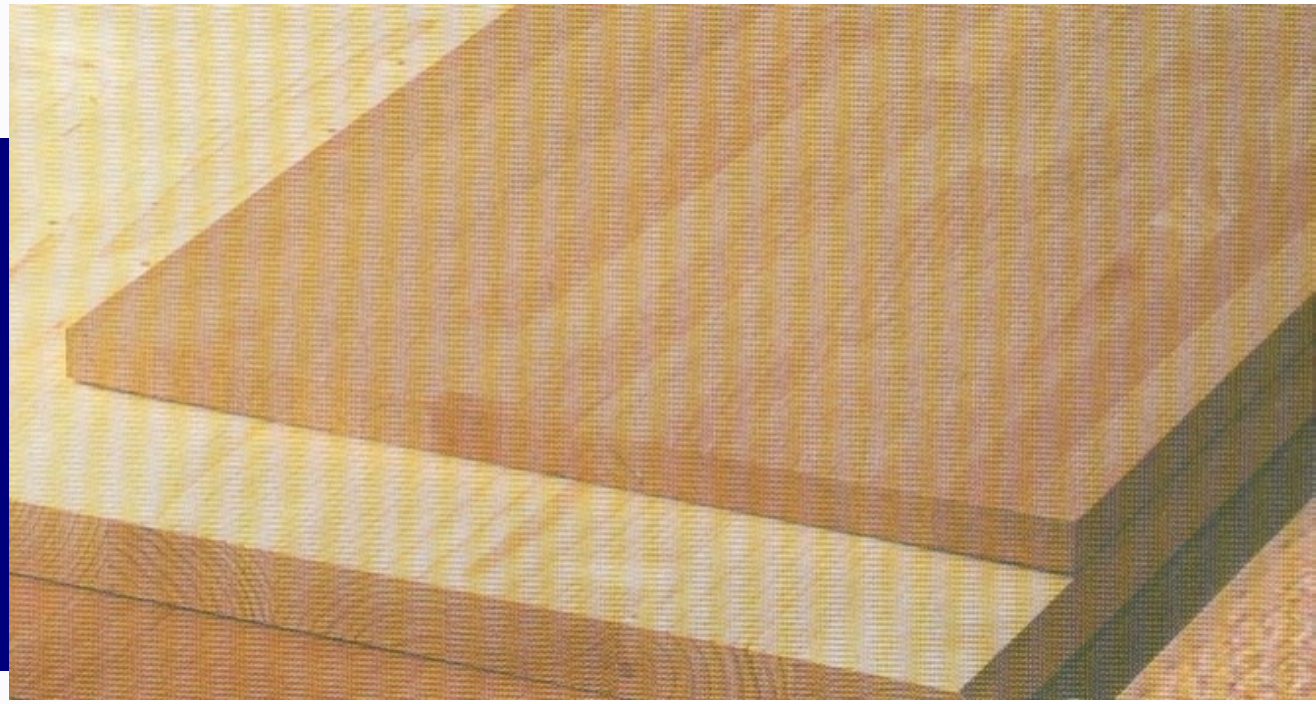
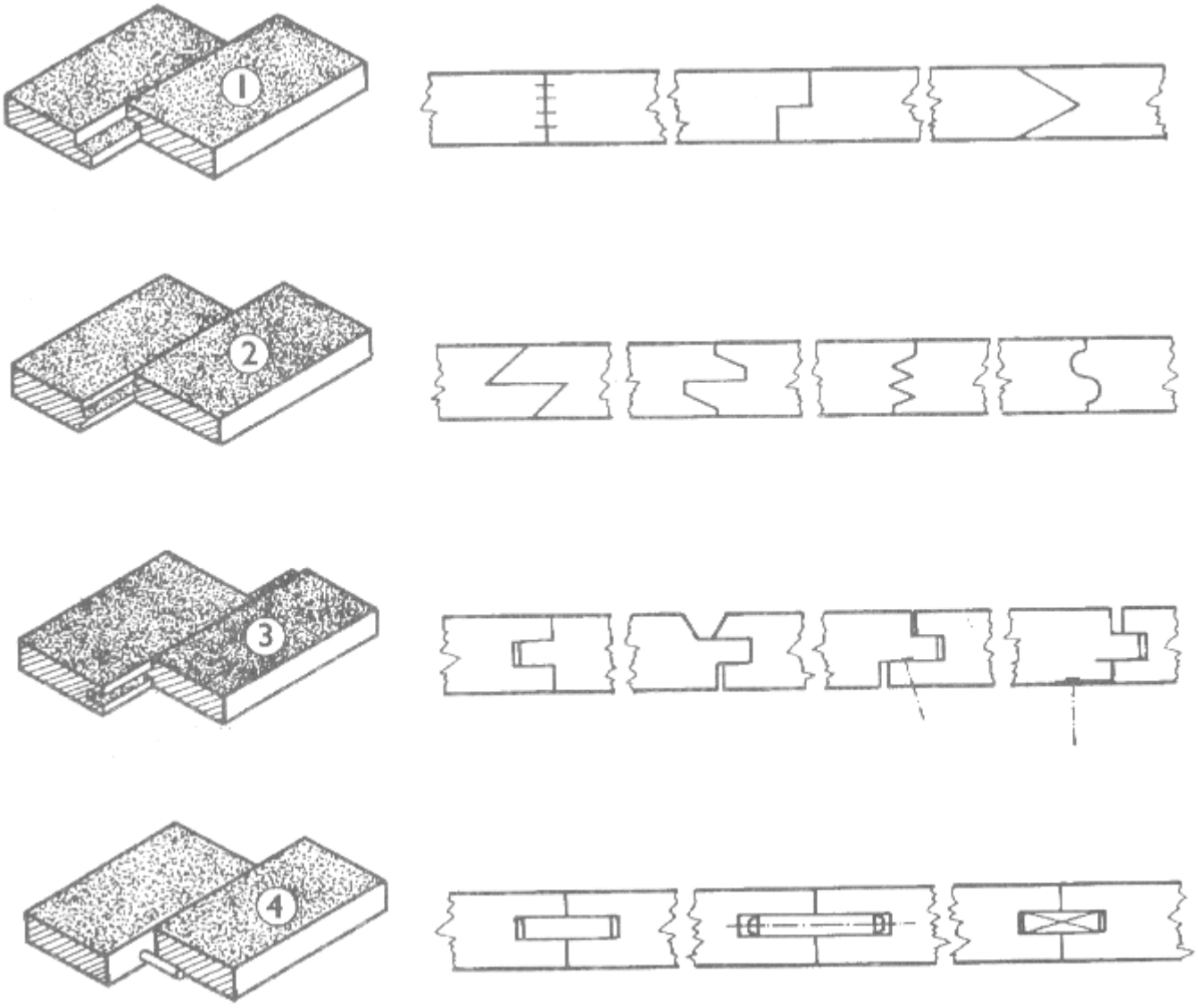


Tehnološki proces spajanja (nastavljanja)

elemenata od masiva po širini

6. zadatak (2026.)


1
2
3
4

PRAVILA

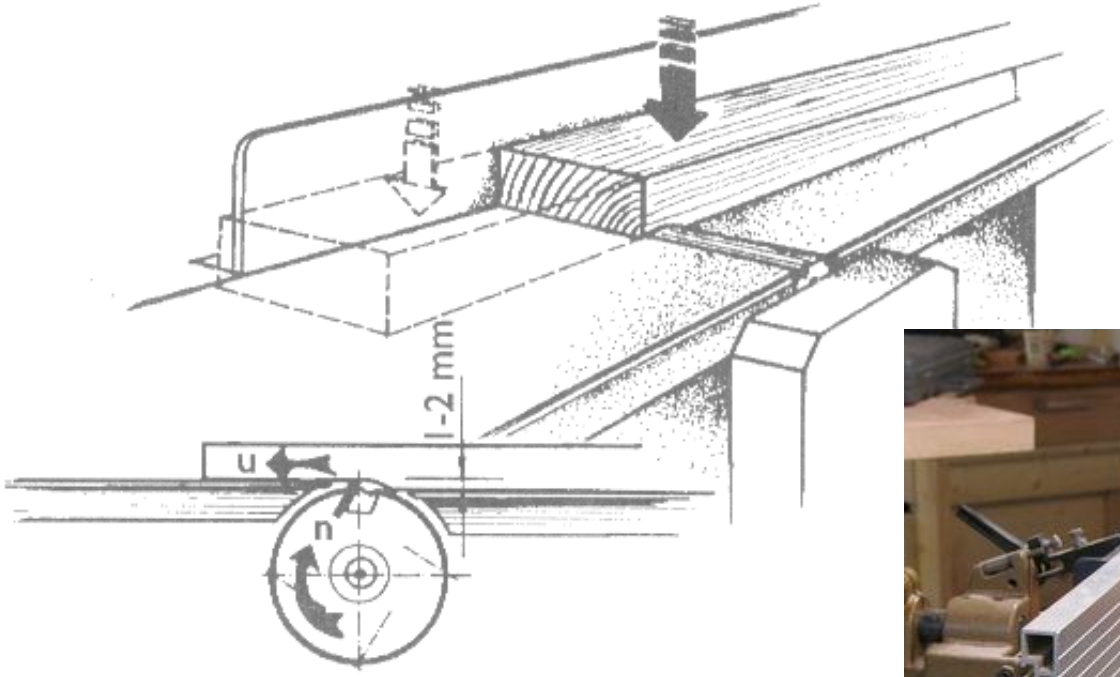
- Širina gredice
- Širina lamela
- Površina lepljenja
- Način slaganja
- Krivljenje ploče
- Promena dimenzija ploče

- 200mm
- 80/100mm
- A!!
- Pravac godova
- Ukrućenje
- Tolerancija (RAL; EN)

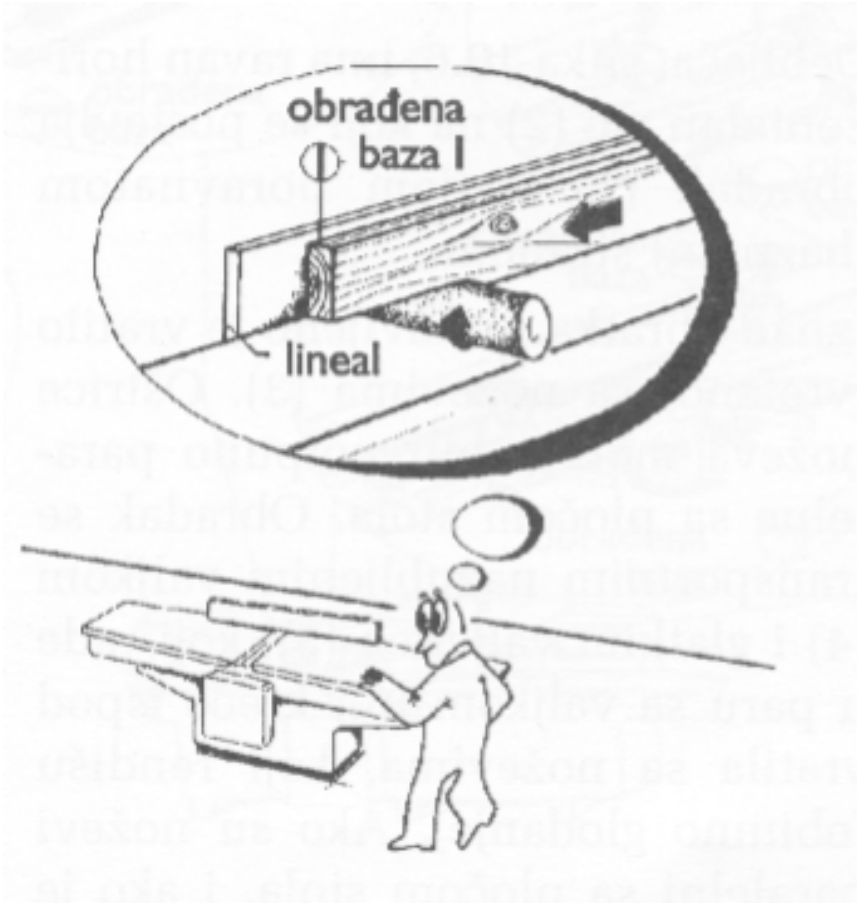
Gruba gredica
Izrada bazne površine
figovanje
VARIJANTA I
VARIJANTA II
VARIJANTA III
kontrola kvaliteta izrade
izbor gredica
nanošenje lepka
presovanje
Egaliziranje debljine
dimenzionisanje B i L

varijanta obrade	Mašina za pripremu bazne površine	Mašina za obradu sljubnica	presa	Širina lamele
1	Ravnalica	Ravnalica Fig mašina – Ledinek	Ramovske prese	različita
2	Dvostrana rendisaljka	Fig mašina – Ledinek	Ramovske prese Tople prese VF prese	različita
3	/	Fig mašina – Weinig Super 4 Četvorostrana rendisaljka	Ramovske prese Tople prese VF prese	ista

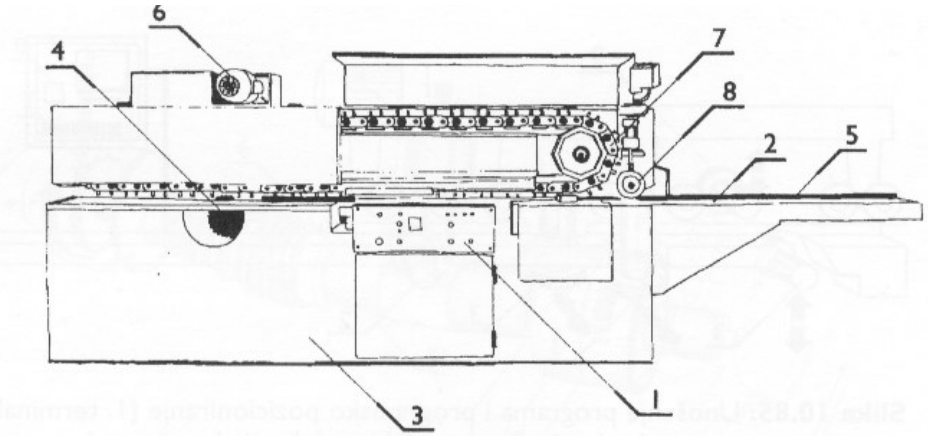
Izrada 1. bazne površine

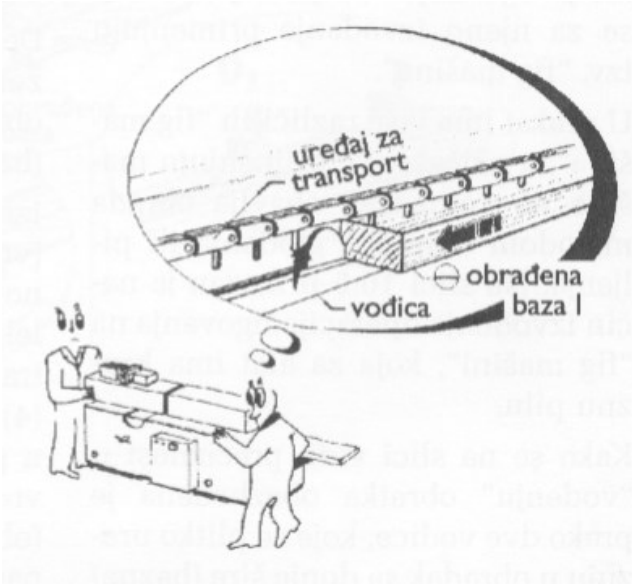


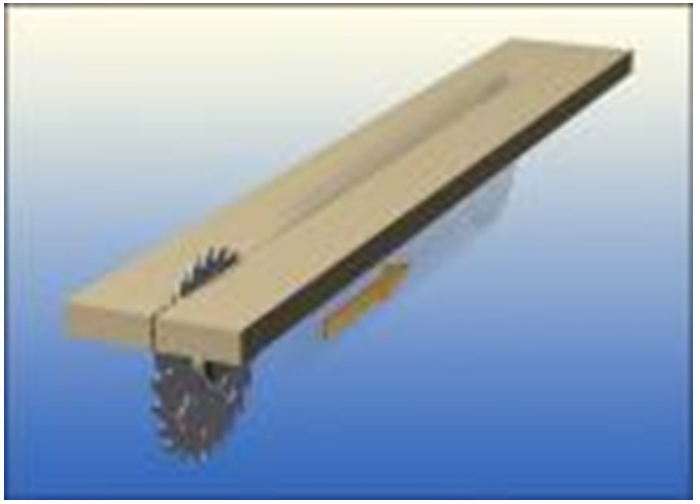
Obrada sljubnica na ravnalici



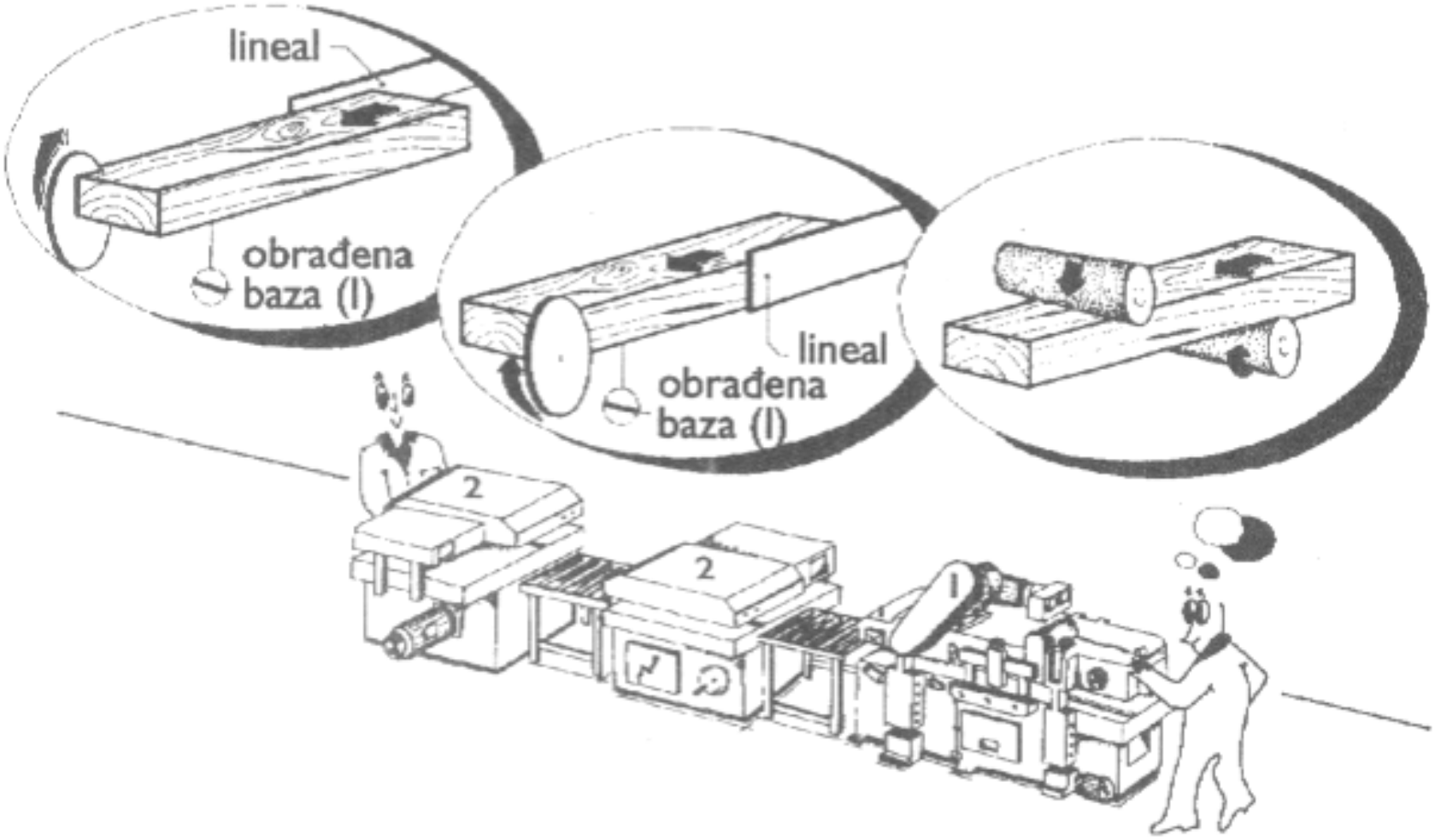
Obrada sljubnica na fig mašini - Ledinek



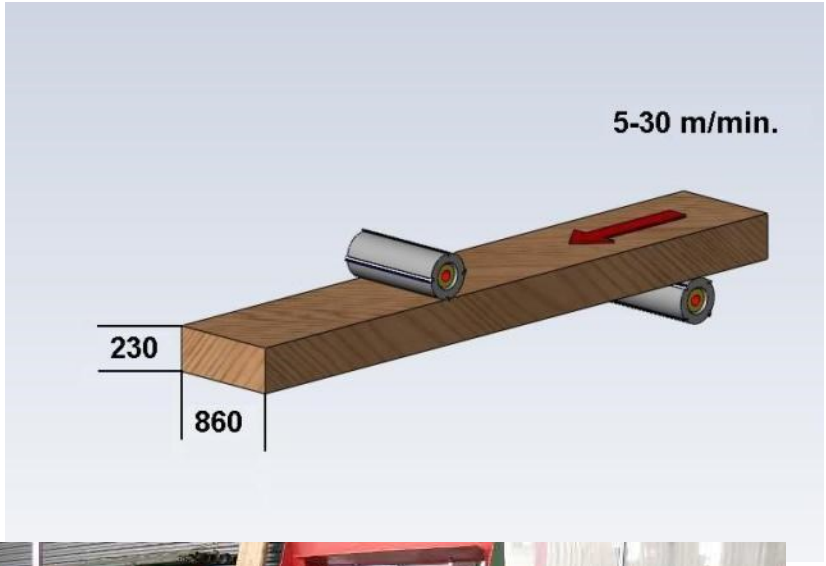




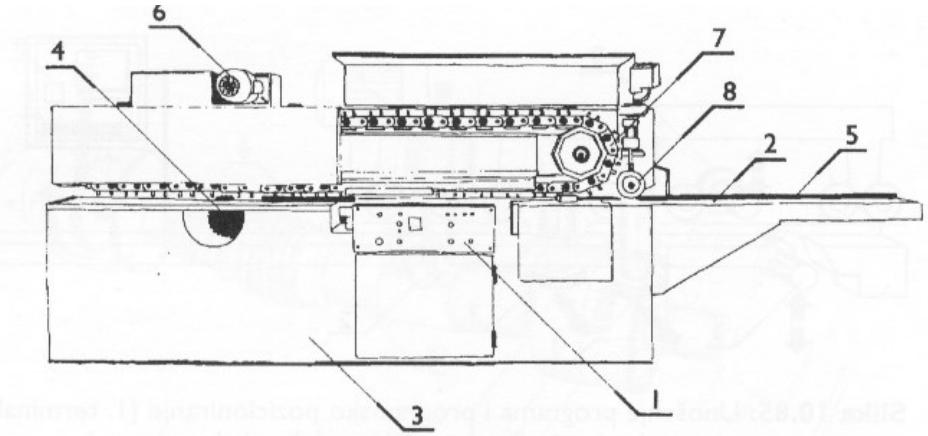
varijanta 2

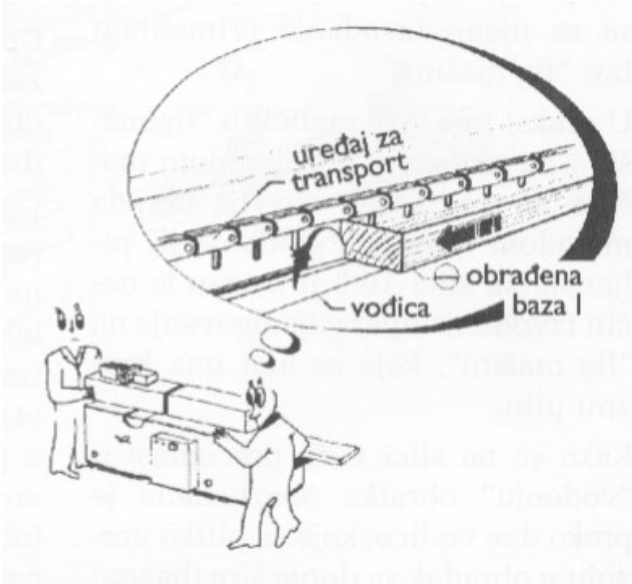


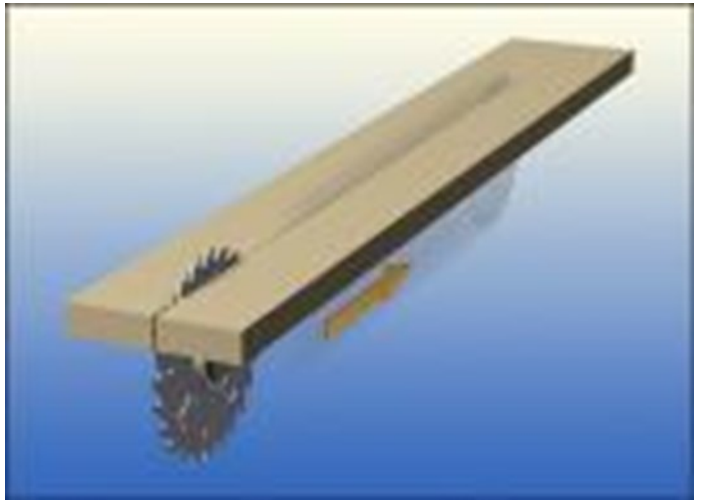
varijanta 2



Obrada sljubnica na fig mašini - Ledinek

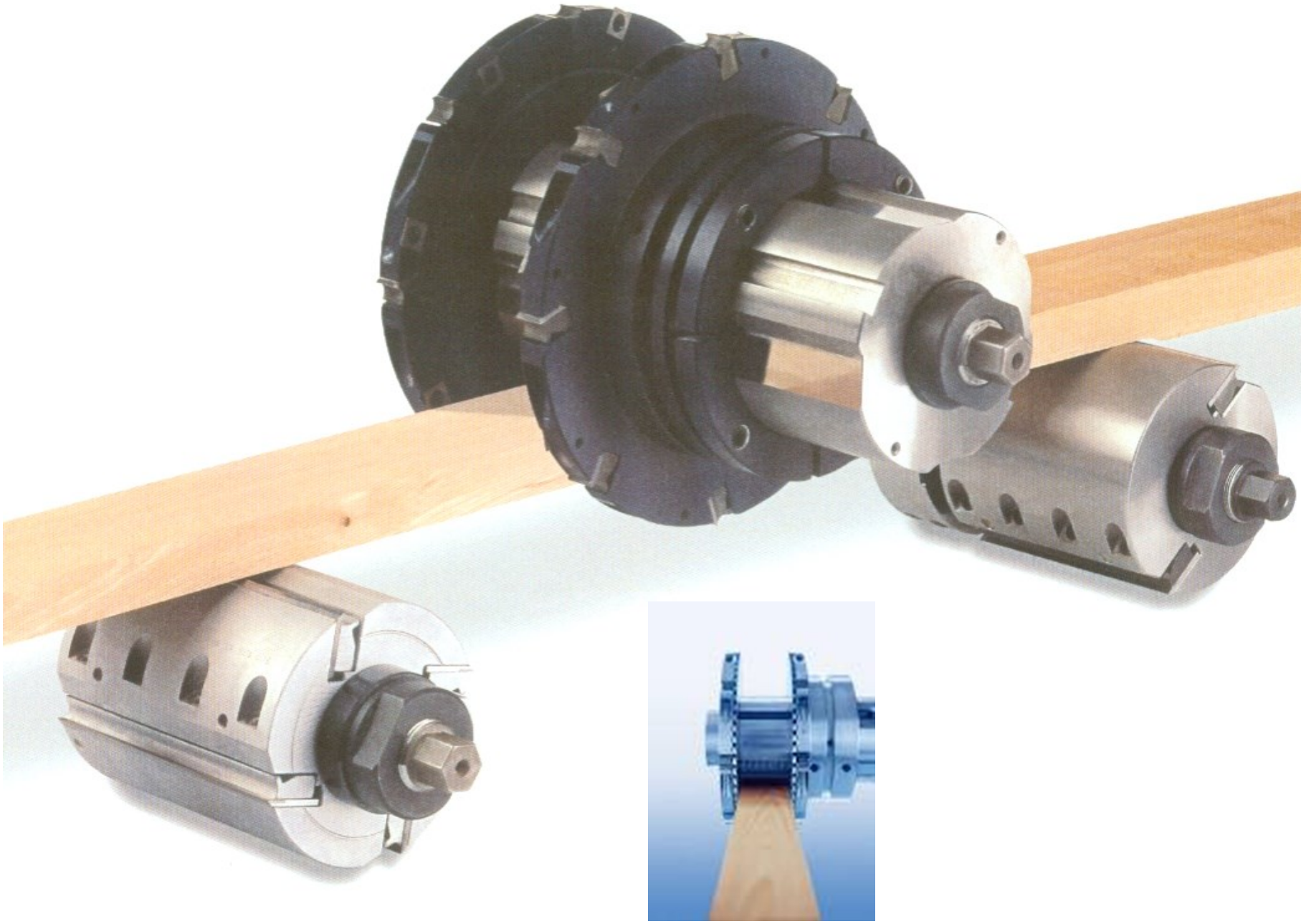




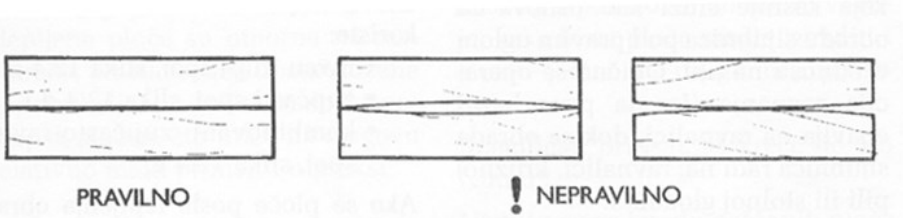


Obrada sljubnica na fig mašini Weinig – super 4

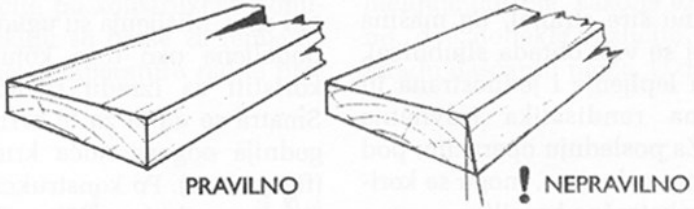
Varijanta 3



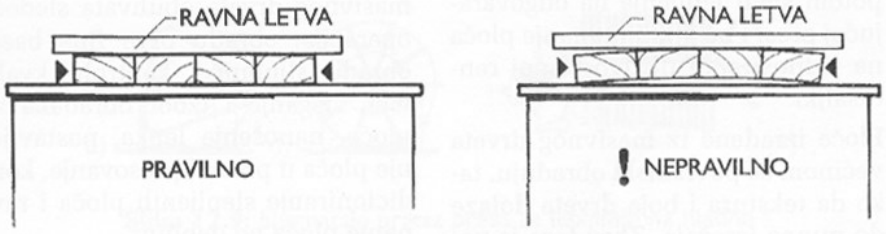
Kontrola kvaliteta obarde

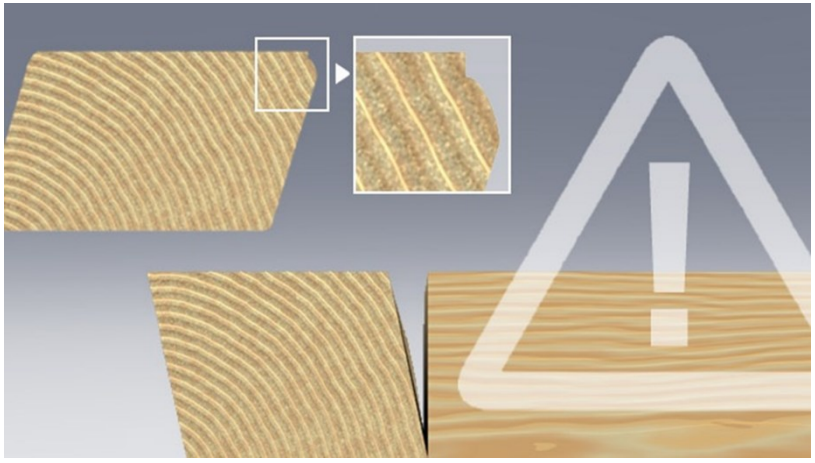


Slika 12.5: Obrada sljubnice (podužni izgled)



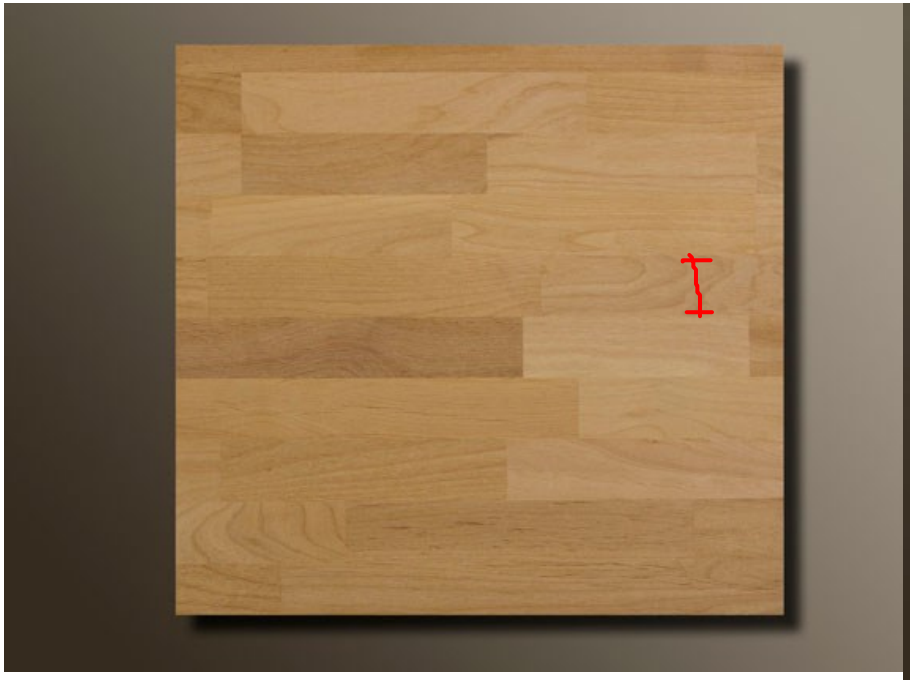
Slika 12.6: Obrada sljubnice (poprečni izgled)



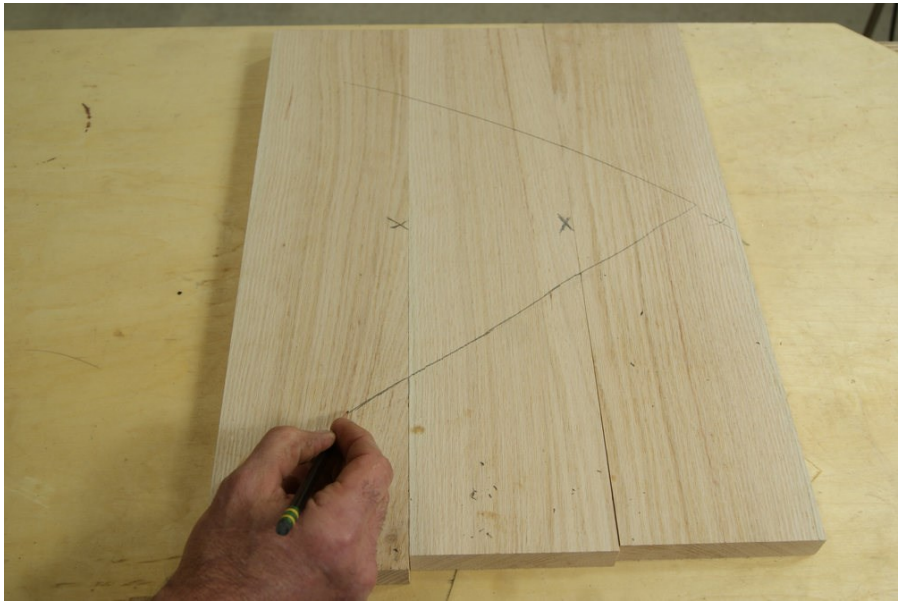


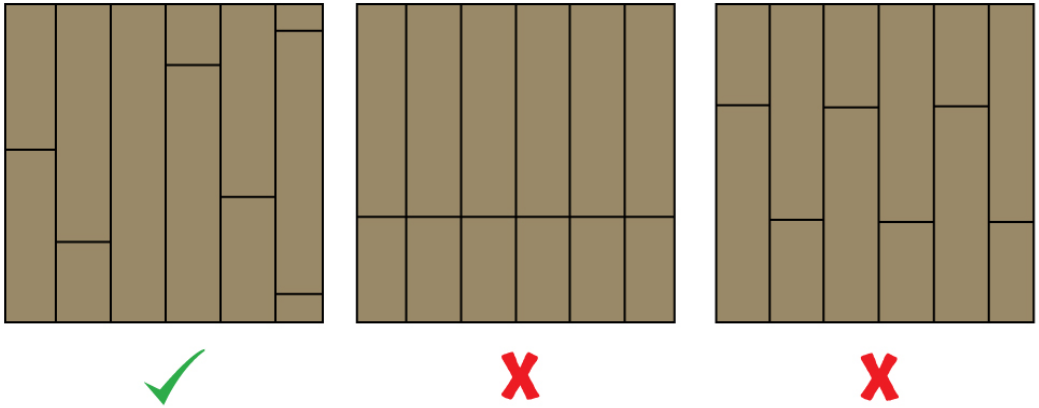
Izbor gredica

- Po dimenzijama
- Po boji i teksturi

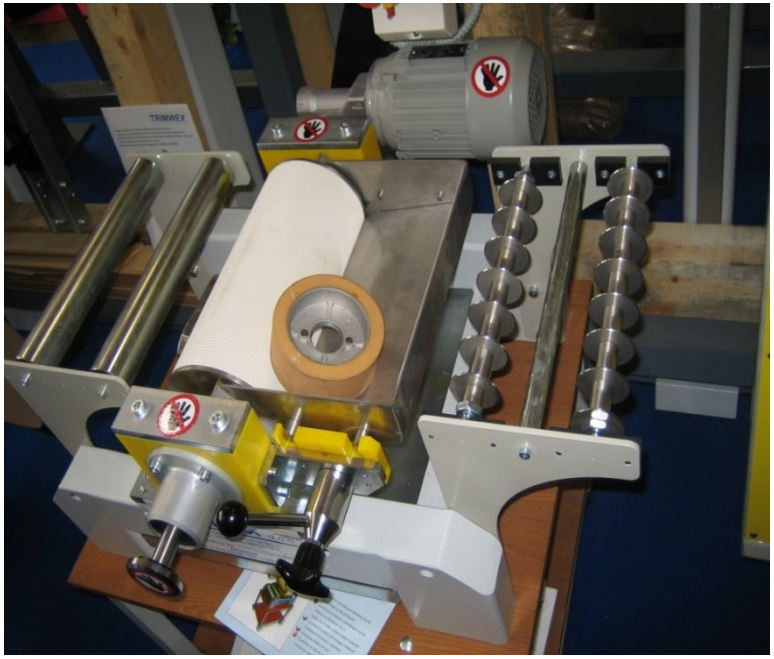


Izbor gredica – slaganje gredica u tavan

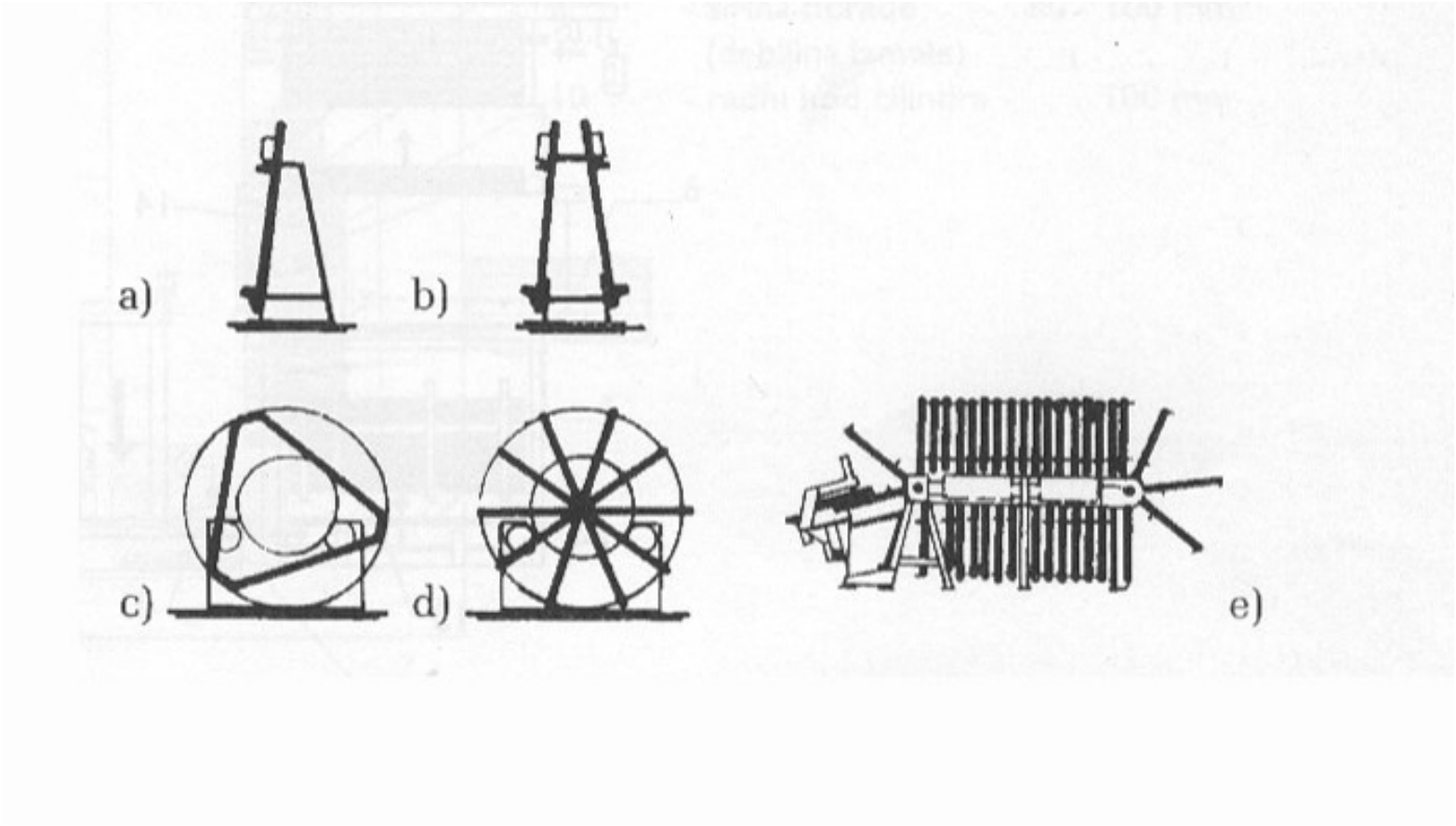




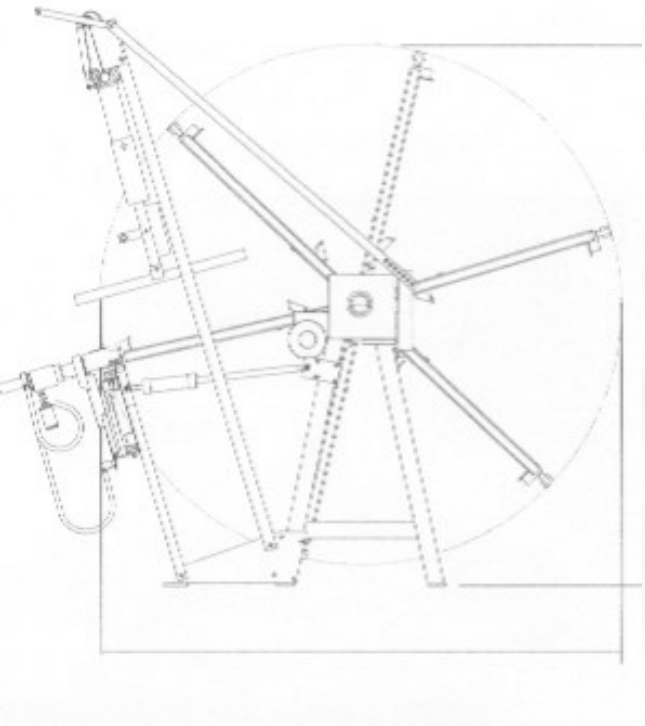
Nanošenje lepka – nanosačice lepka

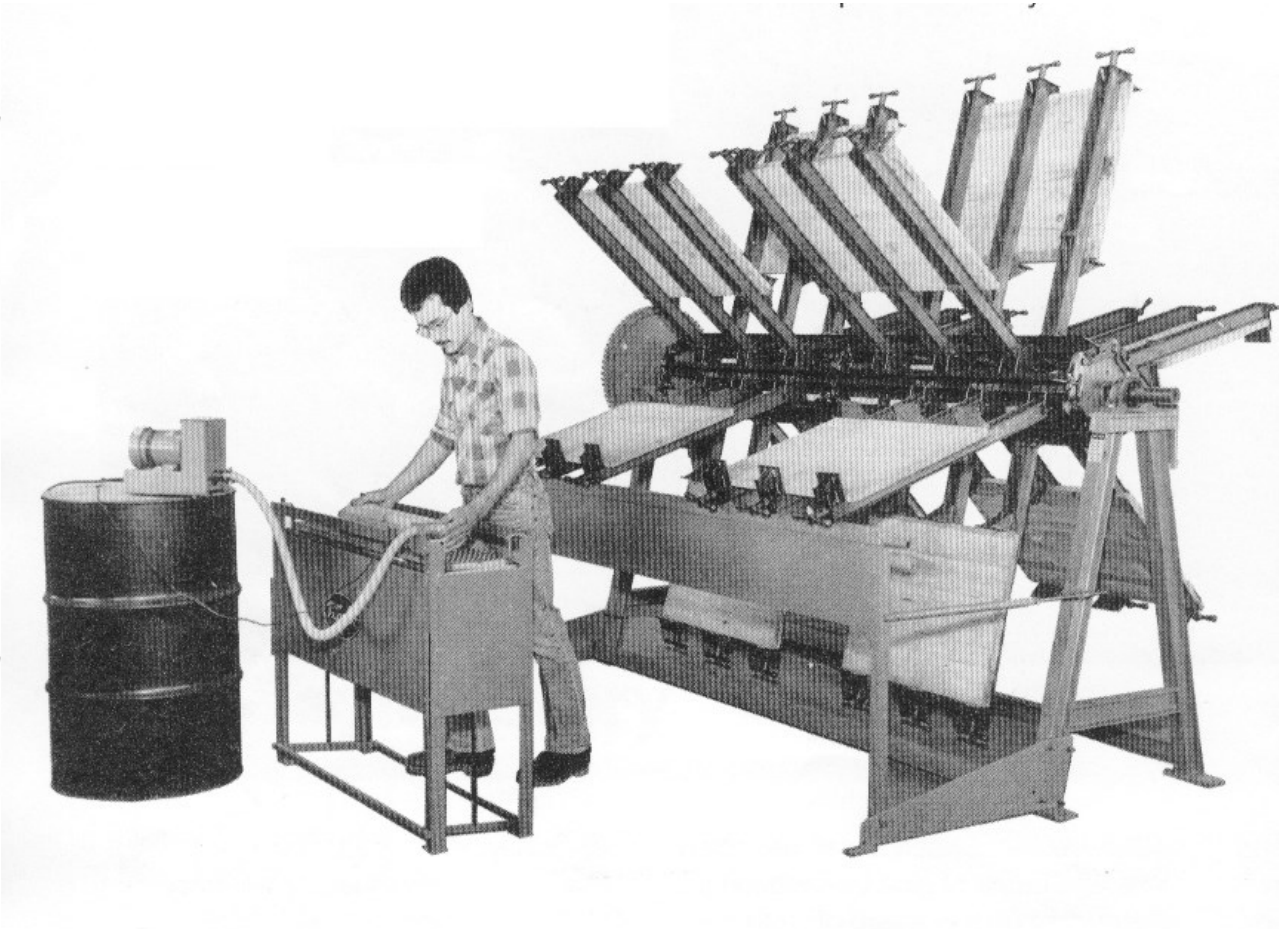


Ramovske prese

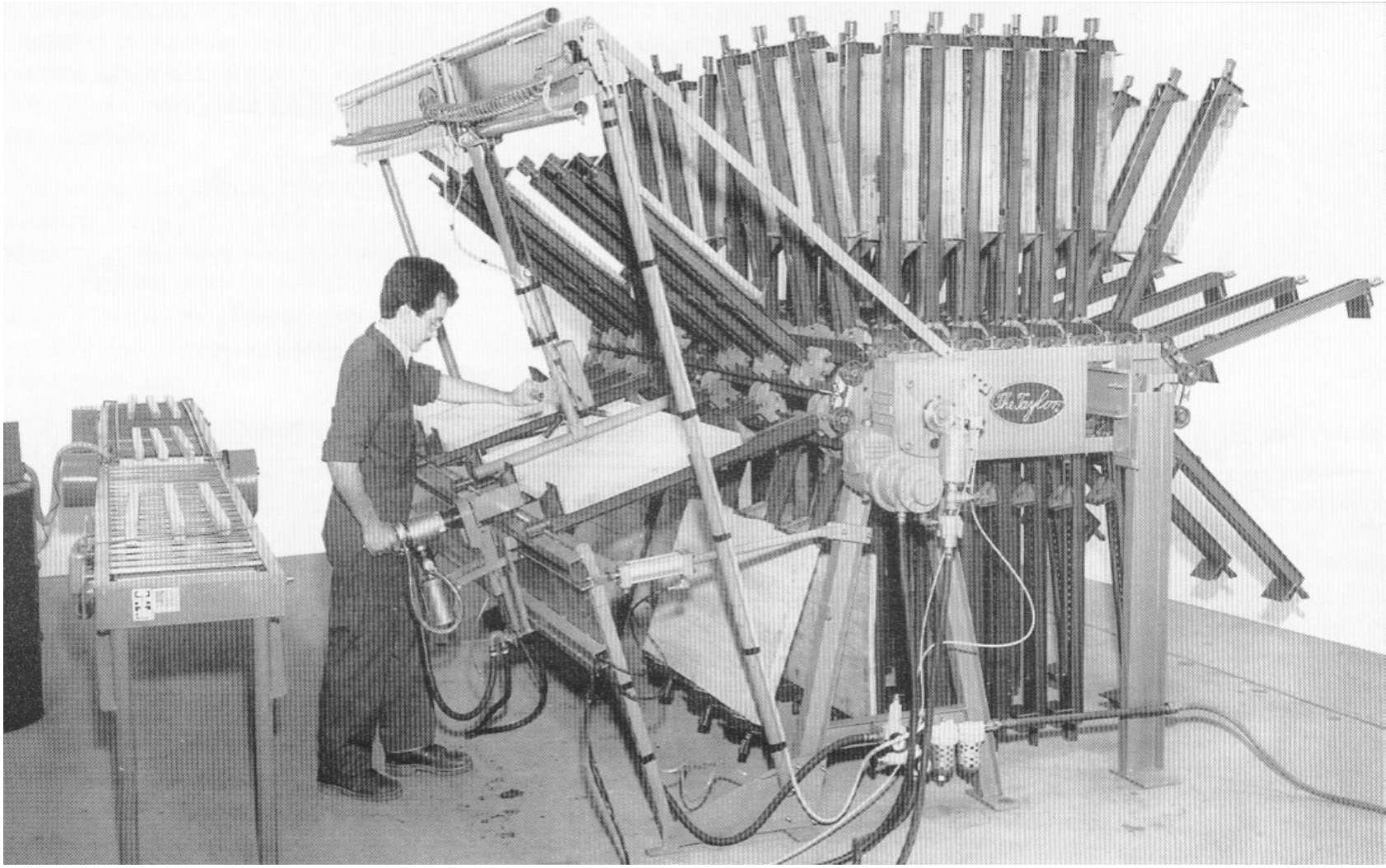


Ramovske prese - zvezdaste



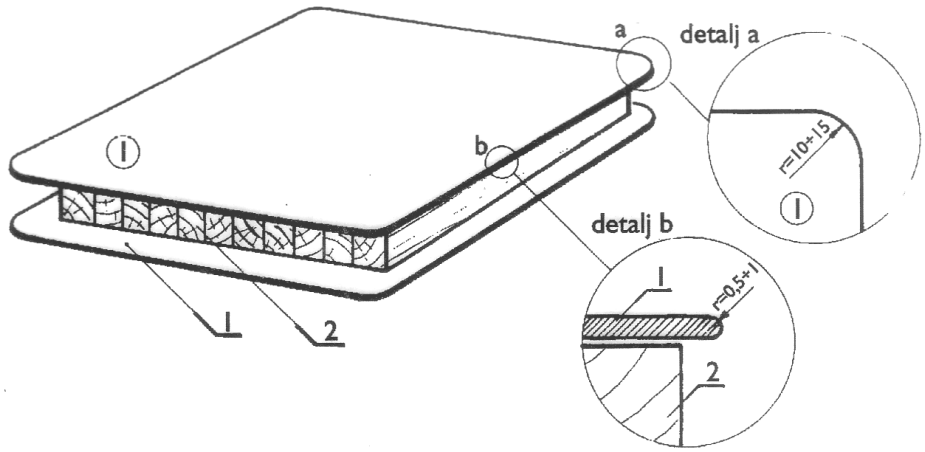


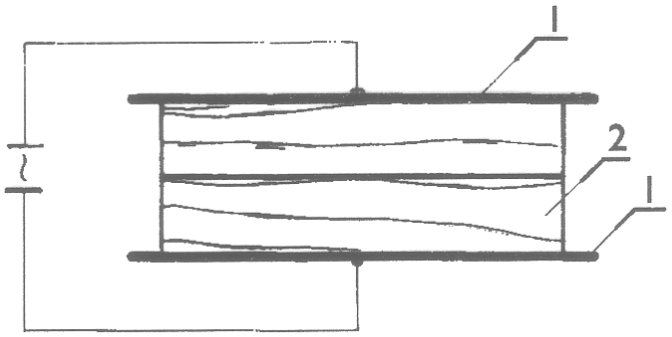
Ramovske prese - konvejerne

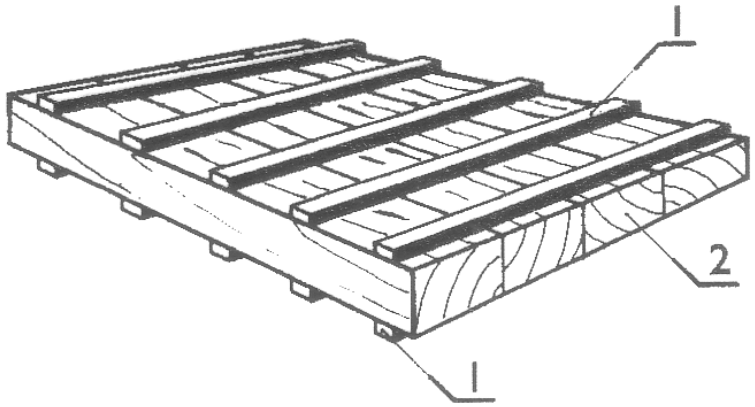


VF prese

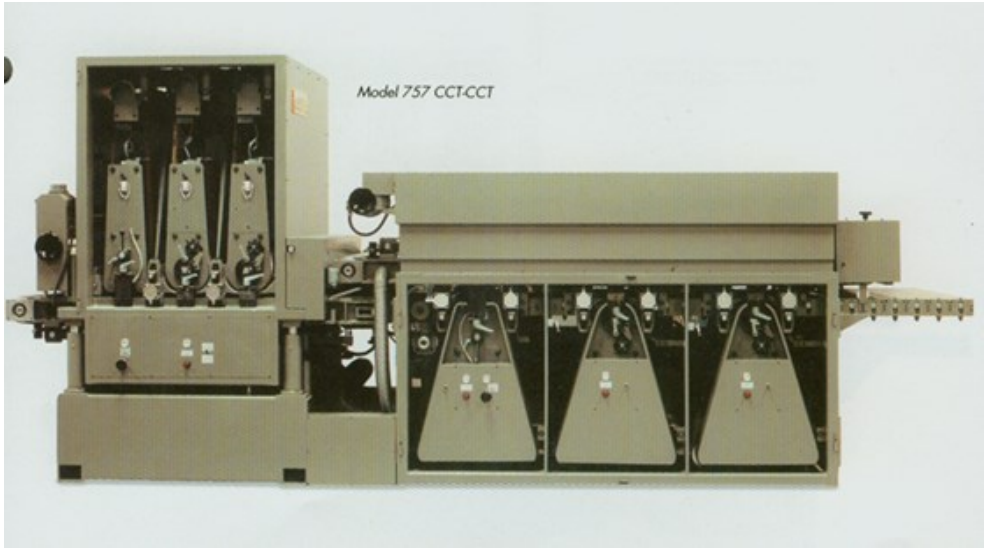
VF generator



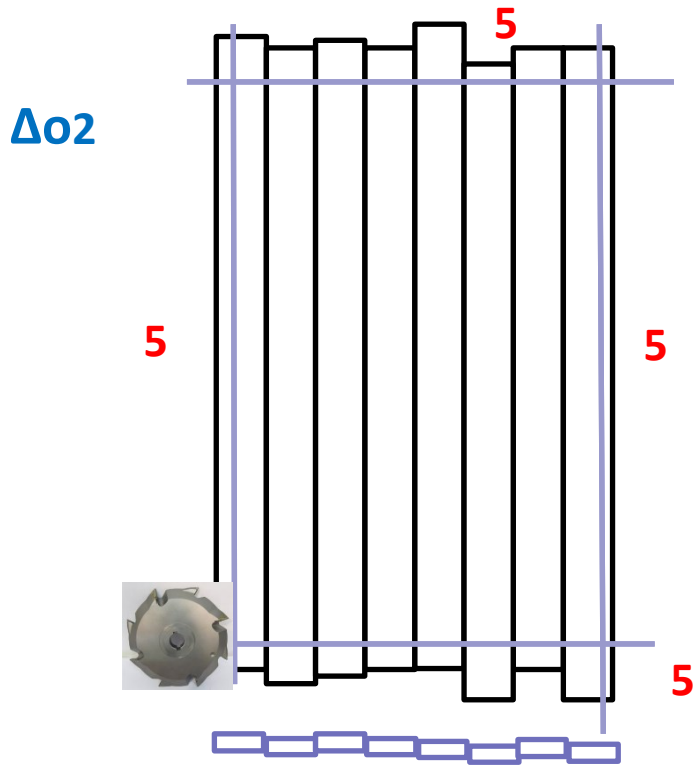




Egaliziranje debljine



nazivne mere (mm)			Δo 1	Δo2	Δo3	Krojene mere (mm)
D1'	L	1600	20	10		
	B	80	6	5		
	D	20	6	2		
D2"	L	1600	20	10		
	B	80	6	0		
	D	20	6	2		



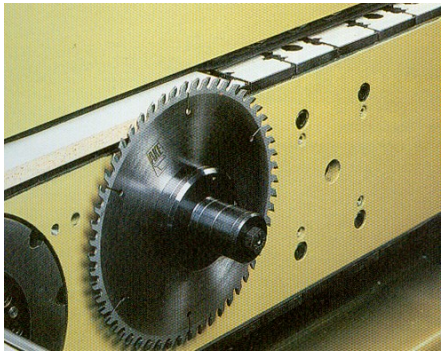
Dimenzionisanje B i L

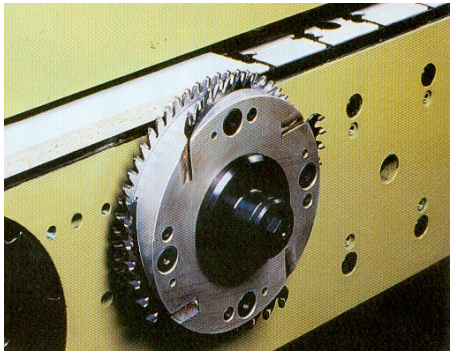
https://youtu.be/ztt2Ar8du5I
https://youtu.be/IG6BdPf9nH4
https://youtu.be/9UwRklS60FE

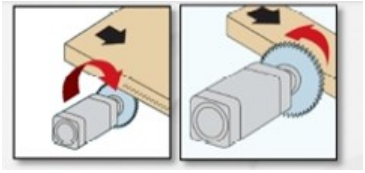
- Posluživanje: 2 radnika
- Br.vretena: 2+2 do 7+7
- d = 30 / 40mm
- Dkp = 300 ÷ 350mm
- Div = 250 ÷ 400mm
- Dgl <350mm
- hmax < 200mm
- nmax = 9000 o/min
- u = 8 ÷ 24 m/min (mehanizovano)
- E = ÷3.55,5 kW (x br.vretena)

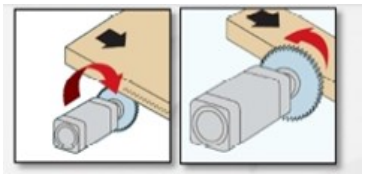
dvostrani profiler

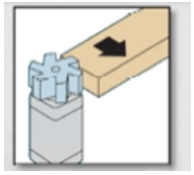
- Kombinacije alata

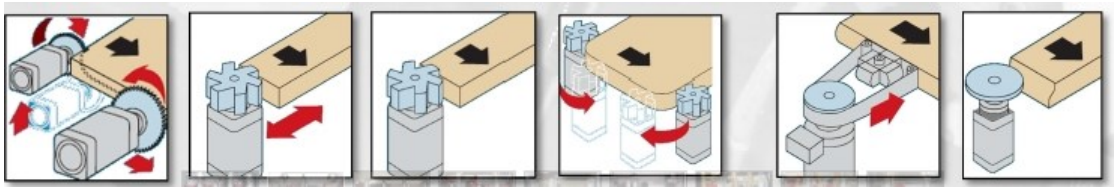


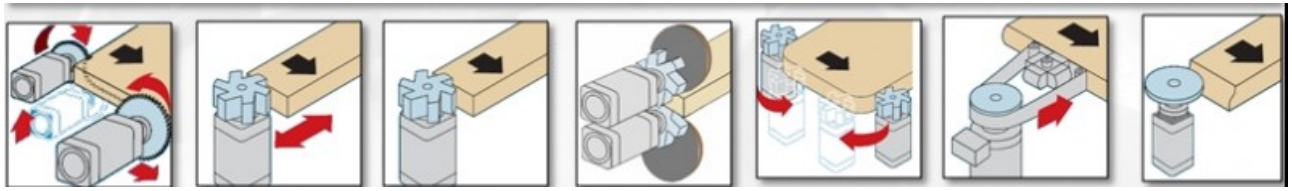






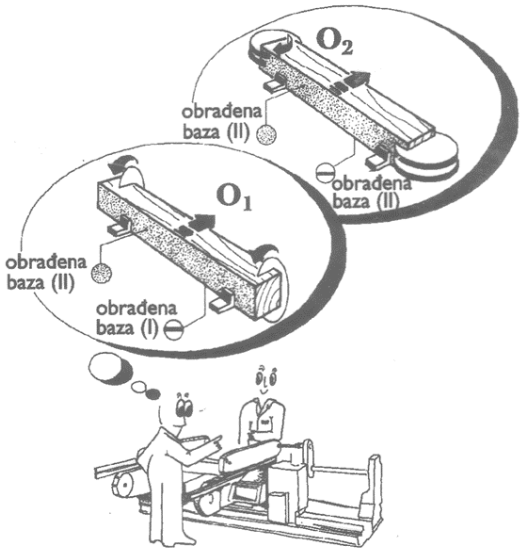




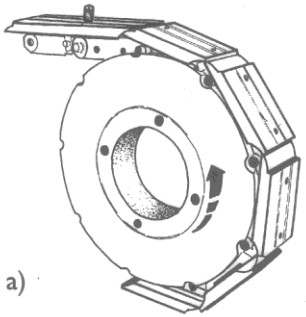


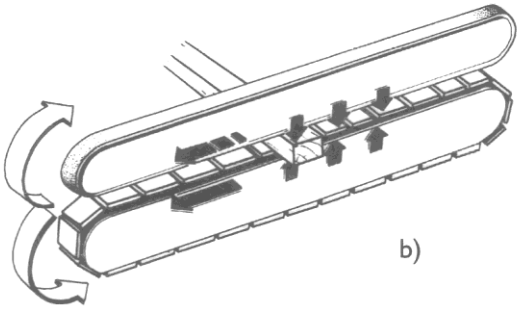
kinematika

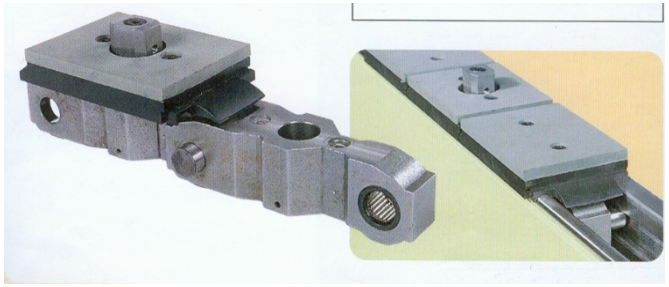
Glavno kretanje



Pomoćno kretanje







profiler

- https://www.youtube.com/watch?v=IG6BdPf9nH4
- https://www.youtube.com/watch?v=9UwRklS60FE

Super 4

- https://www.youtube.com/watch?v=MY1cNo6Au0M
- https://www.youtube.com/watch?v=li0S-Pubq5g

prese

- https://www.youtube.com/watch?v=LvLwchMQ9ws
- https://www.youtube.com/watch?v=qOHb7A6WV5s
- https://www.youtube.com/watch?v=SjY2X0j4Kvo
- https://www.youtube.com/watch?v=zuqD1tq0-wI
- https://www.youtube.com/watch?v=jvy6s4SwKOo
- https://www.youtube.com/watch?v=evFS3F1dmM4
- https://www.youtube.com/watch?v=SW50DMTE-VA
- https://www.youtube.com/watch?v=Bkt_ASNkJUU
- https://www.youtube.com/watch?v=K80QBhenN30
- https://www.youtube.com/watch?v=AbxMy2UA8xA
- https://www.youtube.com/watch?v=gk3-rWQcgW4https://www.youtube.com/watch?v=ulfhYY9MVB8

https://www.youtube.com/watch?v=HbGPRUnrhfA

Zadatak 6

Ploča trpezarijskog stola, dimenzija 1800•900•38mm izrađuje se kao daščana ploča iz bukovog gredica koje su nastavljene po dužini.

- Dimenzija poprečnog preseska gredica koje dolaze na dužinsko nastavljanje iznosi 100•50mm.
- Dužinsko nastavljanje se vrši na gredicama koje su prethodno obrađene. Nakon obrade elementi imaju dimenziju 93•42mm.
- Nakon dužinskog nastavljanja štapovi dimenzija 6000•91•42mm se krate na dužinu od 2000mm.
- Skraćeni štapovi se obrađuju na dimenziju 2000•91•40mm.
- Nakon obrade štapovi se lepe u daščanu ploču (10 lamela širini 91mm).
- Prilikom egaliziranja debljine na širokotračnoj brusilici skida se 1mm po debljini ploče, odnosno 5mm/strani po dužini i širini ploče.

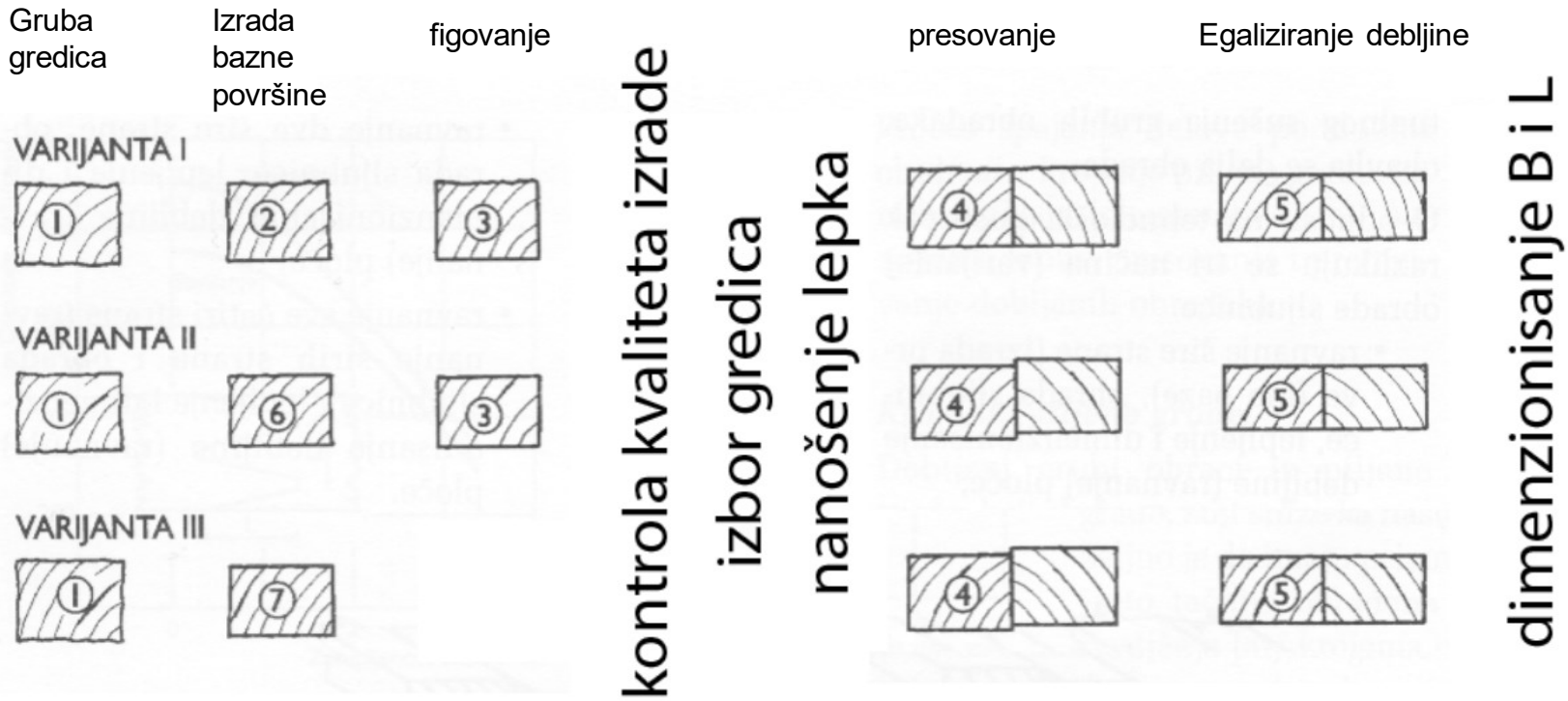
Ulazni podaci

- Potrebna količina ploča: N_d= 250 ploča/dan
- broj smena: n_s=2
- vrsta drveta: bukovina

Metod rada

1. Izabrati tehnologiju za izradu daščanih ploča.
2. Za izabranu tehnologiju proračunati potreban broj mašina.
3. Odrediti režime lepljenja (vrstu lepka, temperaturu lepljenja, silu stezanja, količinu nanosa i vreme stezanja)
4. Proračunati utrošak lepka

1. Obrada sljubnica



Obrada sljubnica

mašina	varijanta obrade
Ravnalica	**1**
Fig mašina – Ledinek	**1/2**
Fig mašina – Weinig Super 4	**3**
Četvorostrana rendisaljka	**3**

$$N = \frac{Q}{P_{sm} \cdot b \cdot c} = \quad [kom]$$

N – potreban broj mašina (kom)
Q – godišnja količina ploča(m^3/god)
P_{sm} – smenska proizvodnst (m^3/smeni)
b – broj radnih dana u godini: b = 250
c – broj radnih smena u danu: c = 2

Mašine sa mašinskom obradom

$$P_{sm} = \frac{u * T * k_r * q_{sr}}{l_o * n} \quad \left[\frac{m^3}{sm}\right]$$

q_{sr} – zapremina ploče
l_o – dužina lamele
n – broj komada (lamela po ploči)

Prese

$$P_{sm} = \frac{T * k_r * n_{etaža}}{t_{lepka}} \quad \left[\frac{kom}{sm}\right]$$

t_{lepka} – vreme dostizanja mehaničke čvrstoće
n – broj etaža u presi

$$P_{god} = P_{sm} * n_{dana} * n_{sm} \quad \left[\frac{m^3}{god}\right]$$

Proračun utroška lepka

- lepak se nanosi obostrano
- količina nanosa q = 250g/m^2

$$Q_l = \frac{N_d \cdot l \cdot d \cdot n_s \cdot q}{k_i} = \left[\frac{Kg}{dan}\right]$$

n_s – prosečan broj sljubnica

$$n_s = \frac{b_{pločl}}{b_{gredice}} - 1$$

ki – koeficijent iskorišćenja: ki = 0.93