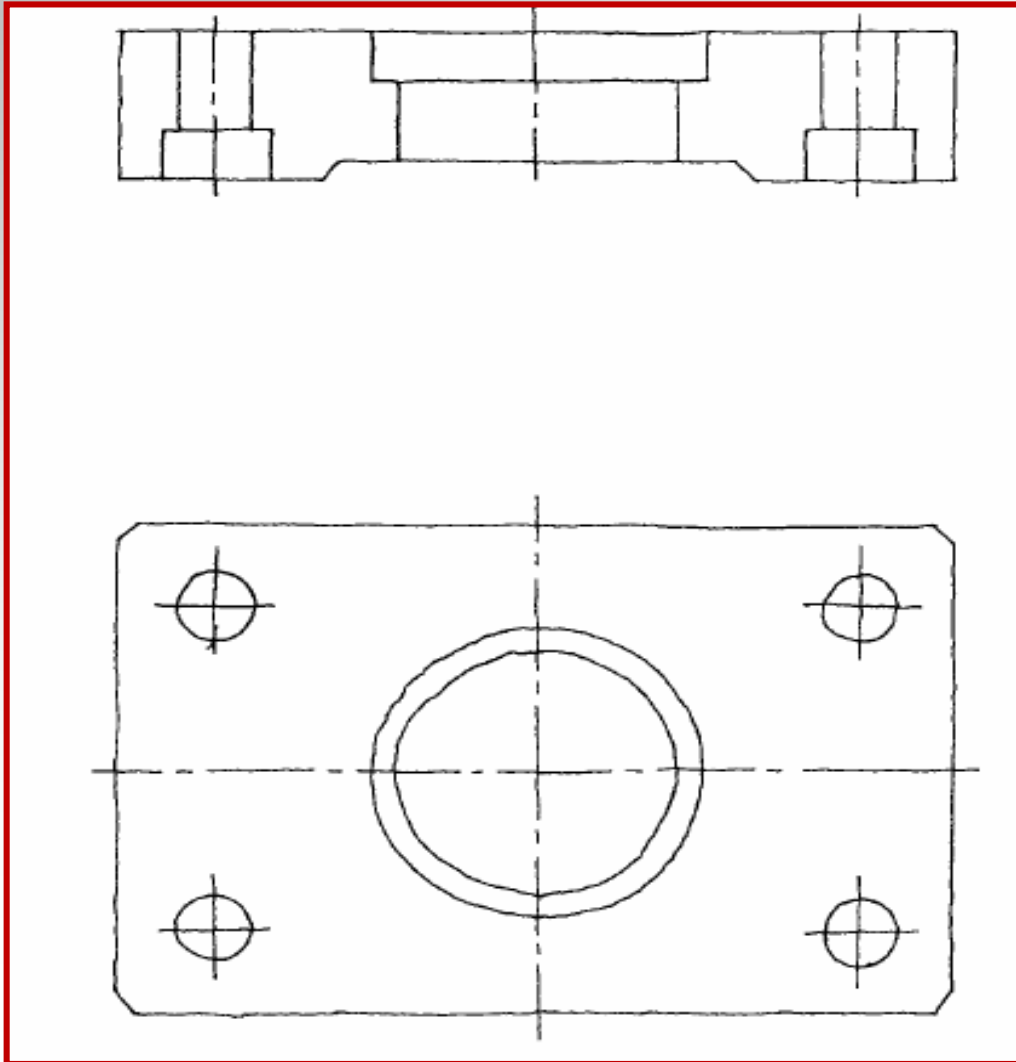
Postupak skiciranja: 1faza: broj projekcija i ose



za domaći

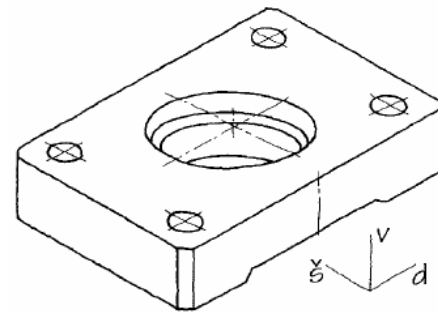


U svakoj projekciji **najpre crtati**
2 faza: Konture najvažnije konture a tek nakon toga detalje

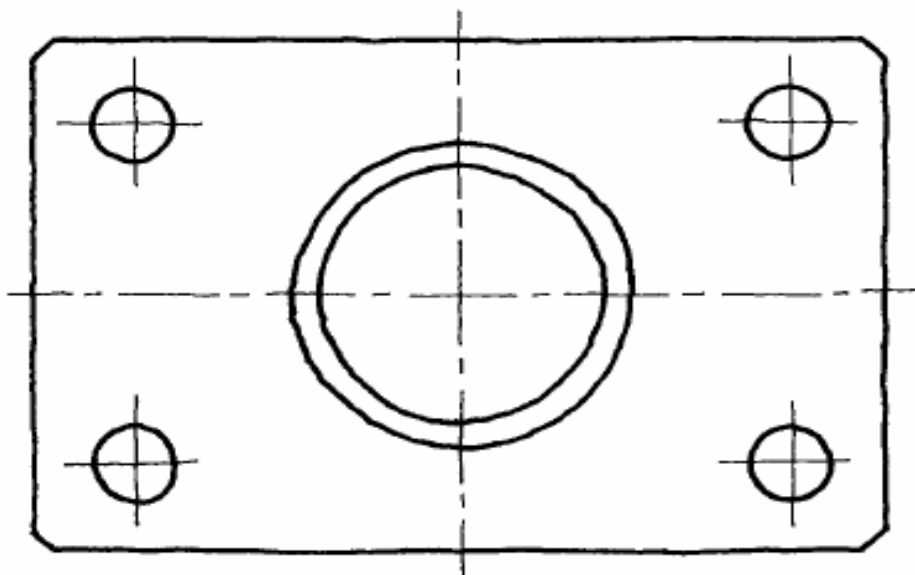
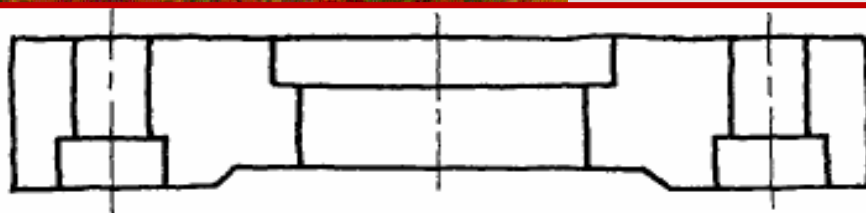


za domaći

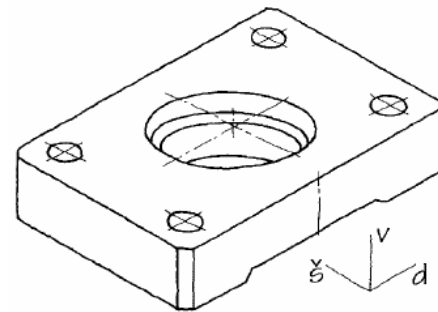
3 faza: Podebljavanje projekcija



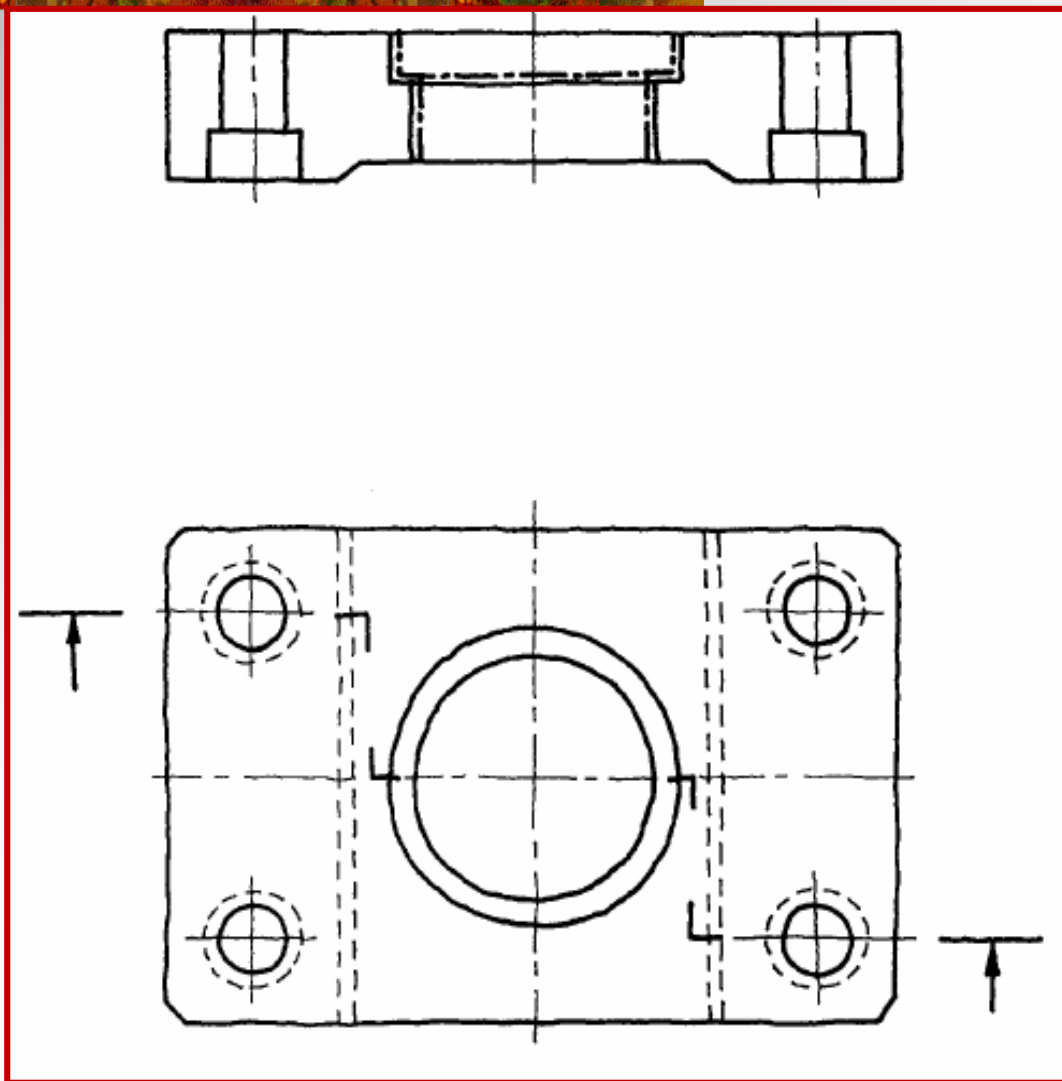
za domaći



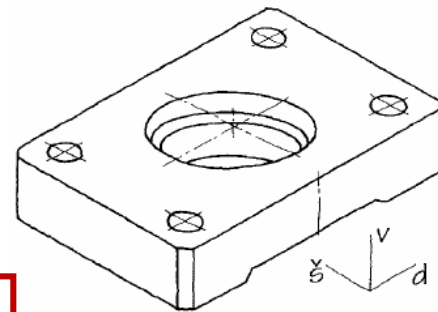
3-1 faza: Crtanje nevidljivih ivica i označavanje preseka



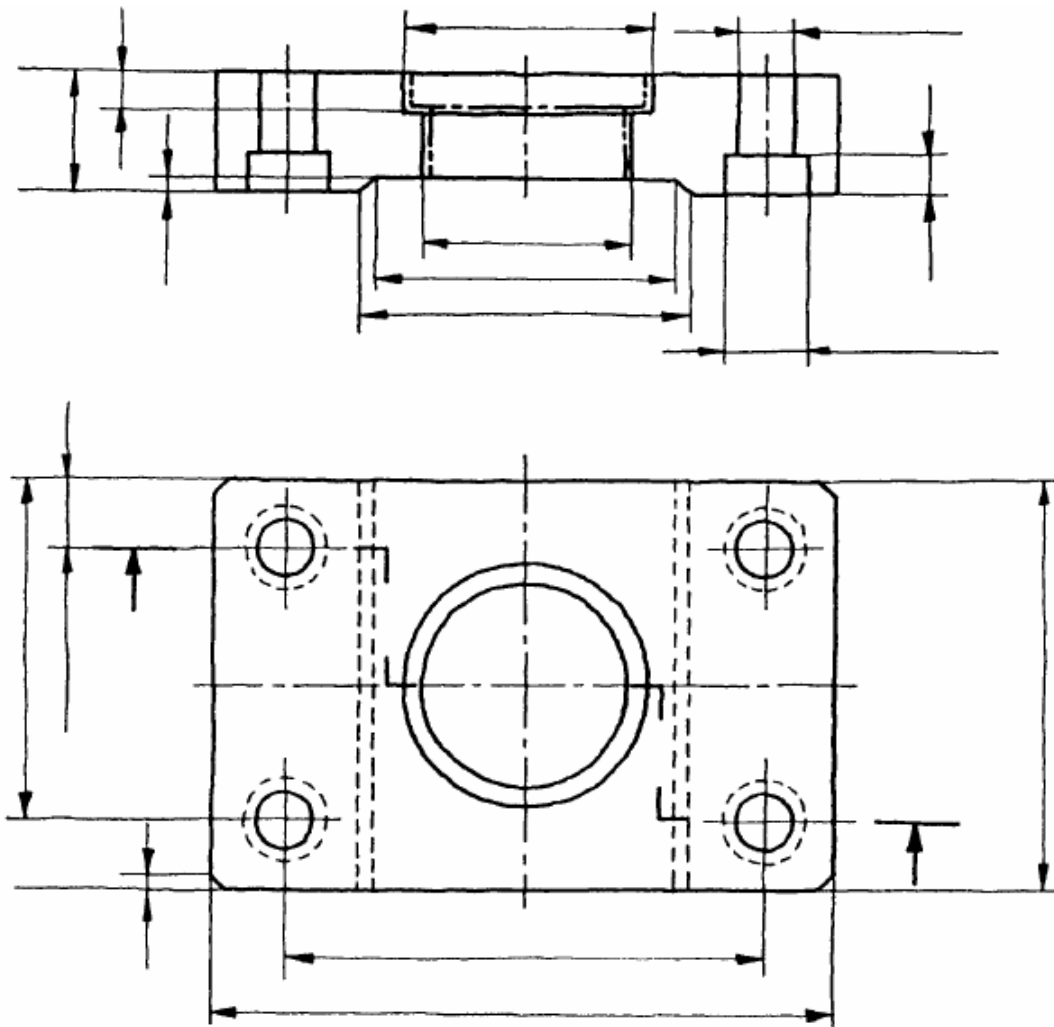
za domaći



4 faza: Kotiranje

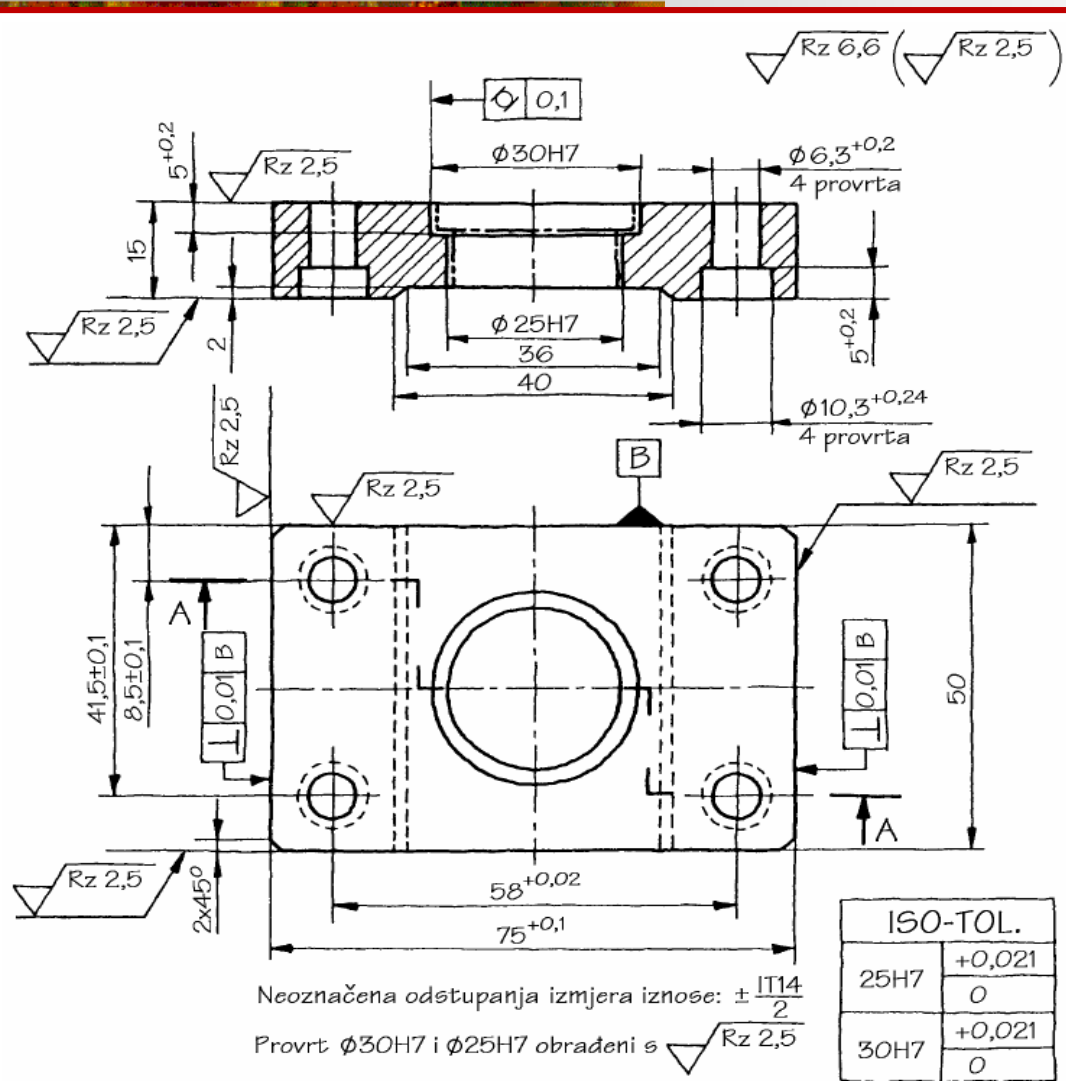


za domači

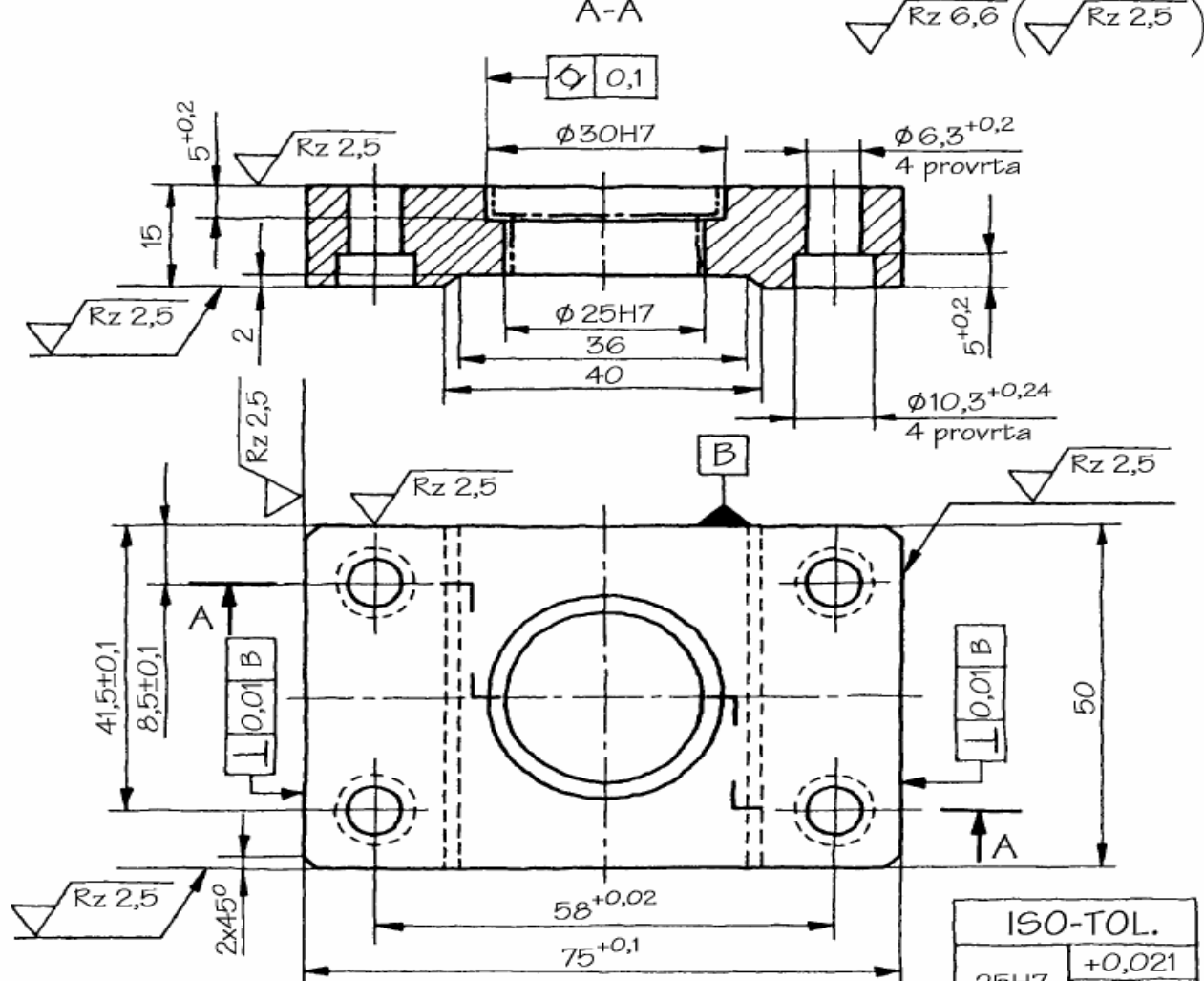


5 faza: Dimenzionisanje, tolerancije, kvaliteti obrade

za domaći



Završna faza: popunjavanje zaglavlja/sastavnice



Materijal: Č4143

Masa: 0,25 kg

Neoznačena odstupanja izmjera iznose: $\pm \frac{IT14}{2}$

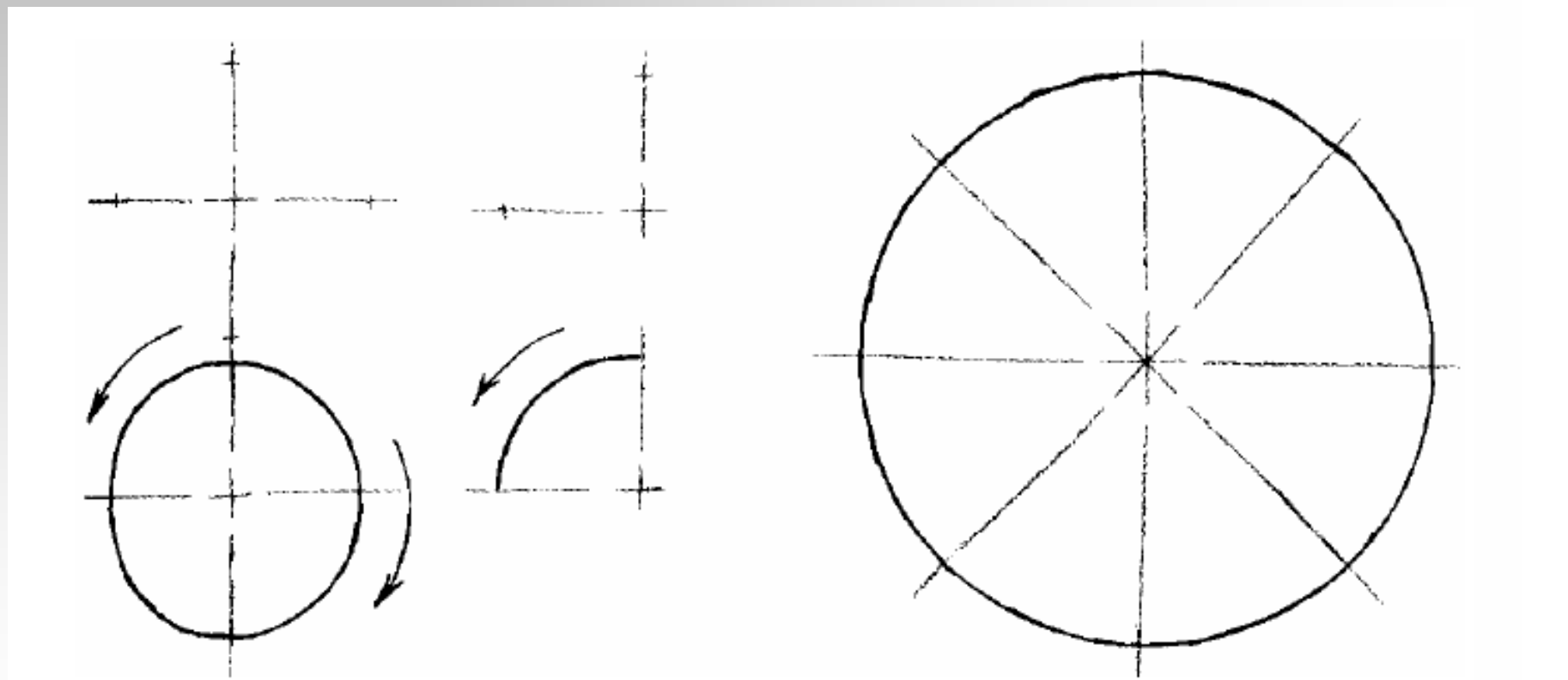
Provrt $\phi 30H7$ i $\phi 25H7$ obradeni s $\sqrt{Rz 2,5}$

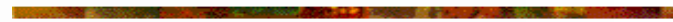
ISO-TOL.	
25H7	+0,021
	0
30H7	+0,021
	0

2.	24.04.02.	1	da	ne		5	
1.	10.04.02.	1	da	ne		5	
Broj vjež.	Datum	Faze rada			Kontrola	Ocjena	Primjedba
		Poz.	Ortog.	Prost.			
FSB Zagreb a.g. 2001./02.					Antun Antunović		Grupa: B
							Listova: 5
							Liet: 3

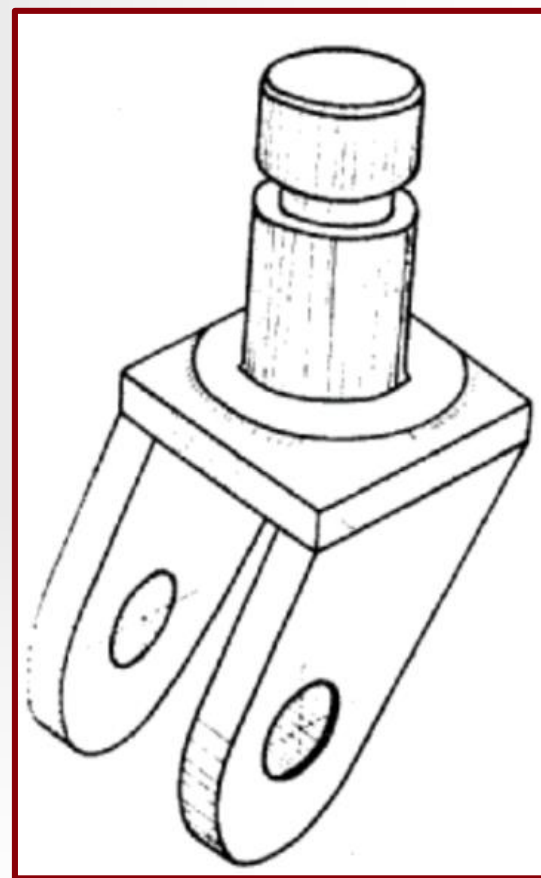
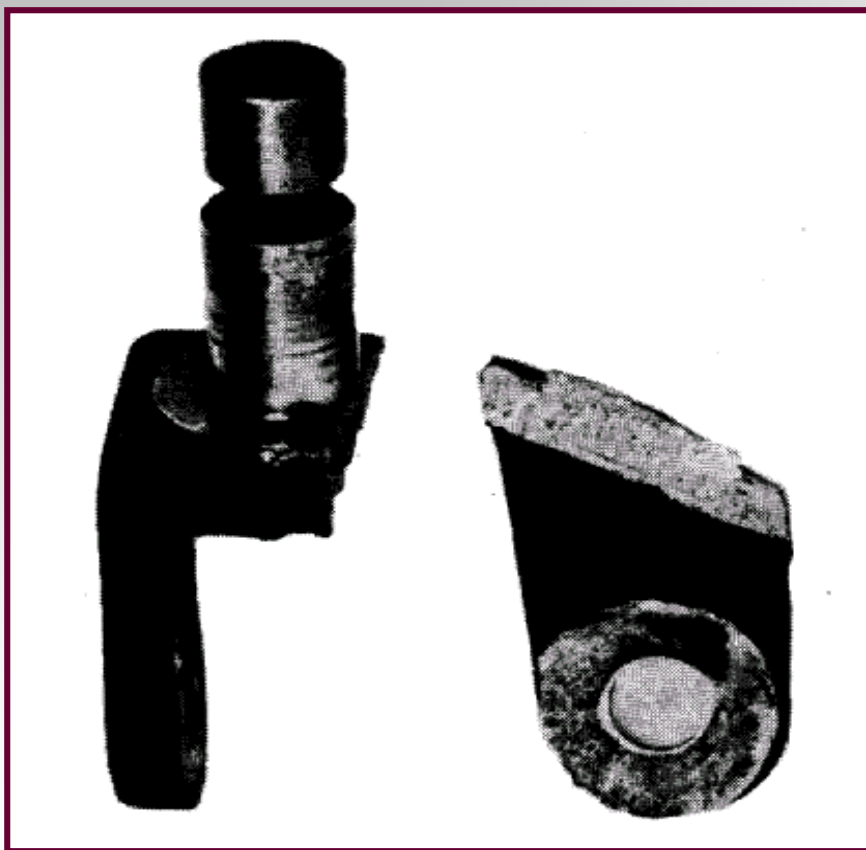
DONJA PLOČA

Postupak skiciranja kružnice



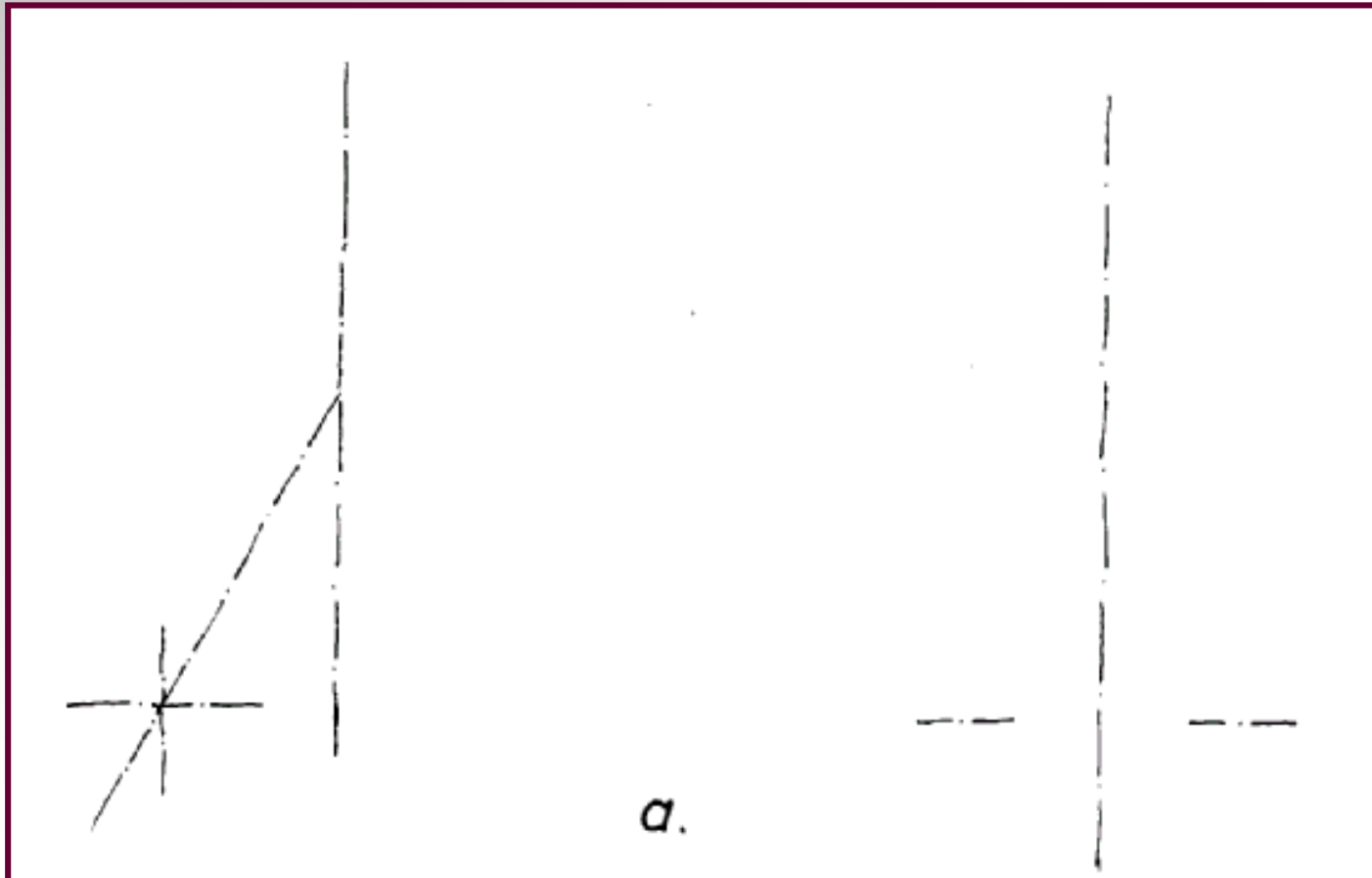
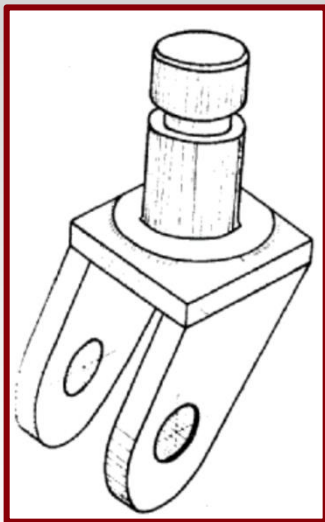


Polomljeni mašinski deo- snimanje dela



Postupak skiciranja: 1faza: broj projekcija i ose

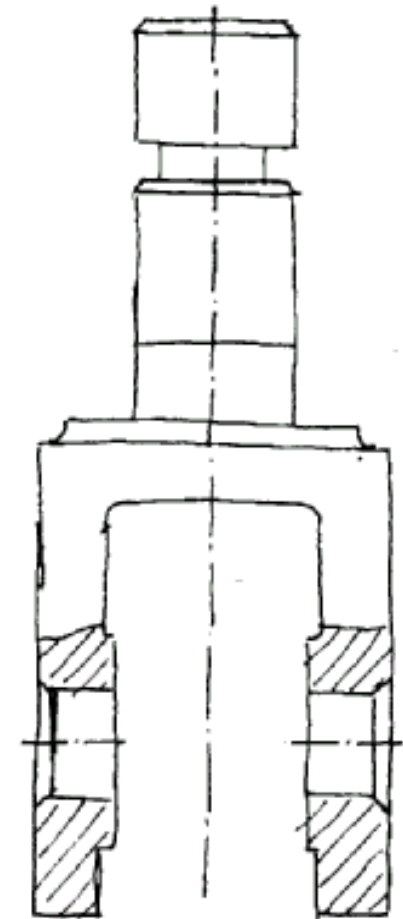
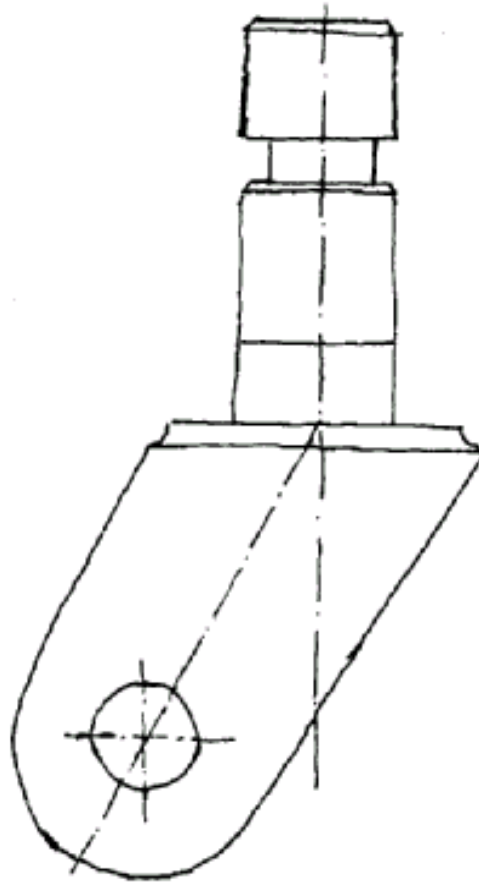
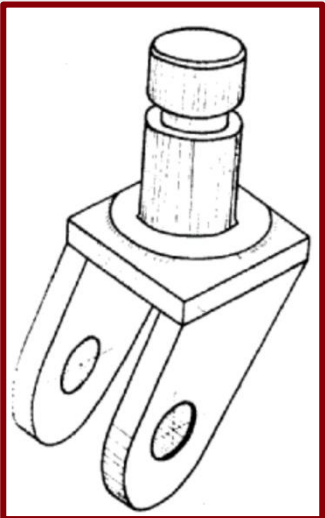
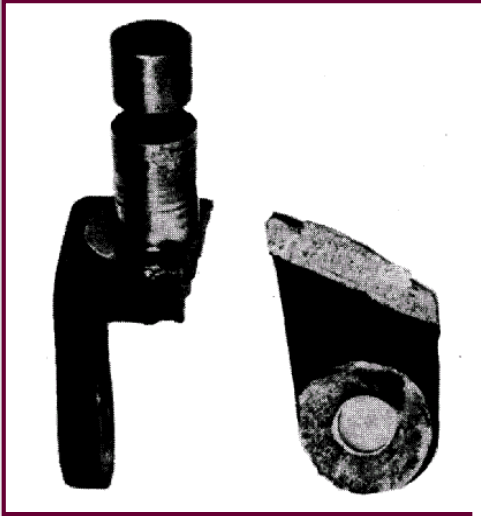
za domaći



2 faza: Konture

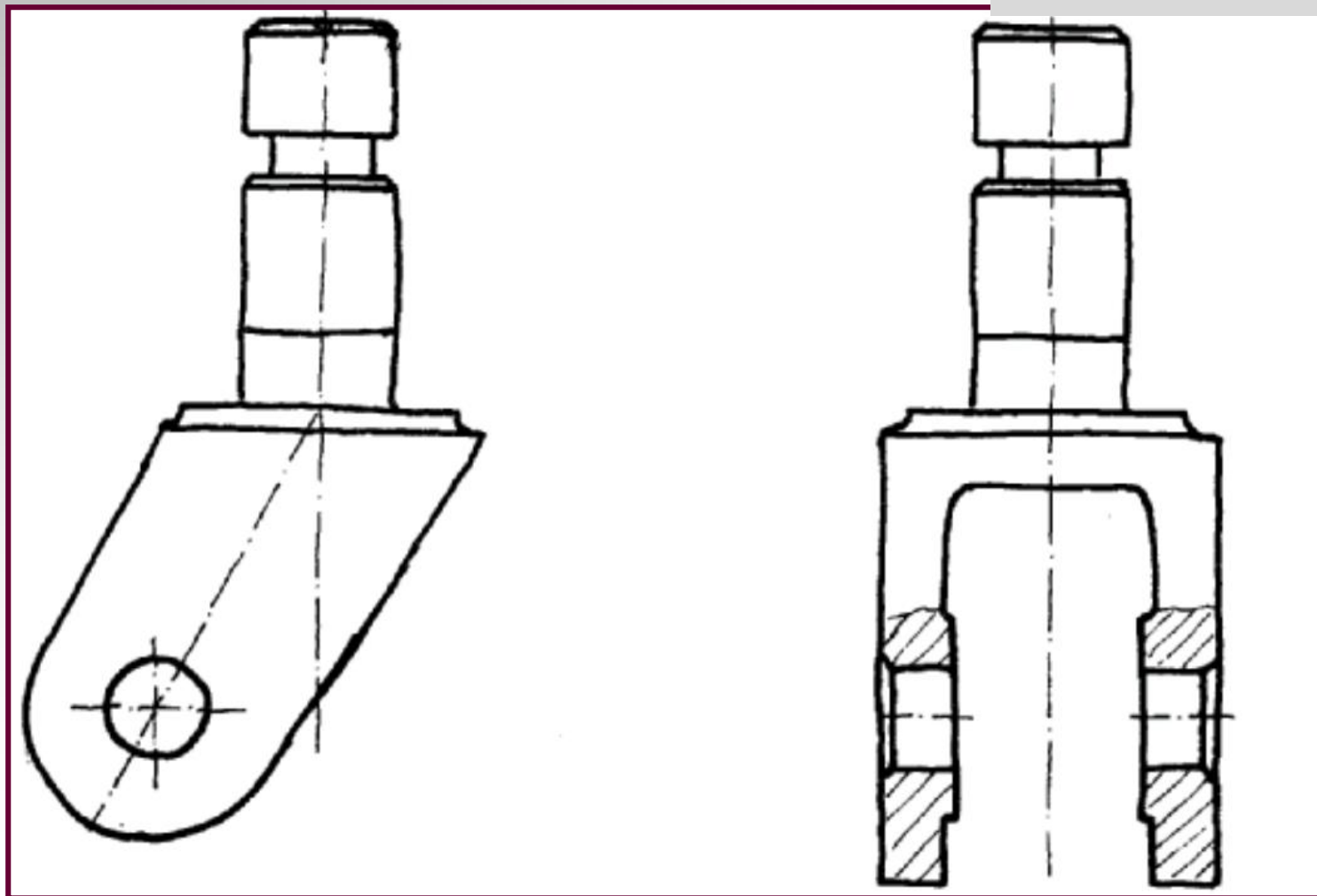
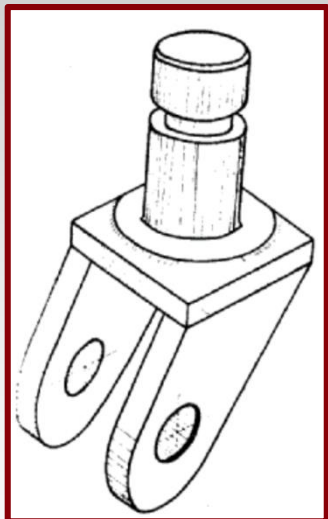
U svakoj projekciji najpre crtati najvažnije konture a tek nakon toga detalje

za domaći



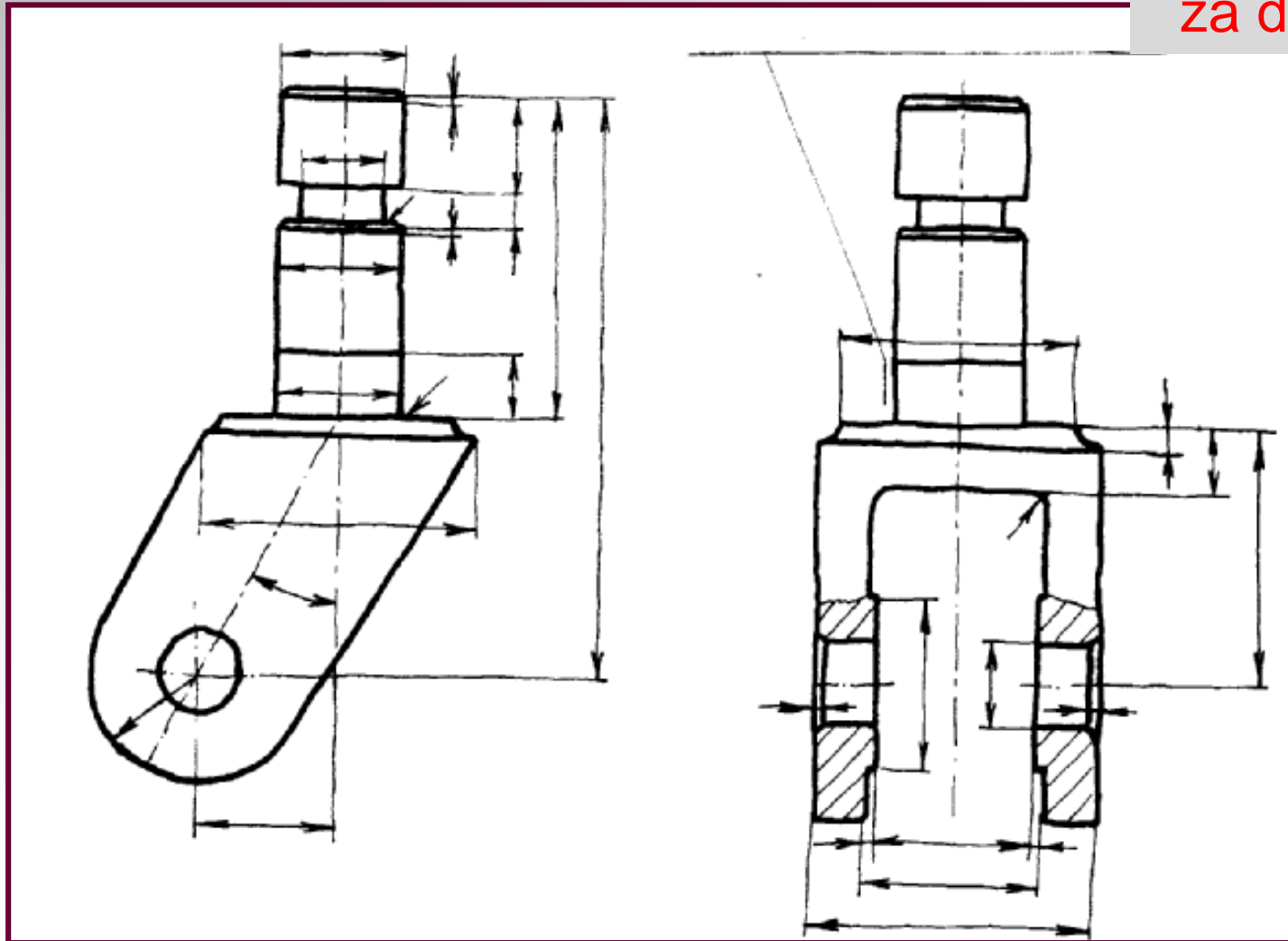
3 faza: Podebljavanje projekcija

za domaći



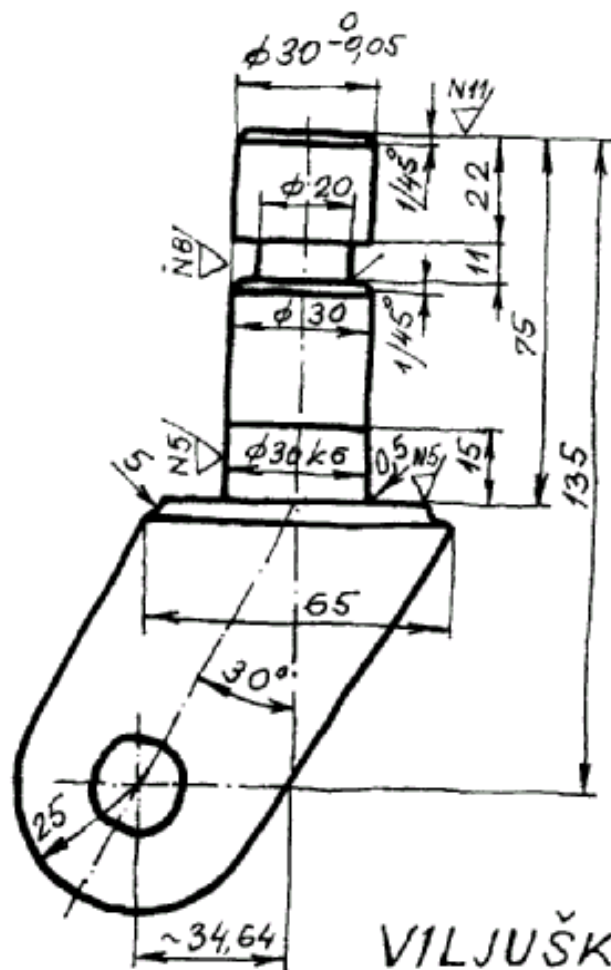
4 faza: Kotiranje

za domaći



5 faza:

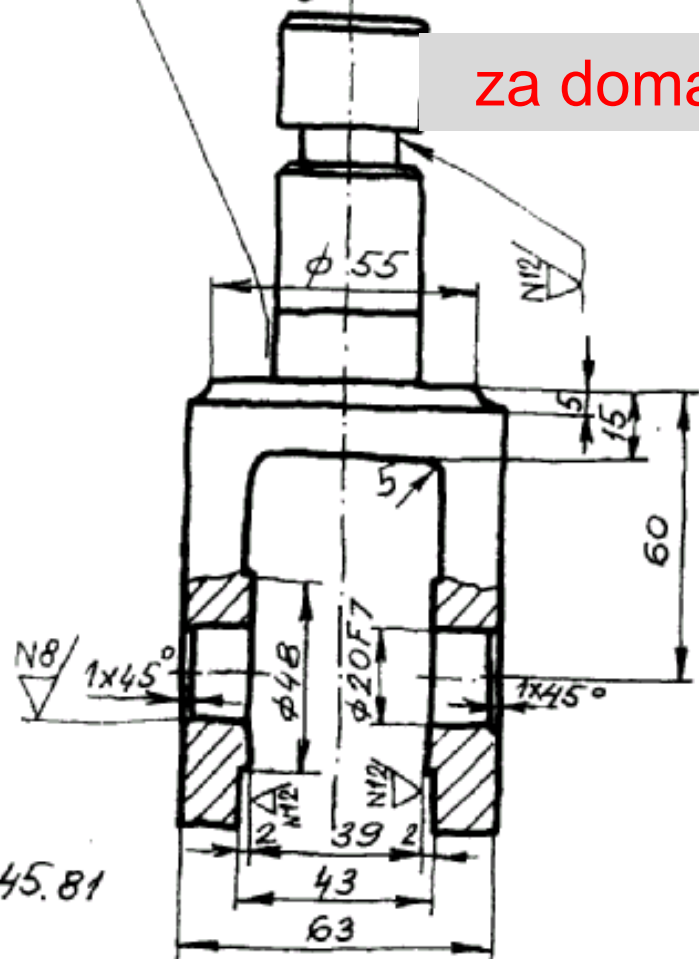
Dimenzionisanje, tolerancije, kvaliteti obrade



VILJUŠKA
materijal ČL45.81
komada : 1
28. IV 1975

Nabiti aksijalni ležajskf
br. 51206

za domaći

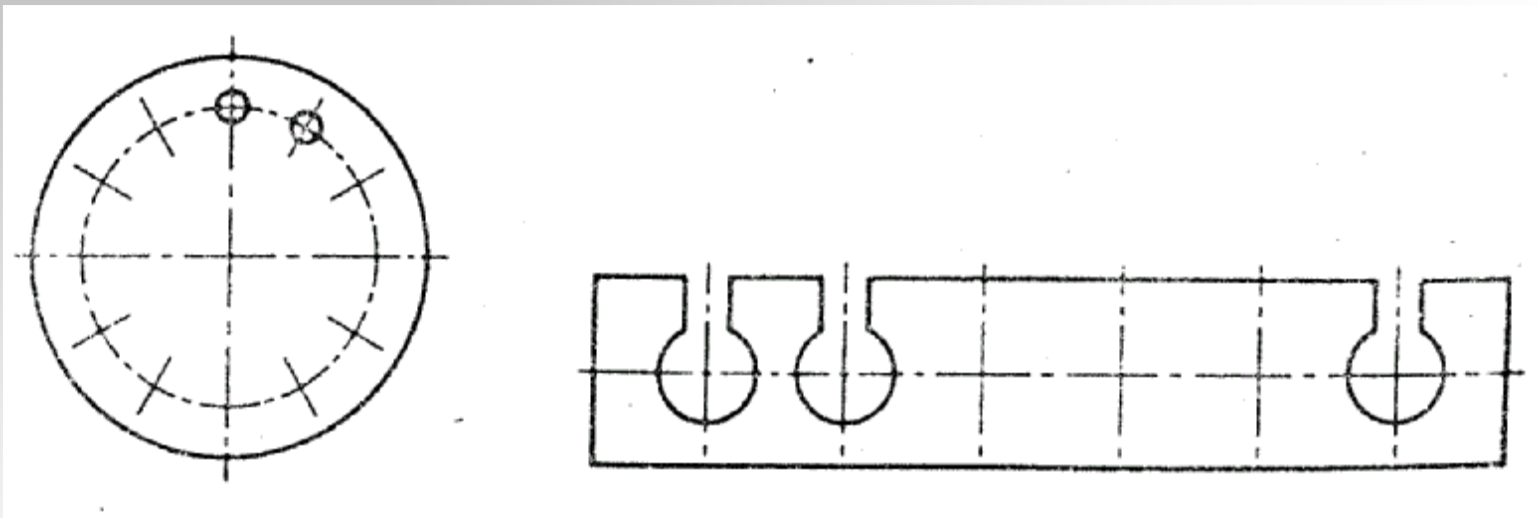


D. Zupjsek

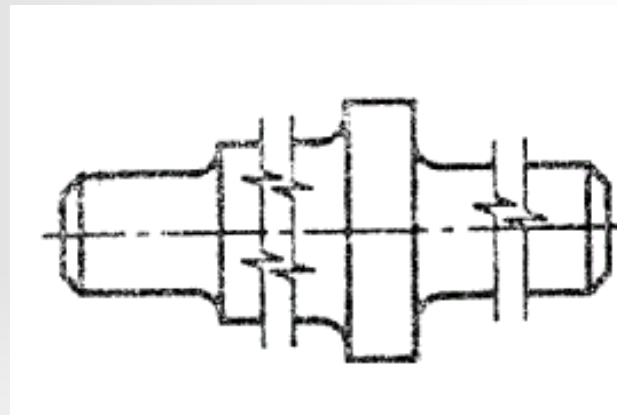
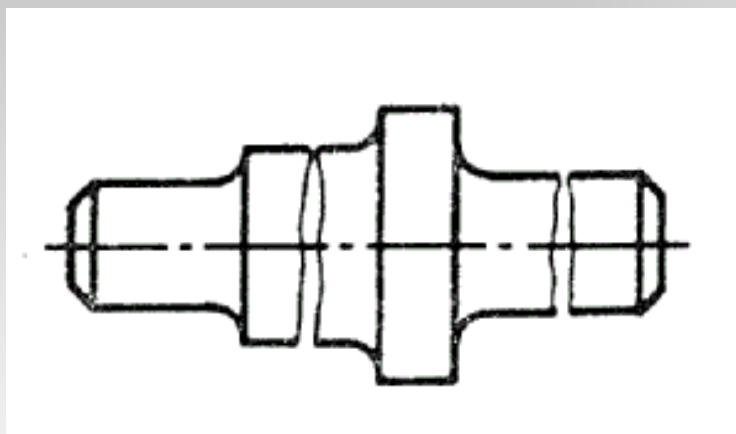
Navojni spojevi

POJEDNOSTAVLJENO PRIKAZIVANJE

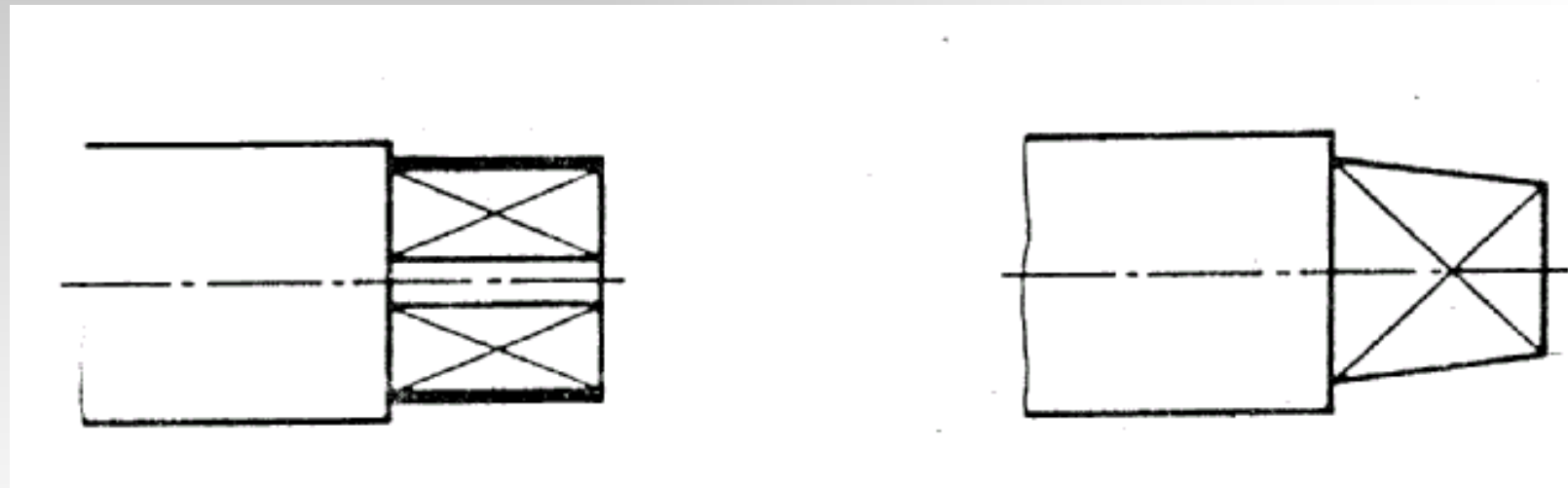
Uprošćeno crtanje



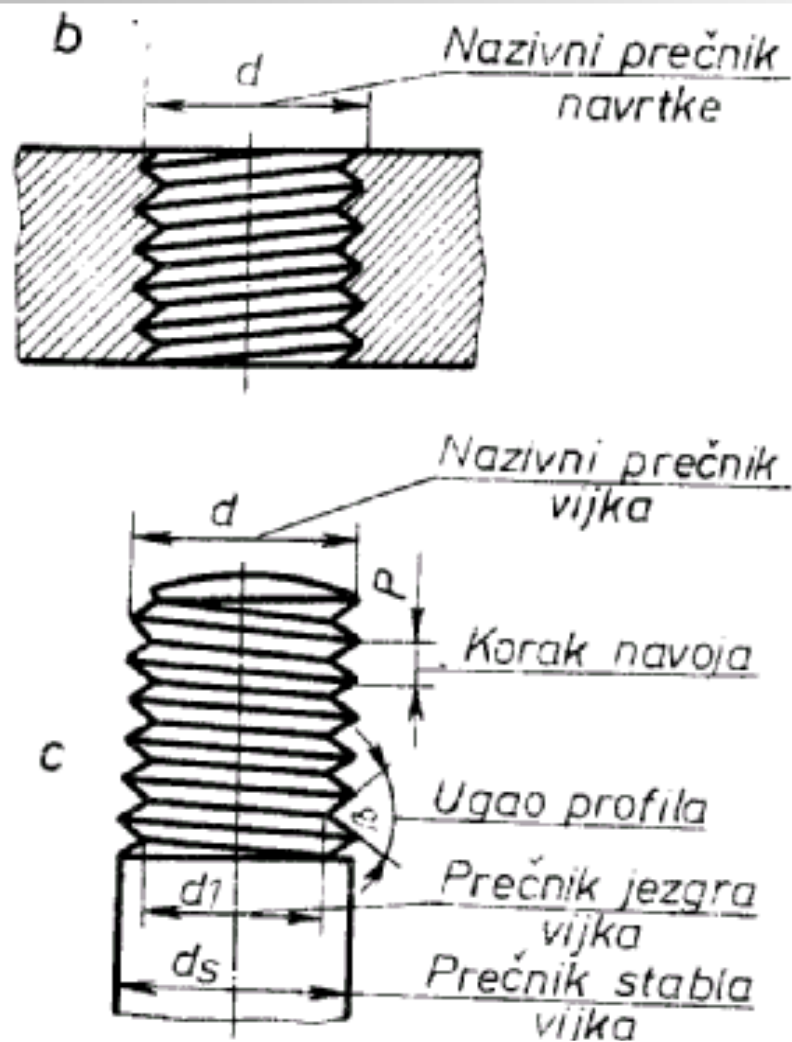
Skraćenja



Označavanje ravnih površina

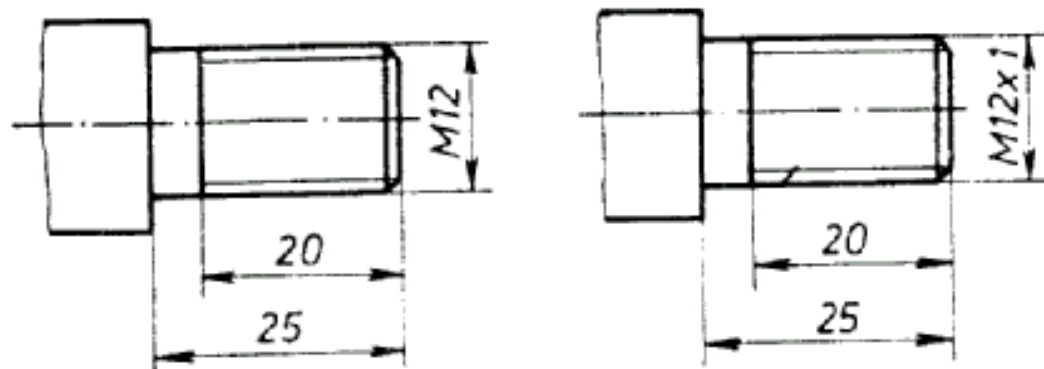


Elementi navoja

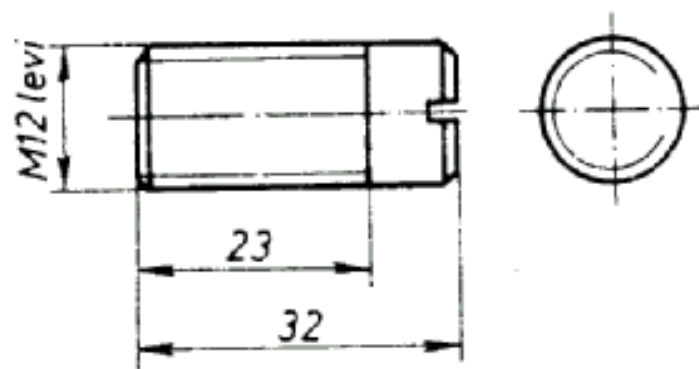


Crtanje, kotiranje i označavanje navoja

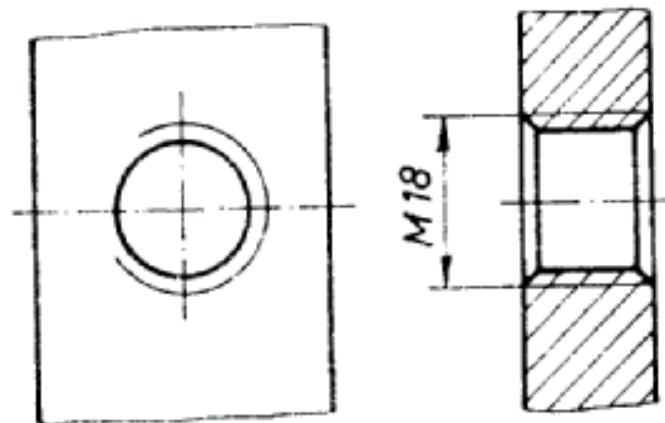
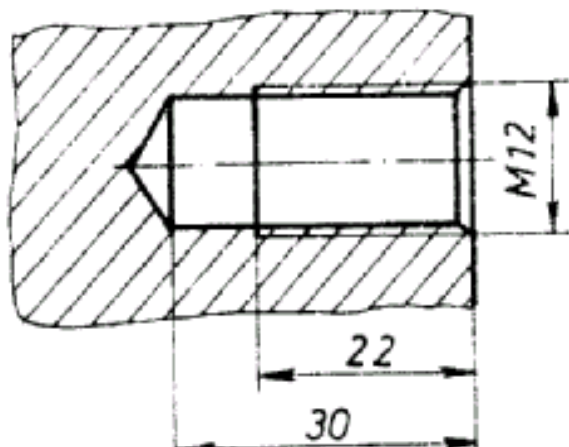
a. Metrički krupni i fini navoj



b. Metrički levi navoj



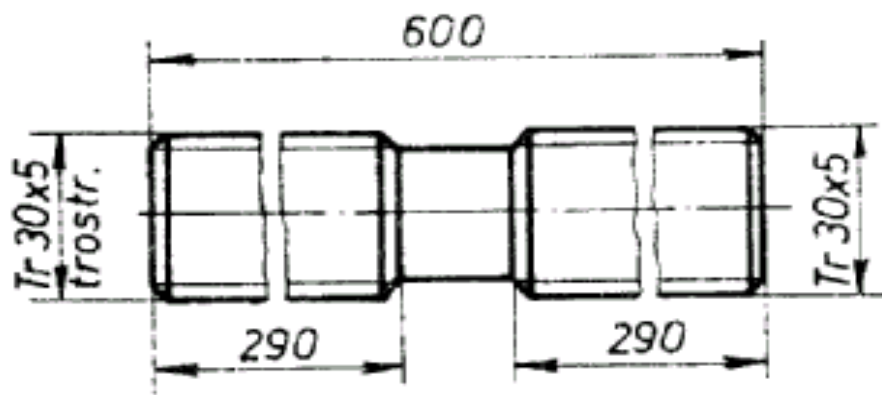
c. Metrički navoj u rupi



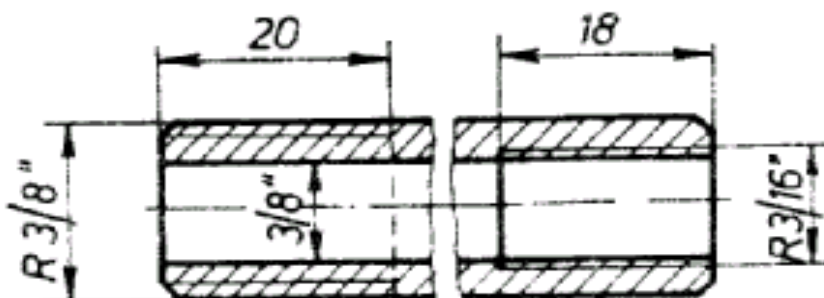
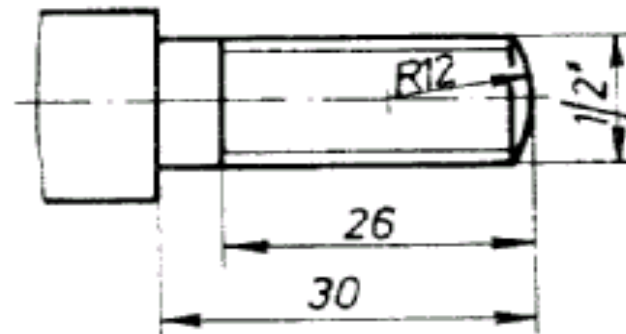
d. Metrički navoj u otvoru

Vrste navoja i označavanje

a. Trapezni navoj

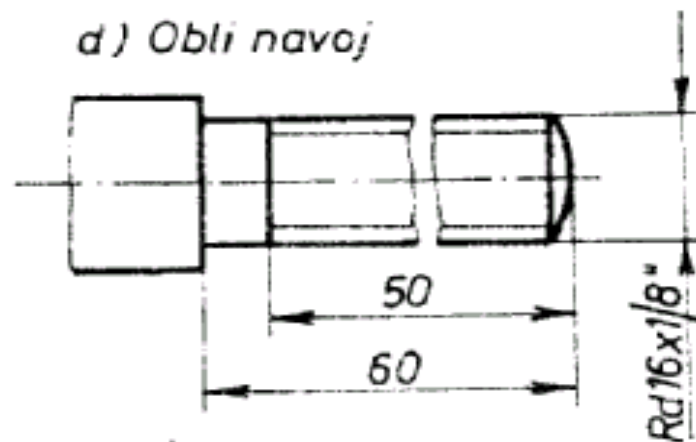


b. Vitvortov navoj



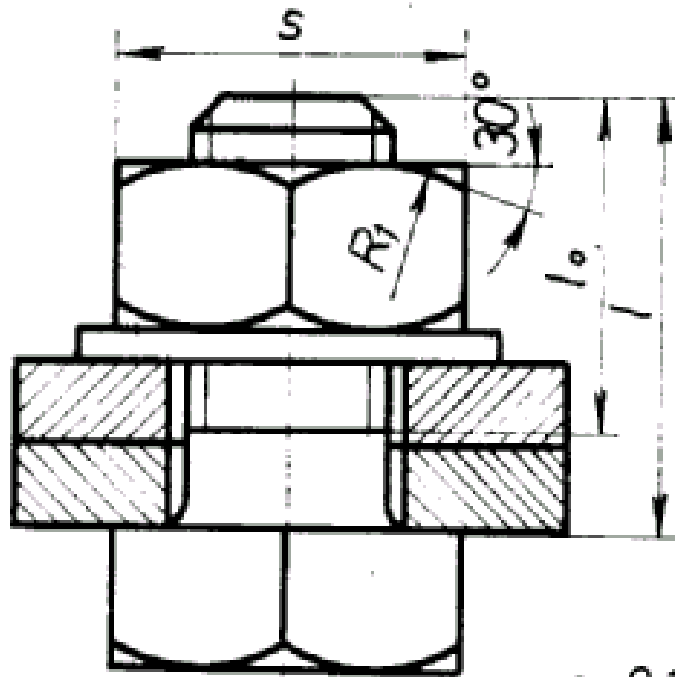
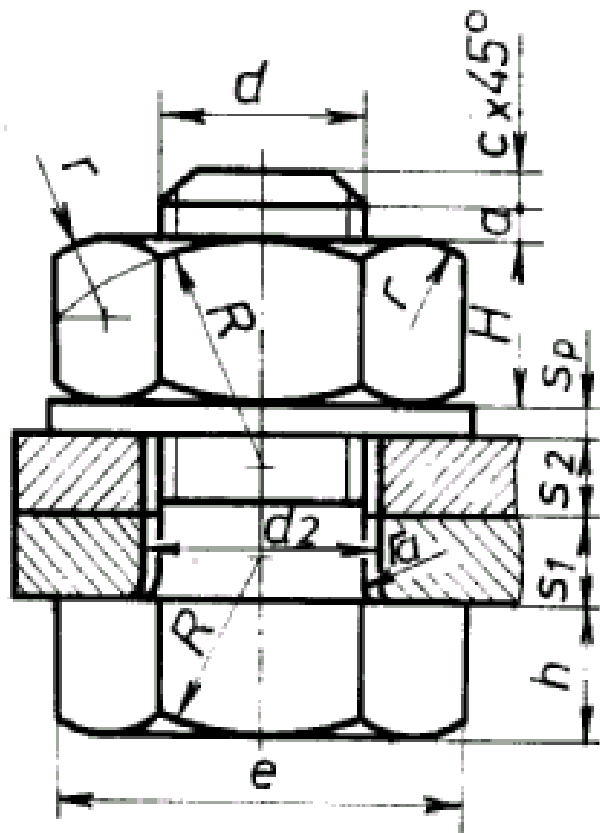
c. Cevni navoj

d) Obli navoj



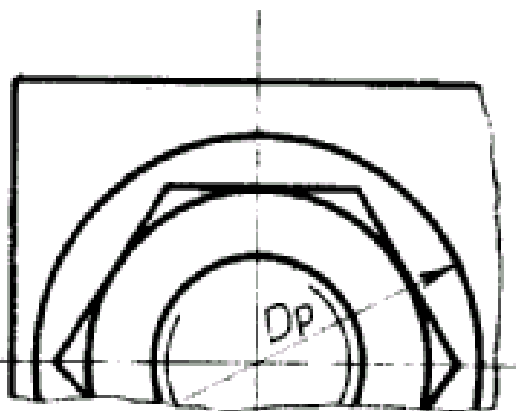
$R\ 3/8"$ je nazivni prečnik spoljašnjeg navoja izrađenog na cevi čiji je unutrašnji prečnik $3/8"$

za domaći



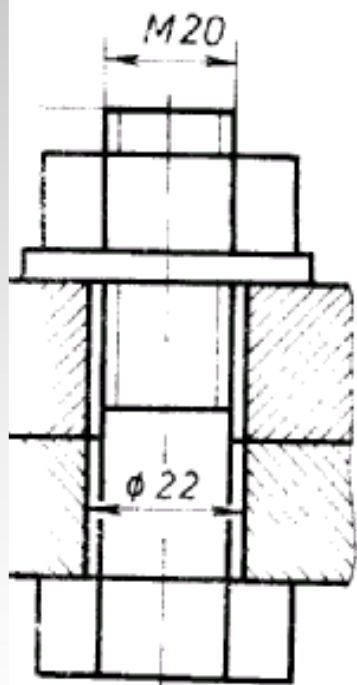
$$\begin{aligned} e &= 2d \\ H &= 0,8d \\ h &= 0,7d \\ R &= 1,5d \\ R_1 &= d \\ d_2 &= 1,05 \div 1,1d \\ r_a &= 1,5 \div 3 \text{ mm.} \end{aligned}$$

$$\begin{aligned} c &= 0,12d \\ S_p &= 0,15d \\ a &= 0,25 \div 0,5d \\ l_0 &= 2d + 6 \text{ mm. za } l \leq 150 \text{ mm.} \\ &= 2d + 12 \text{ mm. za } l \geq 150 \text{ mm.} \\ l &= S_1 + S_2 + S_p + H + a + c \\ r &= \text{određuje se} \end{aligned}$$

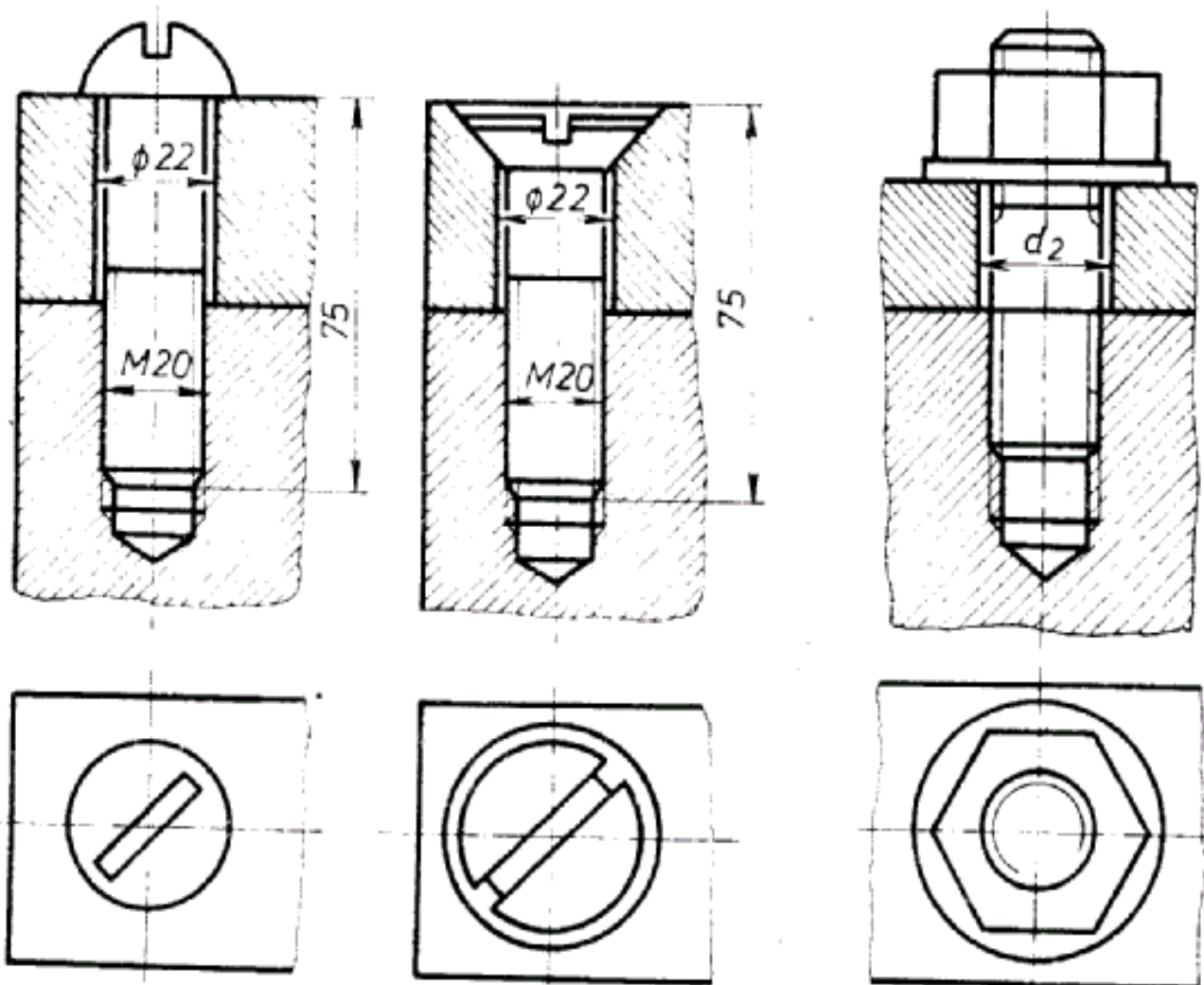


Vijčane veze

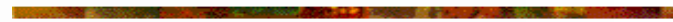
za domaći



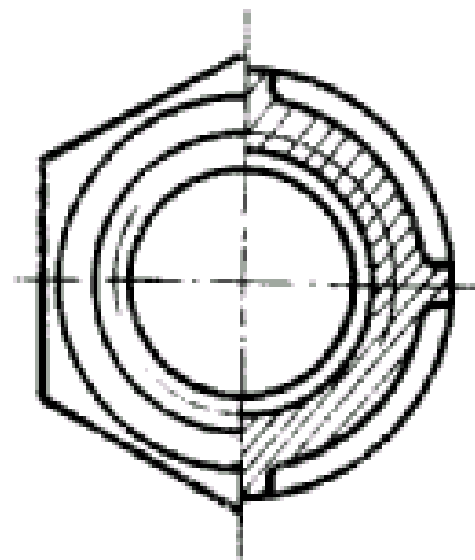
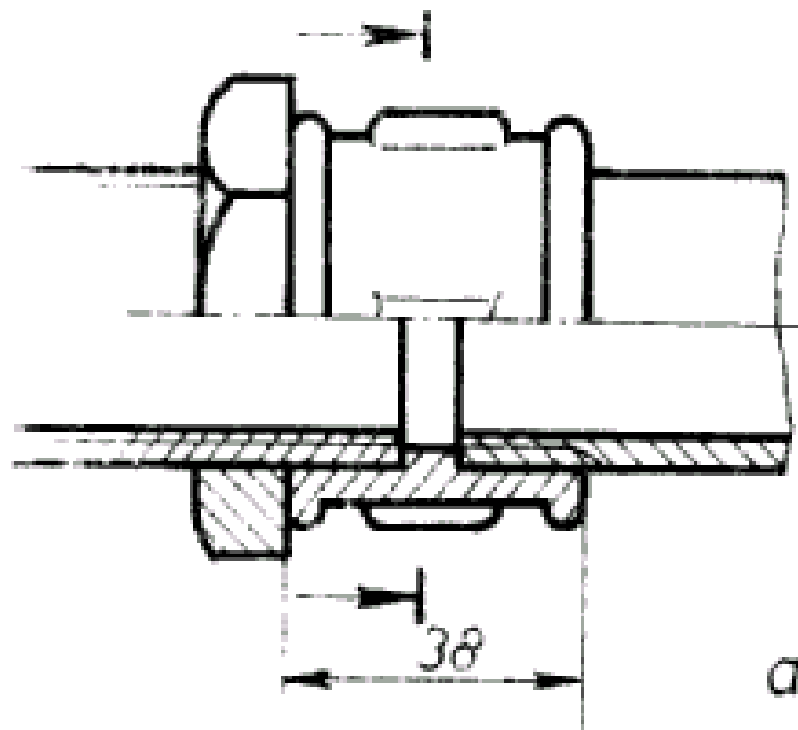
C11.8 Čvrsta razdvojiva
- uprošćeno nacrtana



Slika C11.9 Čvrsta razdvojiva veza različitim vijcima



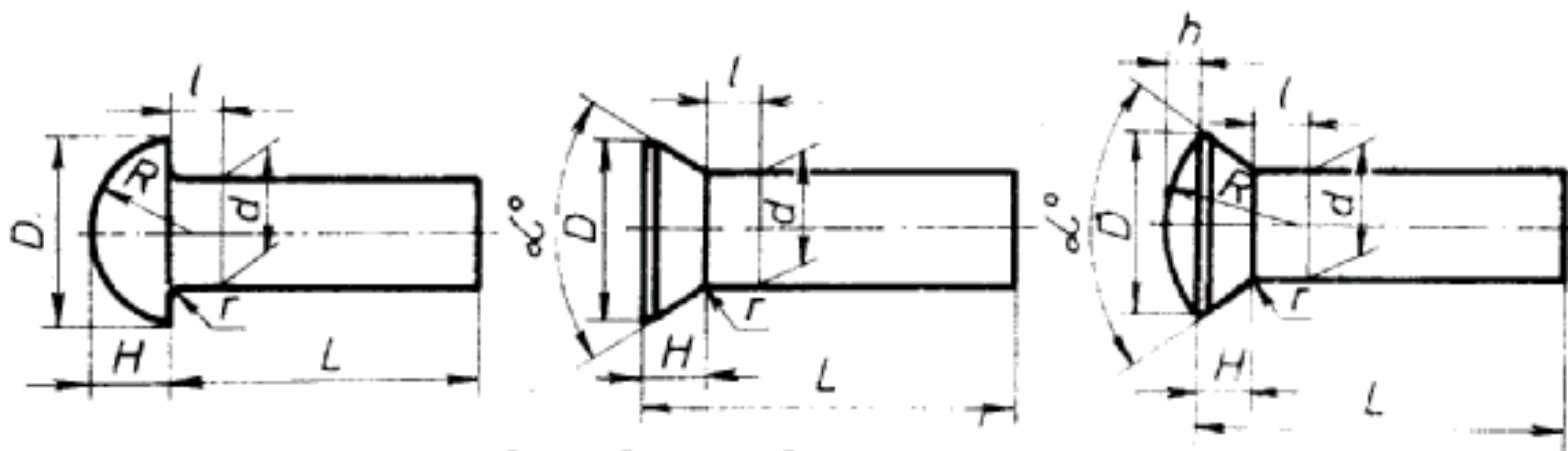
Cevni spoj



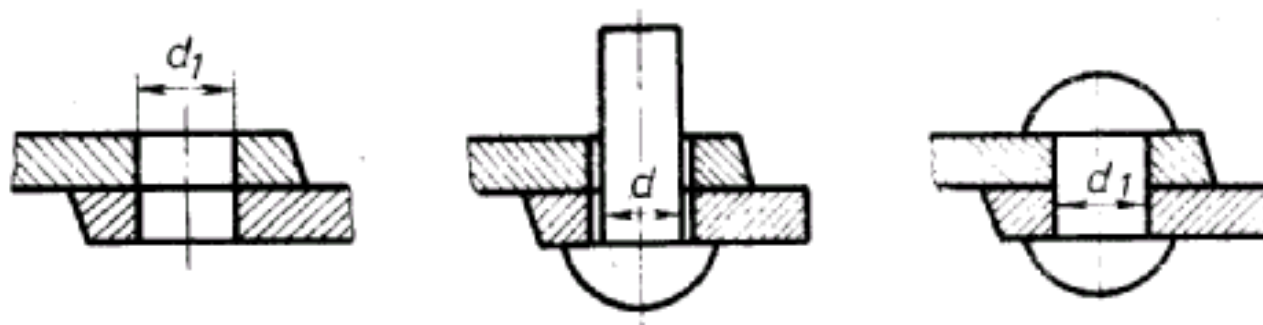
Zakovice

POJEDNOSTAVLJENO PRIKAZIVANJE

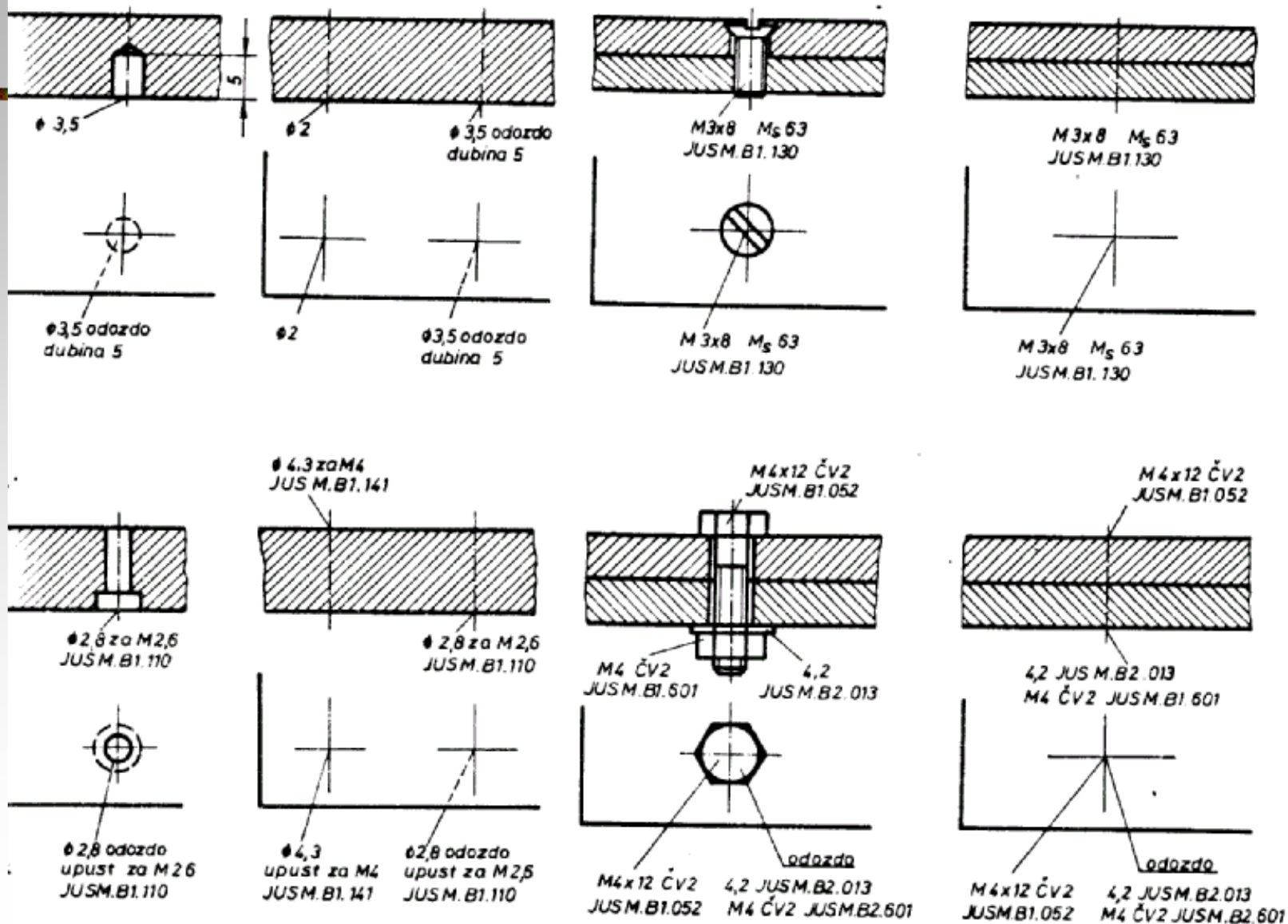
Zakovice i zakivanje



Slika C11.12 Oblici zakivaka



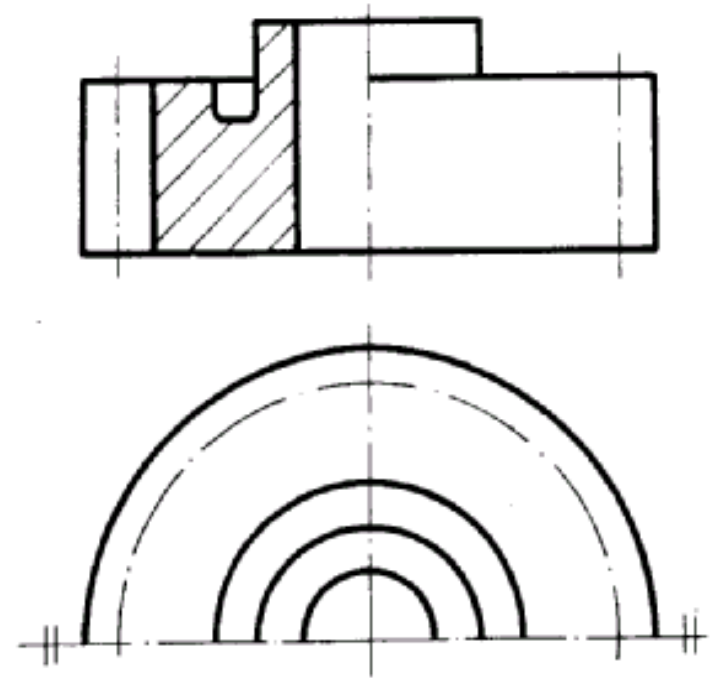
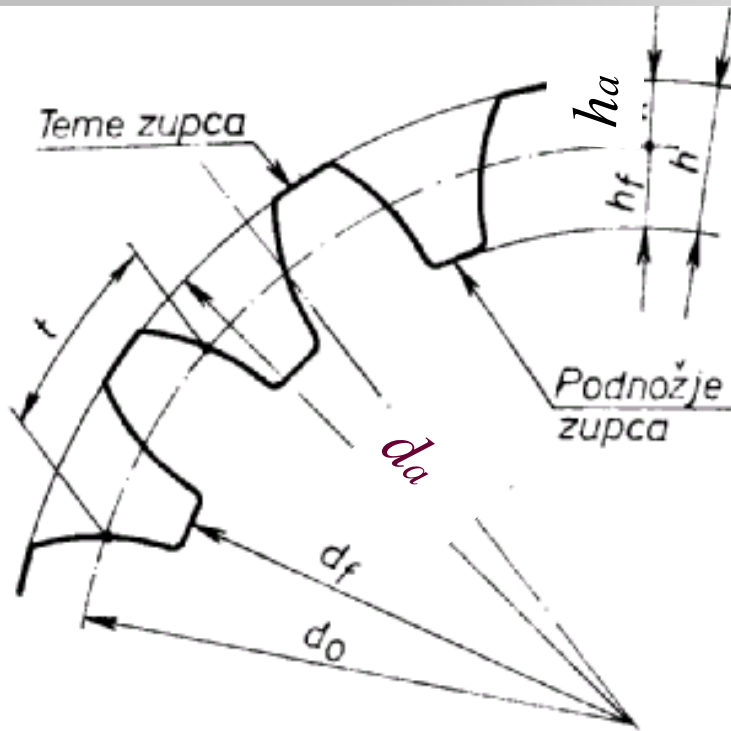
Uprošćeno crtanje i kotiranje



Zupčani parovi

POJEDNOSTAVLJENO PRIKAZIVANJE

Ozubljenje

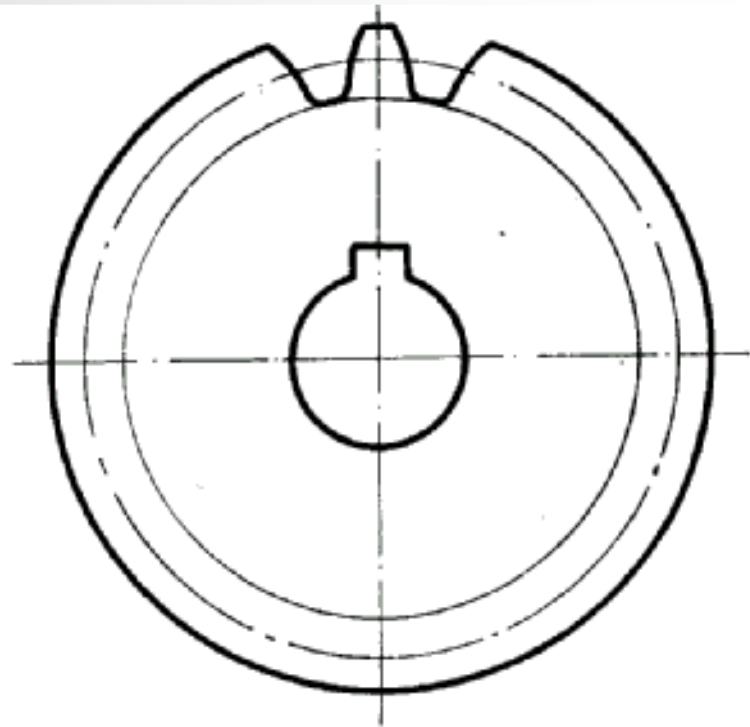
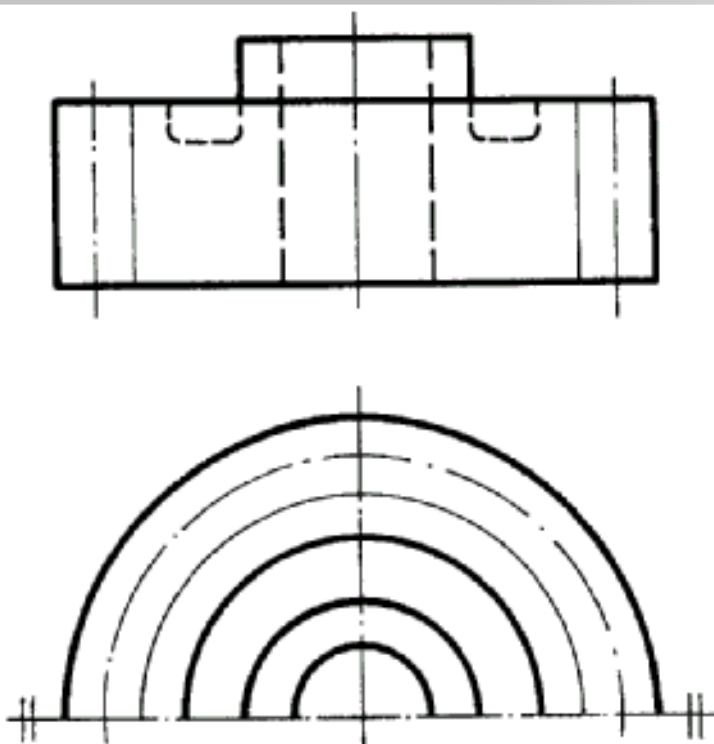


$$d_o = m \cdot z$$

$$d_a = m \cdot (z + 2)$$

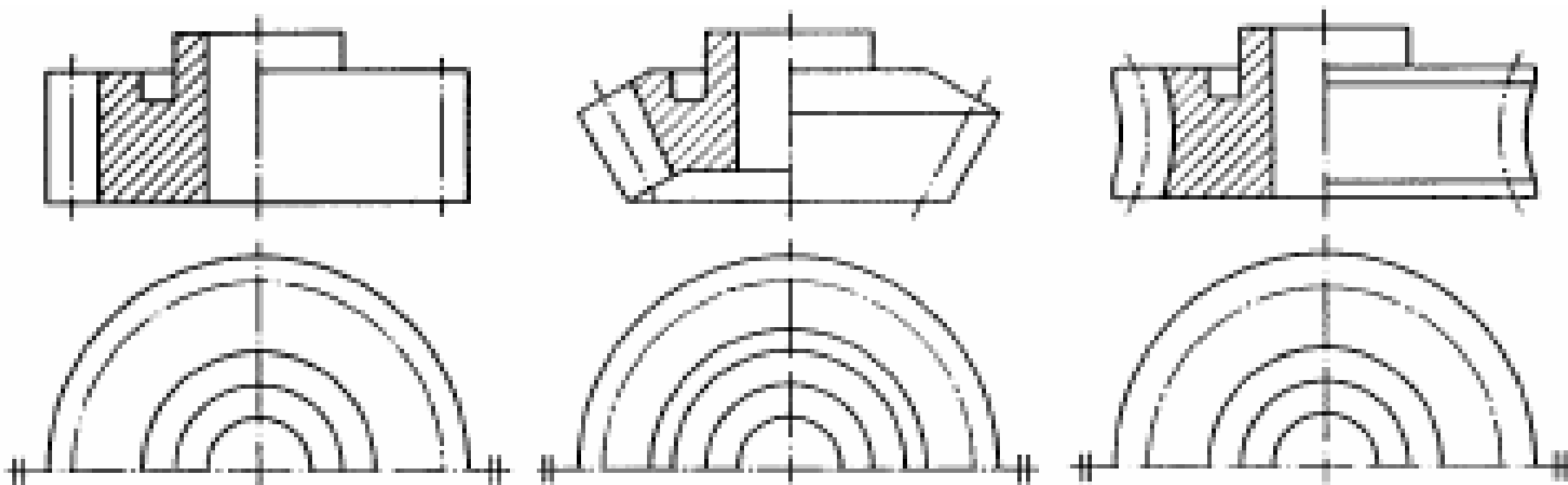
$$d_f = m \cdot (z - 2.4)$$

Prikaz profila

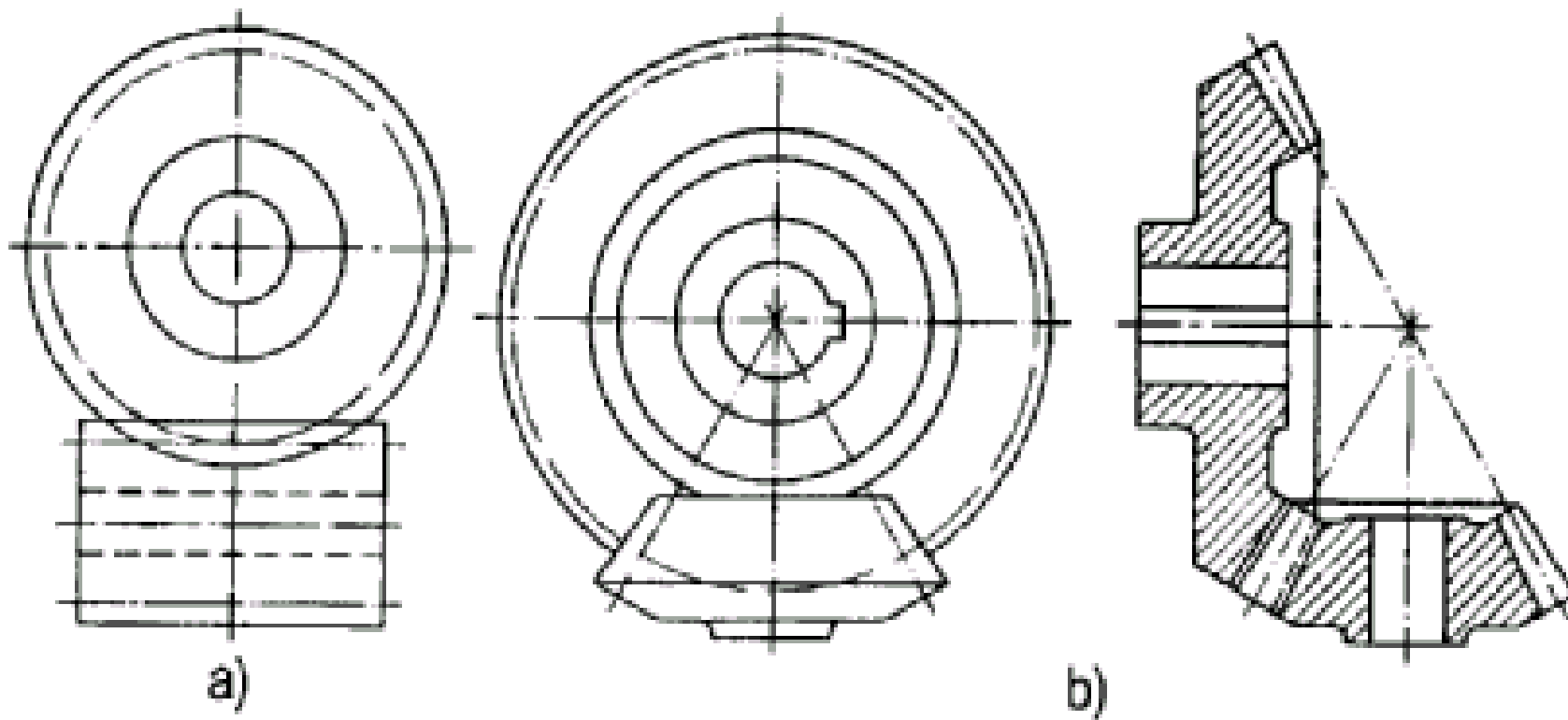


Cilindrični zupčanik, konični zupčanik i pužni točak

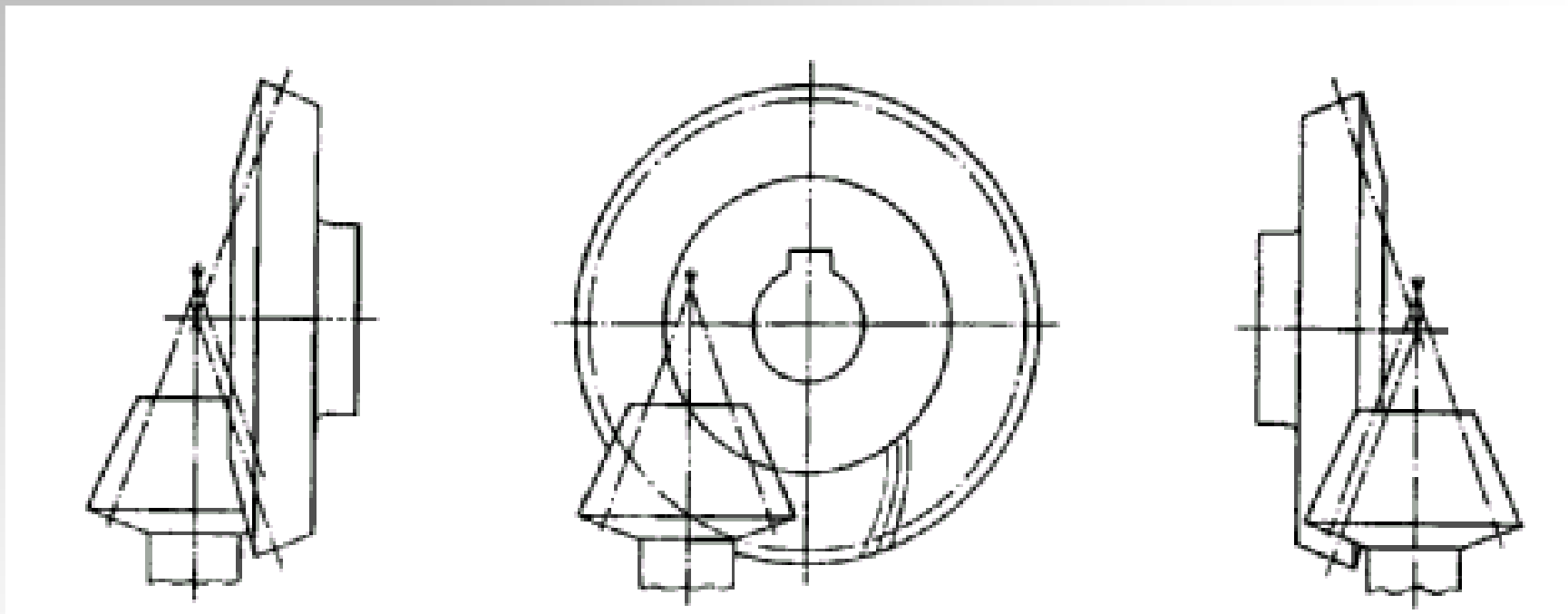
za domaći



a) Pužni par i b) konični par



Različita izvodjenja zupčastih parova



kosi desni



kosi lijevi

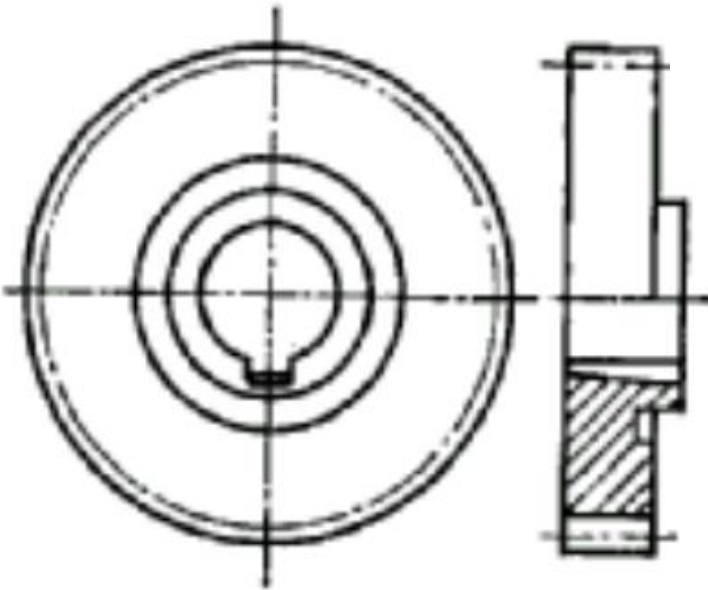
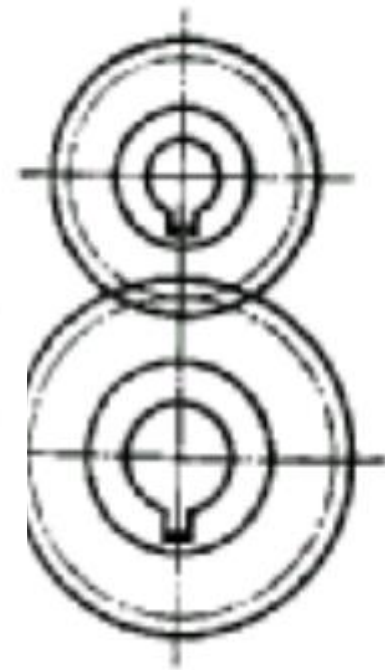
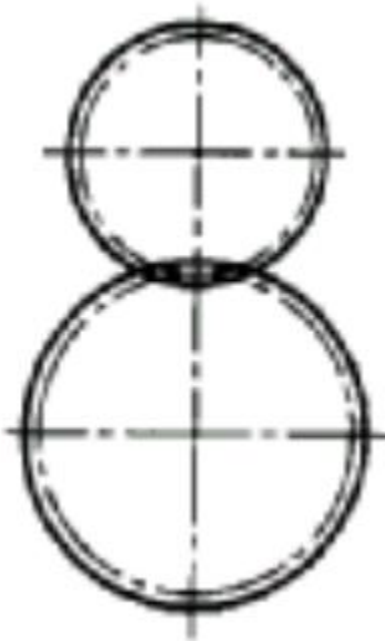


strelasti

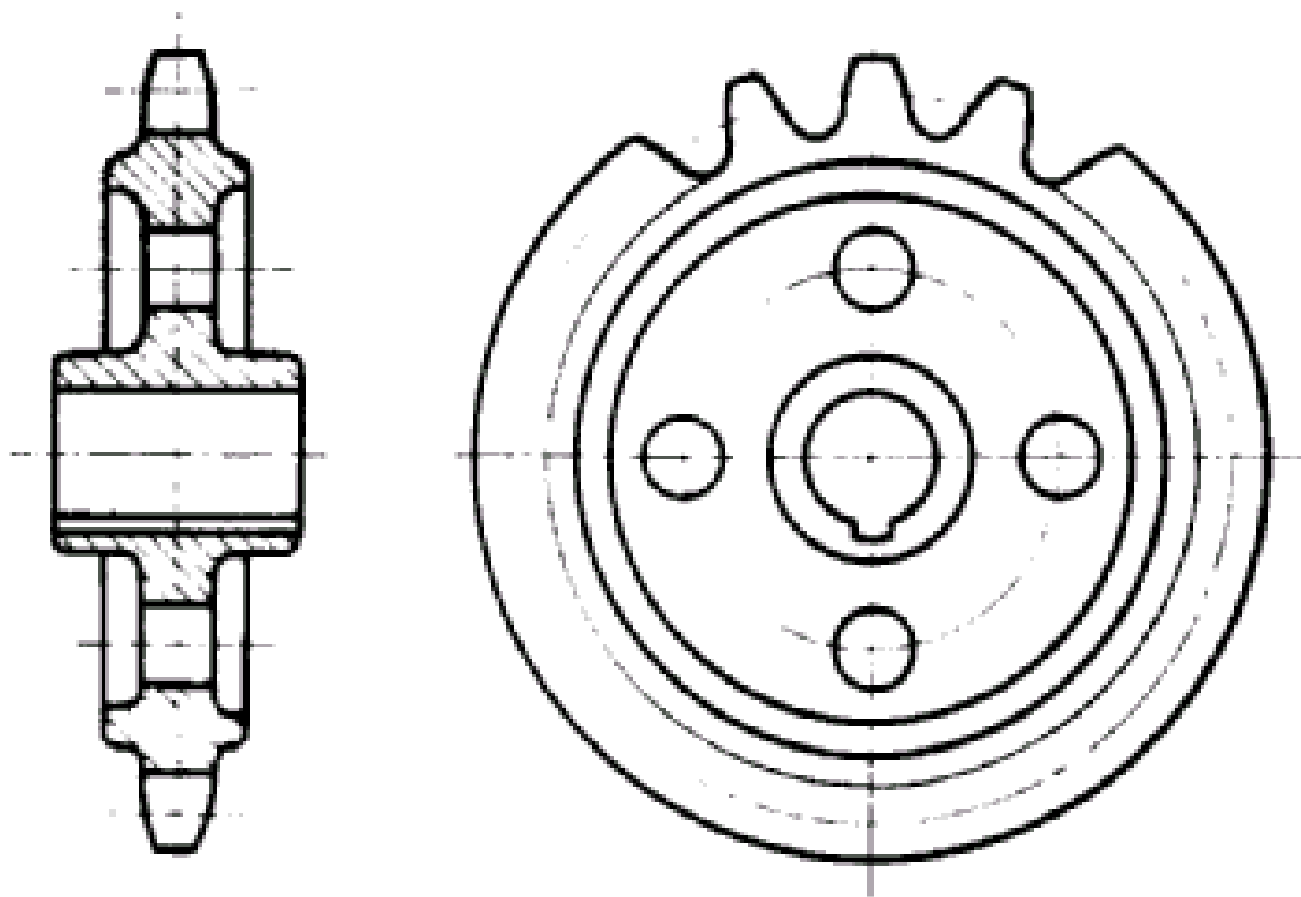


zavojni

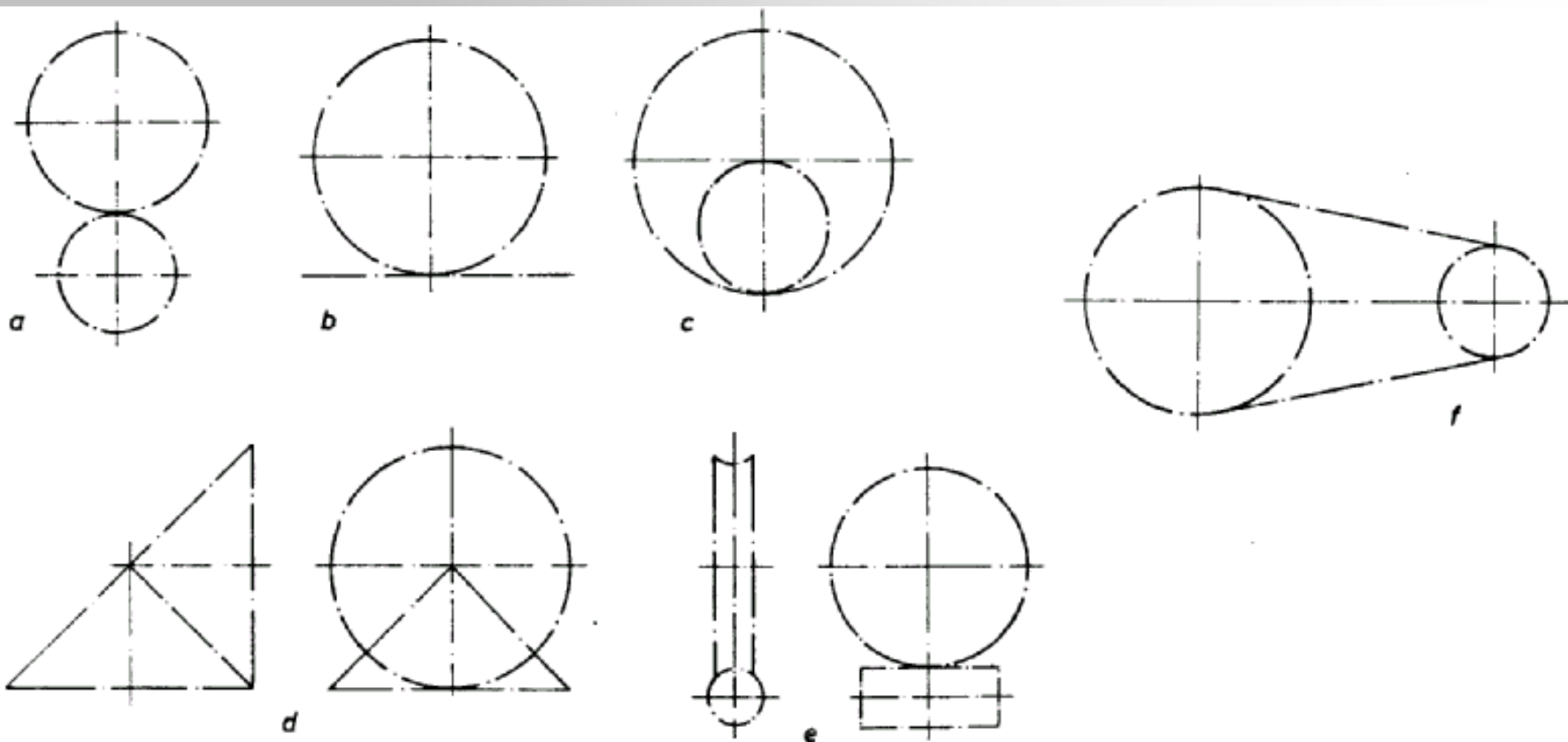
Zupčanici



Lančanik



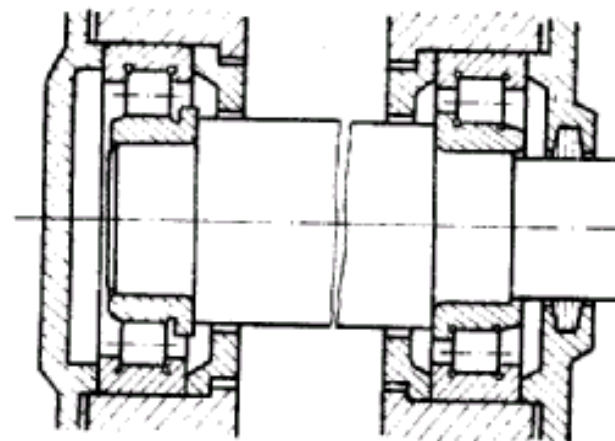
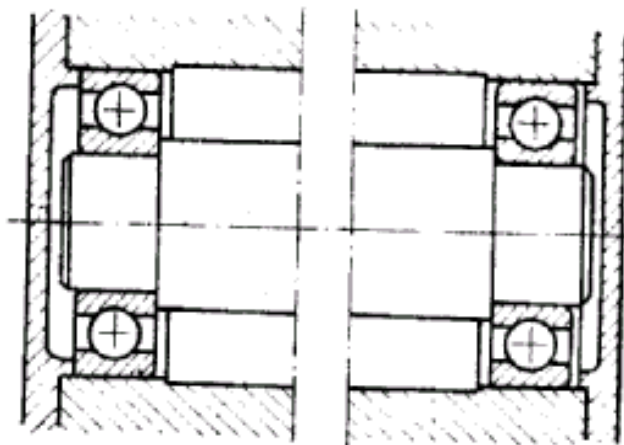
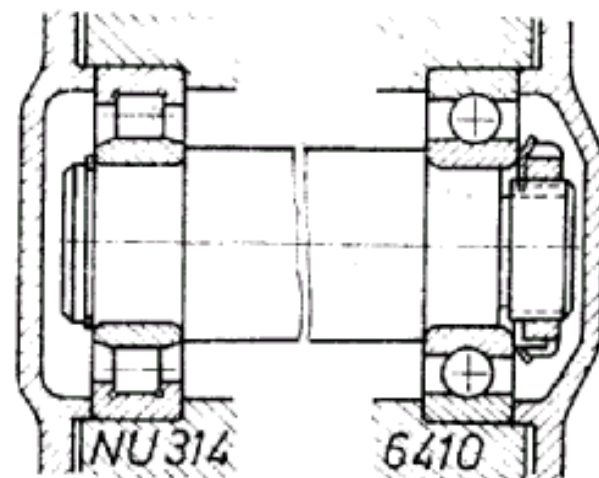
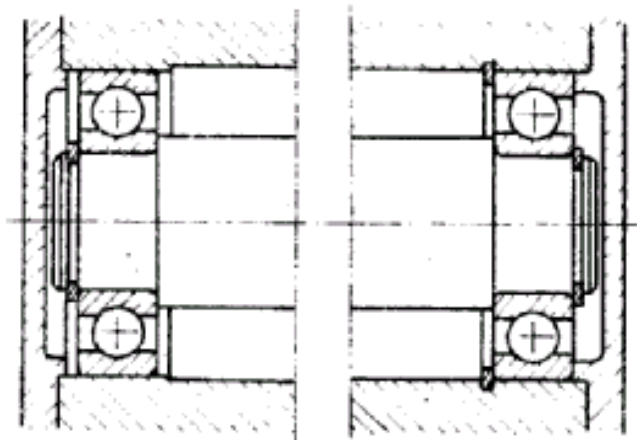
Šematsko prikazivanje



Kotrljajni ležaji

POJEDNOSTAVLJENO PRIKAZIVANJE

Kotrljajni ležaji

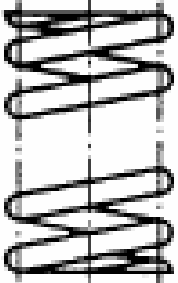
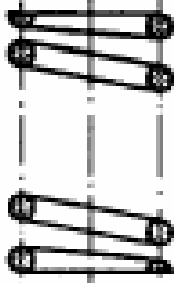
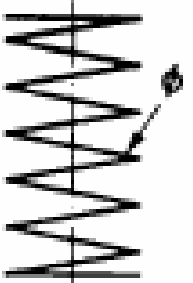
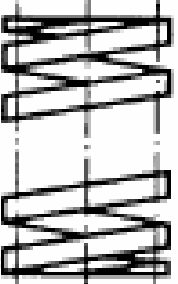
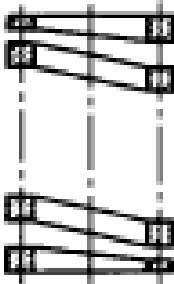
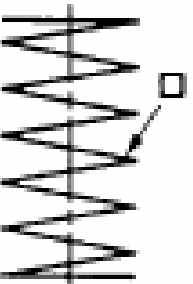
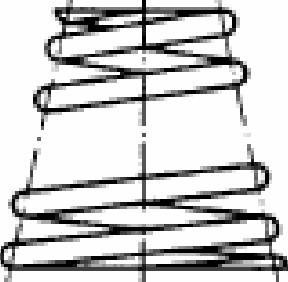
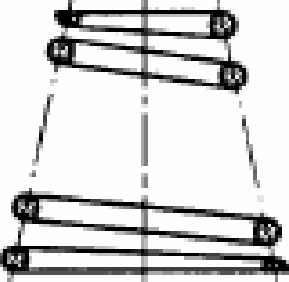
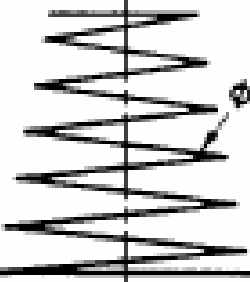
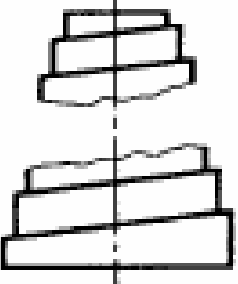
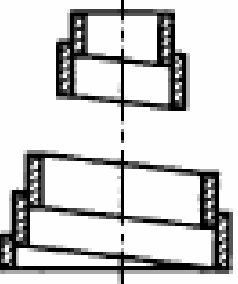
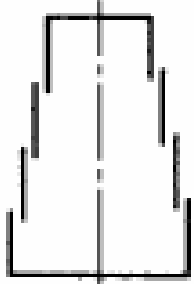


Opruge




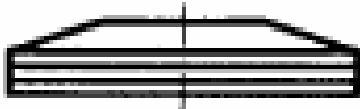


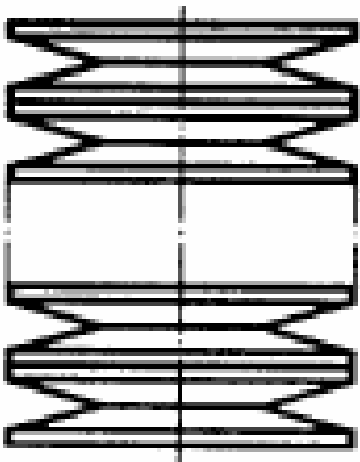
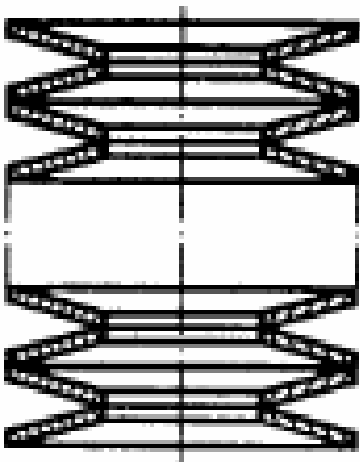
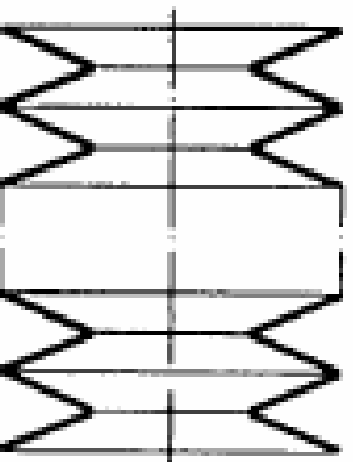
POJEDNOSTAVLJENO PRIKAZIVANJE

Zavojne opruge

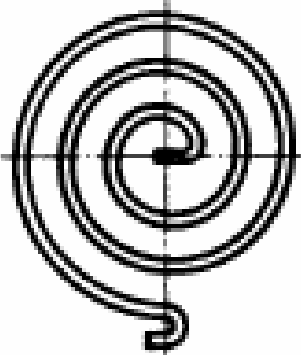
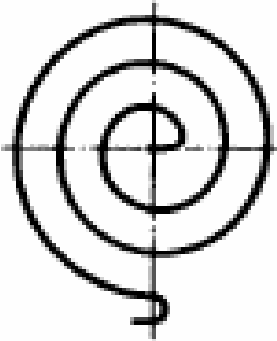
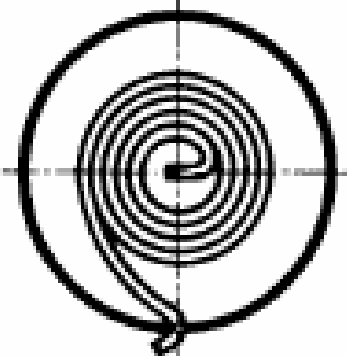
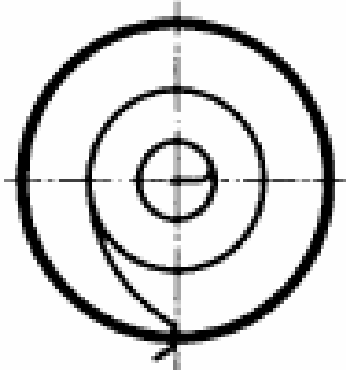
za domaći

Naziv	Prikaz		
	Pogled	Presjek	Simbol
Cilindrična zavojna tlačna opruga od žice okruglog presjeka			
Cilindrična zavojna tlačna opruga od žice kvadratnog presjeka			
Konična zavojna tlačna opruga od žice okruglog presjeka			
Konična zavojna tlačna opruga od trake pravokutnog presjeka			

Tanjiraste opruge

Naziv	Prikaz		
	Pogled	Presjek	Simbol
Tanjurasta opruga			
Paket tanjurastih opruga (jednosmjerno složenih)			
Paket tanjurastih opruga (naizmjenično složenih)			

Spiralne opruge

Naziv	Prikaz	
	Pogled	Simbol
Spiralna opruga		
Spiralna opruga (uvijena i upeta u kućište)		

Zavojne opruge

Naziv	Prikaz		
	Pogled	Presjek	Simbol
Cilindrična zavojna savojna opruga od žice okruglog presjeka (desnovojna)	