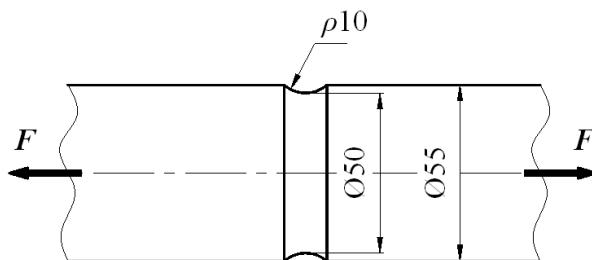


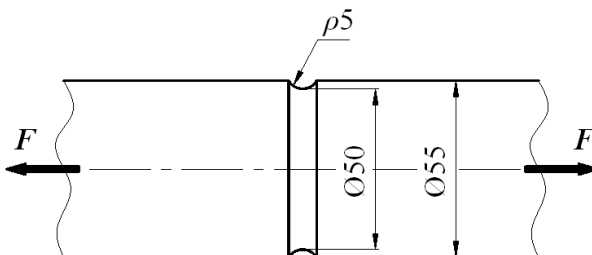
PRIMENJENA TEORIJA PLASTIČNOSTI – Zadatak #1

Prikazati dijagram raspodele napona u kritičnom poprečnom preseku cilindričnog štapa sa zarezom, izrađenog od čelika Č 0545 (E295) i izloženog zatezanju silom $F = 450 \text{ kN}$:

a)



b)



Napomena: uzeti u obzir uticaj veličine mašinskog dela u odnosu na standardnu epruvetu, faktor $\zeta_{vel} = 0,9$.

SRPS		Č 0370	Č 0451	Č 0561	Č 0545	Č 0645	Č 0745
EN		S235	S275	S355	E295	E335	E360
R_e		235	275	355	295	335	360
R_m		340...470	410...560	490...630	470...610	570...710	670...830
savijanje	σ_T	329	385	497	413	469	504
	$\sigma_{D(-1)}$	153...212	182...252	221...284	212...275	257...320	302...374
	$\sigma_{D(0)}$	252...320	279...381	333...428	320...415	386...483	456...564
uvijanje	τ_T	165	193	249	207	235	252
	$\tau_{D(-1)}$	92...127	111...151	132...170	127...165	154...192	181...224
	$\tau_{D(0)}$	119...165	144...196	172...221	165...214	200...249	235...291
zatezanje pritisak	σ_T	235	275	355	295	335	360
	$\sigma_{D(-1)}$	109...150	131...179	157...202	150...195	182...227	214...266
	$\sigma_{D(0)}$	187...259	226...308	270...347	259...336	314...391	369...457

Geometrijski faktor koncentracije napona α_k

ρ/d	Zatezanje				Zatezanje			
	D/d				D/d			
	1,1	1,2	1,5	2	1,20	1,10	1,05	1,02
0,025	2,230	-	-	-	-	-	2,550	2,200
0,050	1,900	2,125	2,410	2,660	2,700	2,500	2,160	1,860
0,075	1,730	1,860	2,090	2,240	2,350	2,180	1,945	1,680
0,100	1,620	1,730	1,900	2,020	2,150	2,015	1,820	1,580
0,125	1,530	1,630	1,775	1,890	2,020	1,880	1,725	1,520
0,150	1,470	1,560	1,690	1,800	1,910	1,780	1,650	1,470
0,175	1,425	1,500	1,625	1,725	1,825	1,720	1,590	1,425
0,200	1,380	1,460	1,575	1,670	1,750	1,650	1,540	1,400
0,225	1,350	1,420	1,525	1,610	1,680	1,600	1,500	1,375
0,250	1,325	1,390	1,490	1,561	1,625	1,550	1,460	1,350
0,275	1,310	1,360	1,460	1,525	1,575	1,510	1,430	1,330
0,300	1,300	1,350	1,450	1,500	1,540	1,475	1,400	1,325