



IZRADA POPREČNIH PROFILA OS ZA IZRADU OTVORA

(IZRADA ELEMENATA VEZE)

PODELA ELEMENATA VEZE

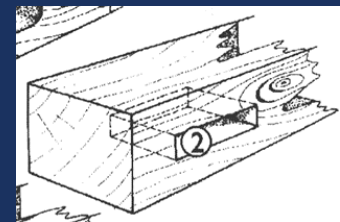
Elementi od masiva

- Prizmatični čep i **žljeb**
- Čep i **prorez**
- Ovalni čep i **žljeb**
- **Tupl-rupa**

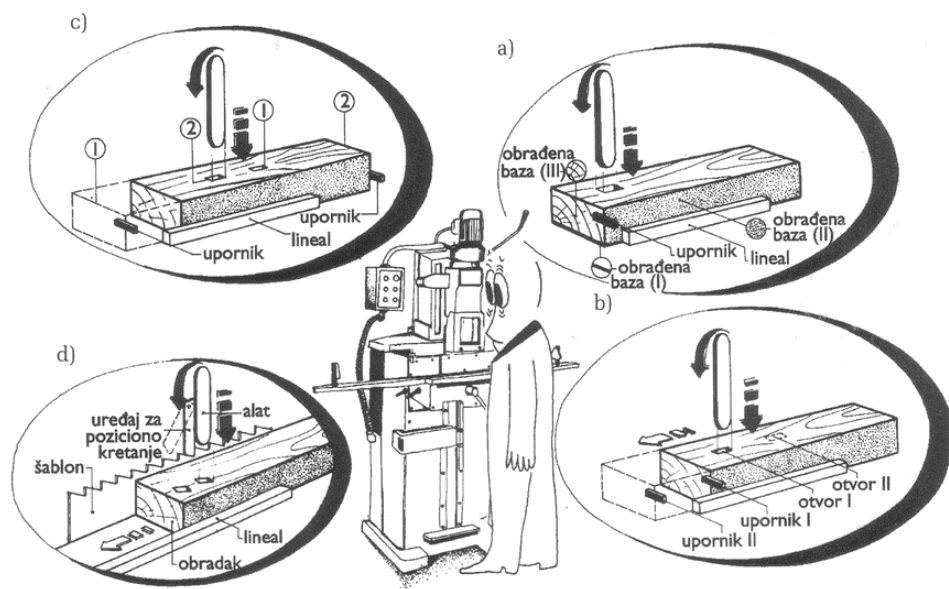
Elementi od ploča

- **Tipl-rupa**
- **M-d elementi veze**

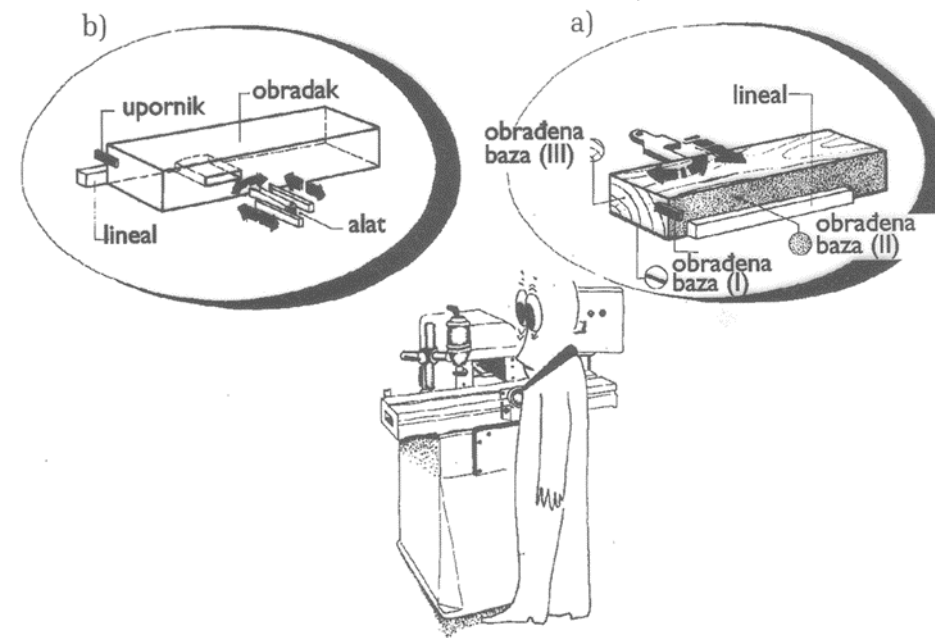
IZRADA PRIZMATIČNIH ŽLJEBOVA



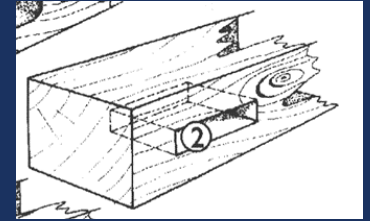
Lančana dubilica



Dubilica-štem mašina



IZRADA PRIZMATIČNIH ŽLJEBOVA LANČANA DUBILICA



- Posluživanje: I radnik
- Br.vretena: 1
- $b = 6 \div 40\text{mm}$
- $h_{\text{max}} = 200\text{mm}$
- $n = 2800 \text{ o/min}$
- $u = 1 \div 2 \text{ m/min}$ (ručno/mehanizovano)
- $E = 1,5 \text{ kW}$ (x br.vretena)



[JAI Chain-n-Chisel Mortiser J-1930 - YouTube](#)

KINEMATIKA

Glavno kretanje



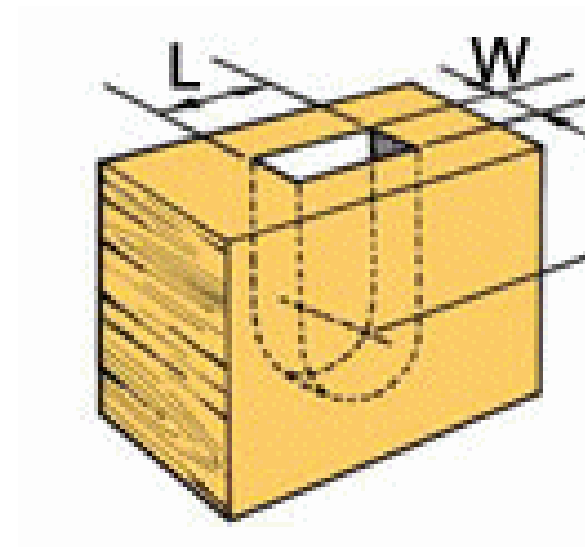
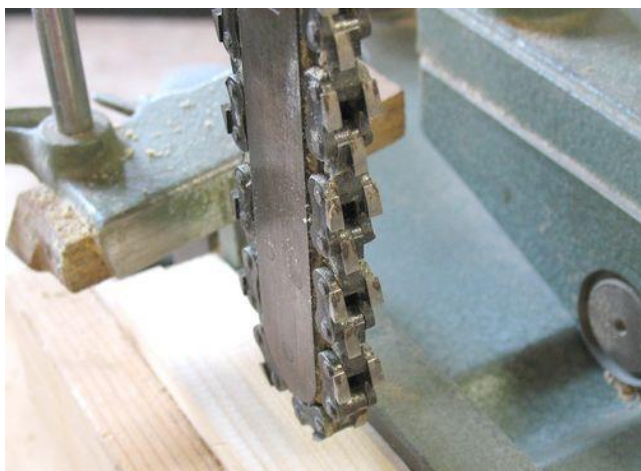
Pomočno kretanje



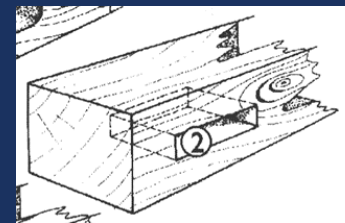
ALATI I REŽIMI

Lančano glodalo

D(mm)	a(mm)	n(o/min)	u(m/mim)
6,8,10,12,..	a=l čepa	2800	1÷2



IZRADA PRIZMATIČNIH ŽLJEBOVA DUBILICA -



- Posluživanje: 1 radnik
- Br.vretena: 1
- $b = 6 \div 20\text{mm}$
- $l_{\text{max}} = 120\text{mm}$
- $b_{\text{max}} = 250\text{mm}$
- $h_{\text{max}} = 200\text{mm}$
- $n = 2800 \text{ o/min}$
- $u = 1 \div 2 \text{ m/min}$ (mehanizovano)
- $E = 4\text{kW}$ (x br.vretena)



<https://www.youtube.com/watch?v=TIynbmOg6fl>

<https://www.youtube.com/watch?v=gDLEuyOEDdQ>

KINEMATIKA

Glavno kretanje



Pomoćno kretanje



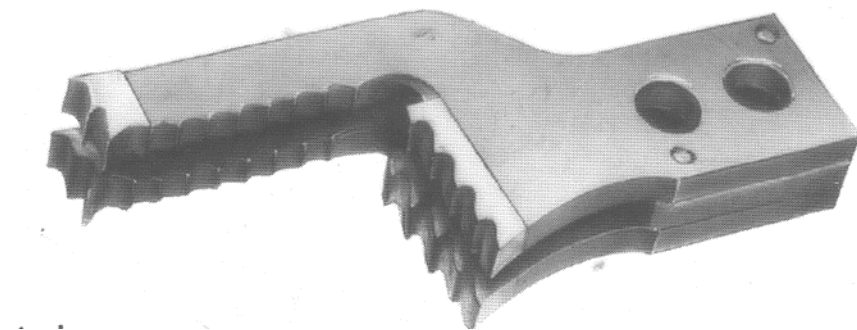
https://www.youtube.com/watch?v=D_QNcFfWLwE

<https://www.youtube.com/watch?v=fEwxmn4nRw0>

ALATI I REŽIMI

Dubilica/dubač

D(mm)	a(mm)	n(o/min)	u(m/mim)
6,8,10,12,..	a=l čepa	2800	$l \div 2$



IZRADA OVALNIH ŹLJEBOVA OSCILATORNA BUŠILICA



- Posluživanje: 1 radnik
- Br.vretena: 1 do 8
- $D = 6, 8, 10, 12, 14, 16\text{mm}$
- $n_{\text{max}} = 12.000 \text{ o/min}$
- $u = 1 \div 2 \text{ m/min}$
(mehanizovano)



<https://www.youtube.com/watch?v=0QXHsEUGOto>

<https://www.youtube.com/watch?v=ol-Ys5uCgGA>

KINEMATIKA

Glavno kretanje

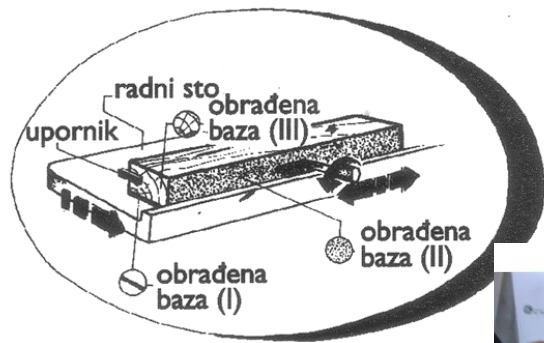


<https://www.youtube.com/watch?v=WSQ2yMmUcyY>

<https://www.youtube.com/watch?v=uFj-ahyy6OI>

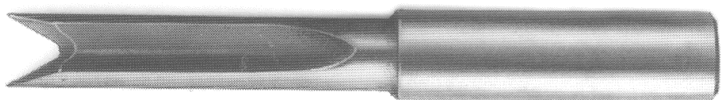
KINEMATIKA

Pomoćno kretanje

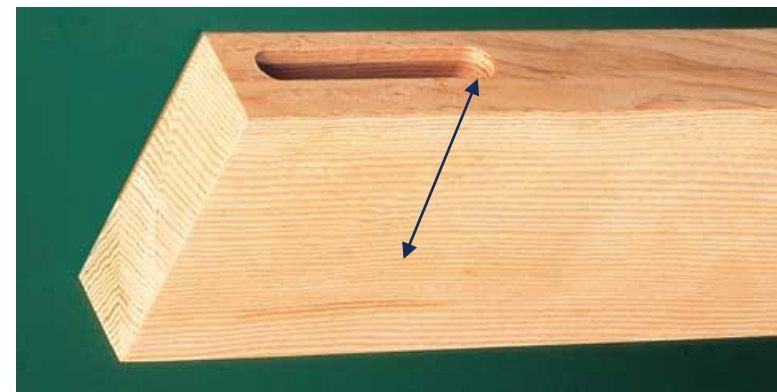


ALATI I REŽIMI

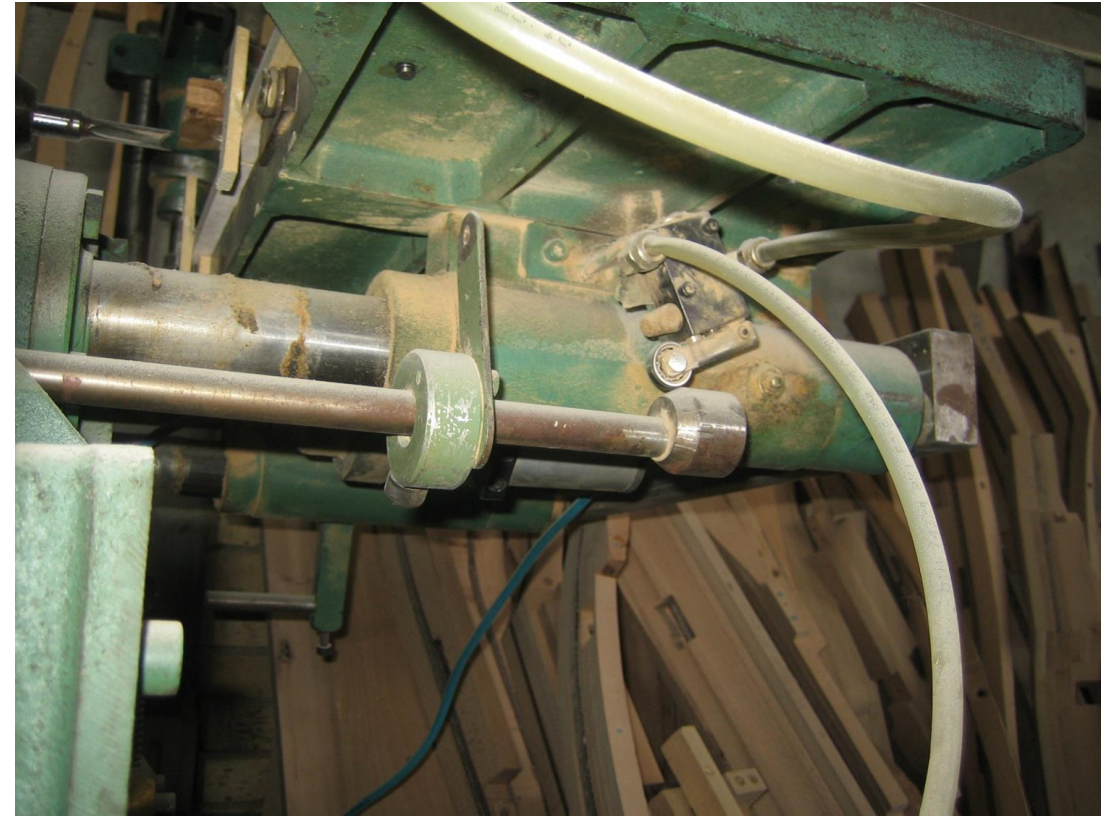
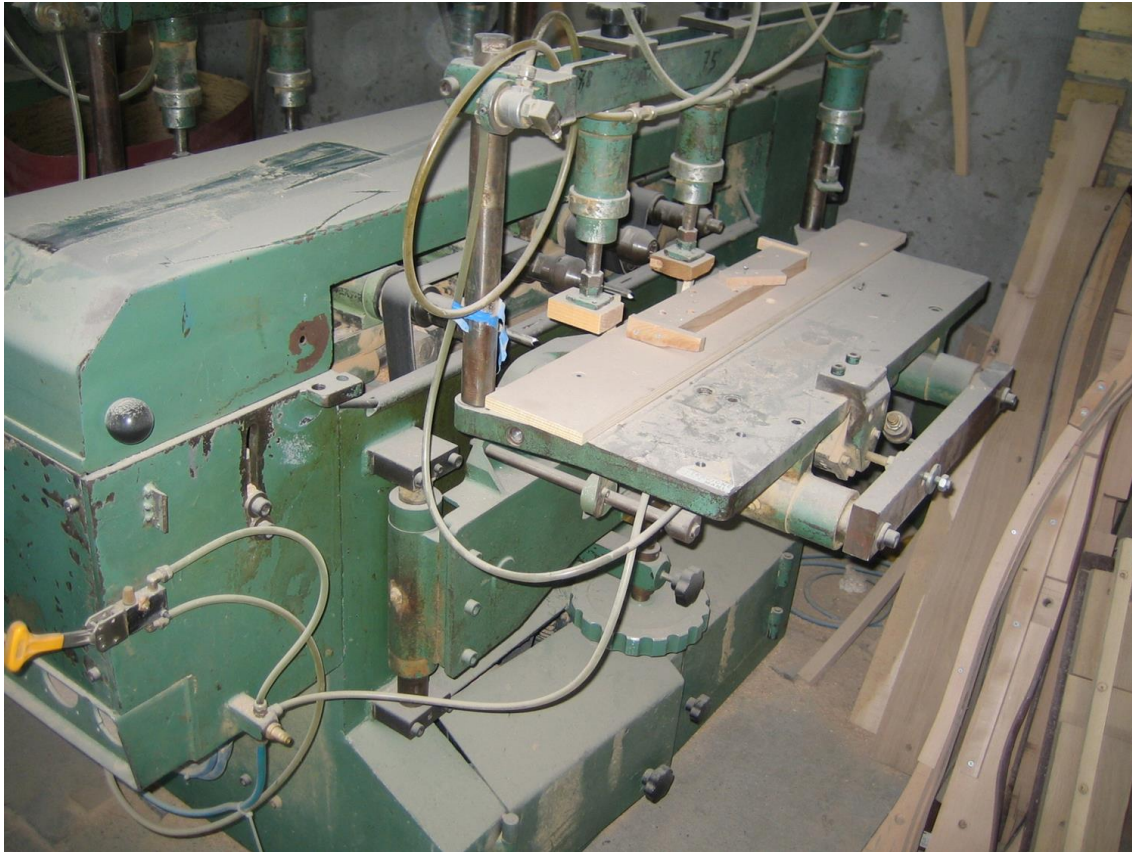
Glodalo



D(mm)	a(mm)	n(o/min)	u(m/mim)
8,10,12,..	a=l čepa	9÷12.000	1÷2



PODEŠAVANJE MAŠINE

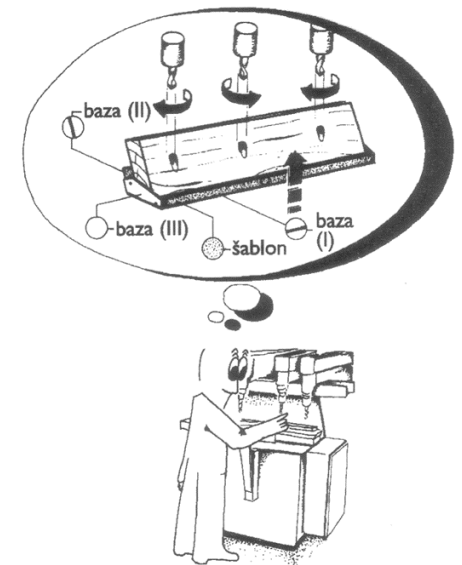
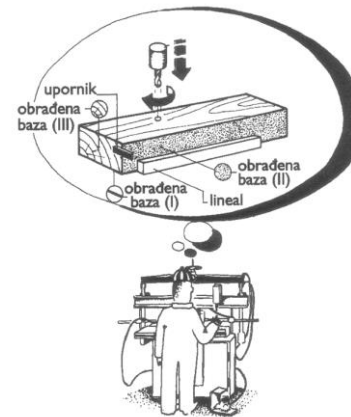


BAZNE POVRŠINE



IZRADA OTVORA PODELA BUŠILICA

- Viševretene stolne bušilice
- Protočne bušilice (automatske)
- CNC portalne bušilice
- Vertikalne/horizontalne bušilice
- Bušilice za ramove i postolja



IZRADA OTVORA VEŠEVREtenA STOLNA BUŠILICA



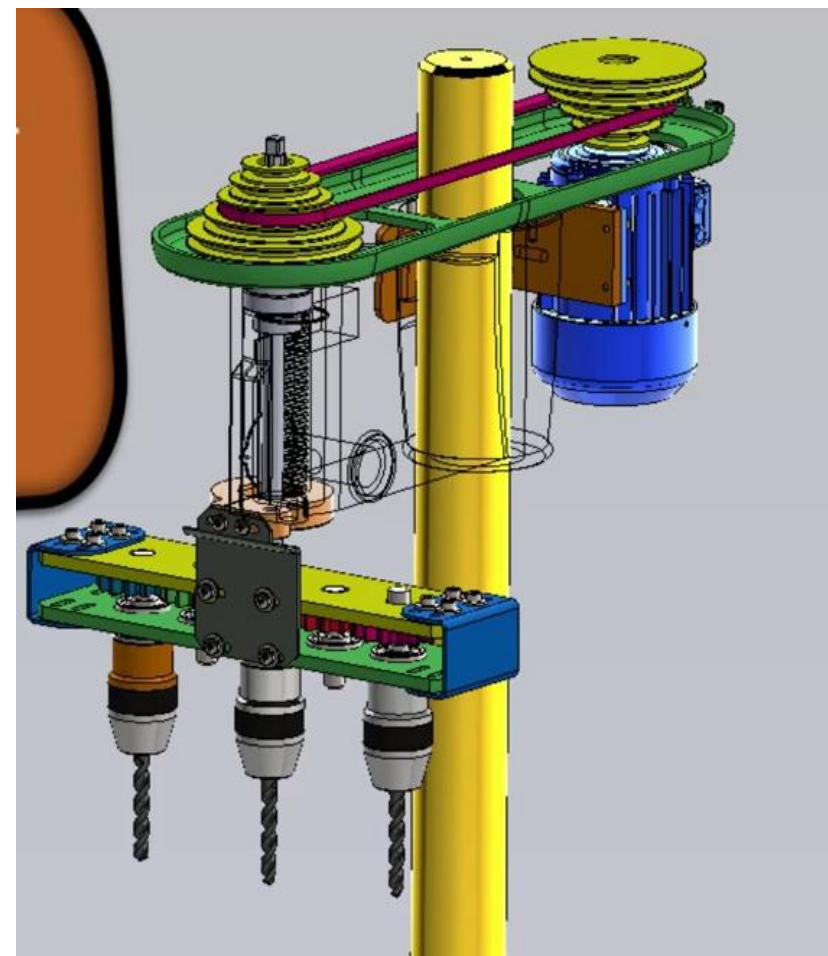
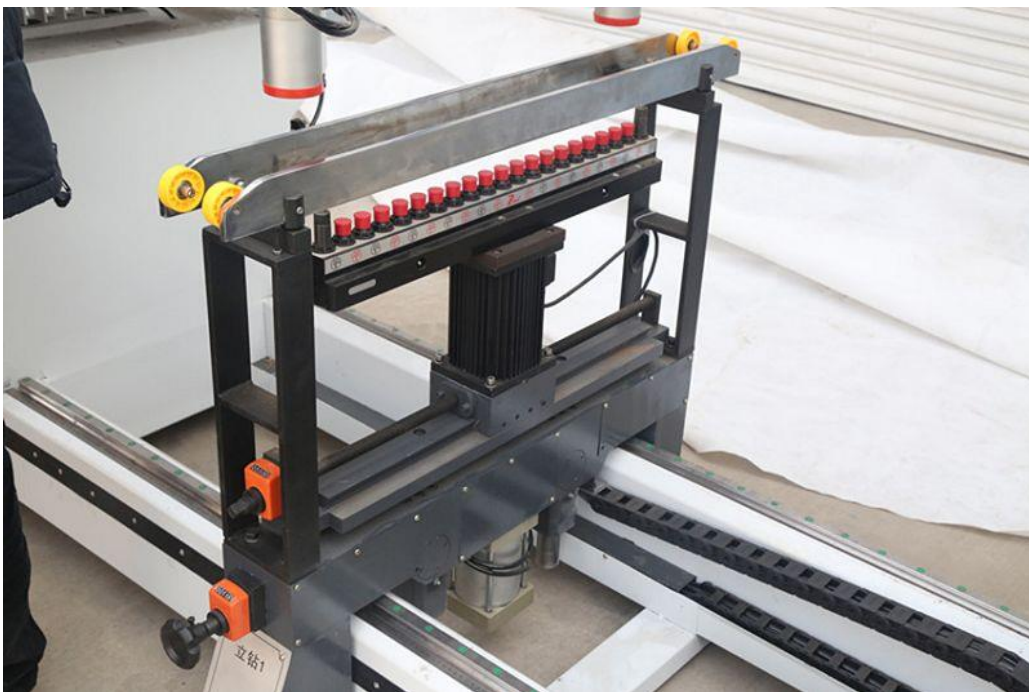
- Posluživanje: 1 radnik
- Br.vretena: 21 ili 27 (1 blok)
- $D = 6 \div 40 \text{mm}$
- $n_{\text{max}} = 3.000 (2.850) (4.000) \text{ o/min}$
- $u = 1 \div 2 \text{ m/min}$ (mehanizovano)



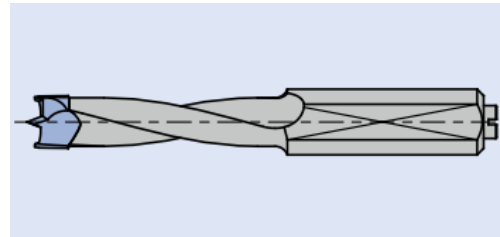
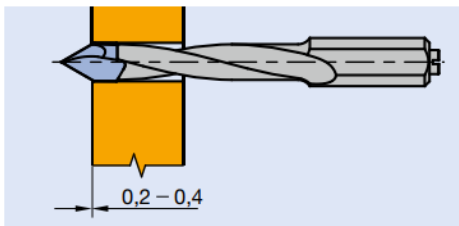
<https://youtu.be/9RbMtbwrTRk>

IZRADA OTVORA VEŠEVREtenA STOLNA BUŠILICA

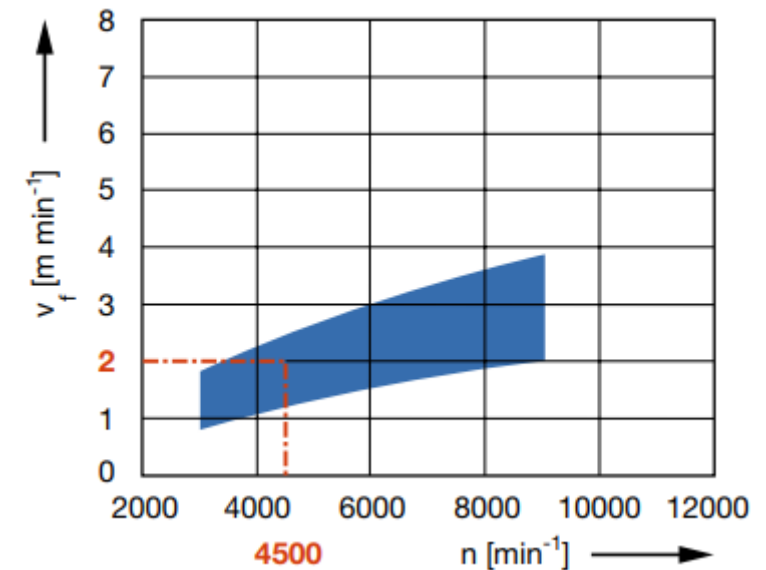
Glavno kretanje



ALATI I REŽIMI



D(mm)	a(mm)	n(o/min)	u(m/mim)
1,2,	a=l rupe	2.850	l ÷ 2



IZRADA OTVORA PROTOČNE (AUTOMATSKE) BUŠILICE



- Posluživanje: 1/2 radnika
- Br.vretena: 21 ili 27 x br.blokova
- $D = 6 \div 40 \text{mm}$
- $n_{\text{max}} = 3.000 (2.850) \text{ o/min}$
- $u = 1 \div 2 \text{ m/min (mehanizovano)}$



IZRADA OTVORA PROTOČNE (AUTOMATSKE) BUŠILICE

Blokovi sa alatima:
1 horizontalni
2/3 vertikalna



Blokovi sa alatima:
2 horizontalna
4/5 vertikalnih



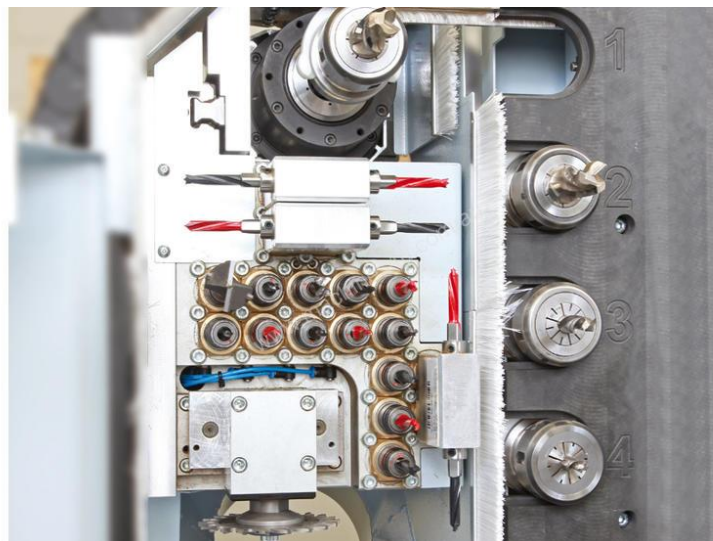
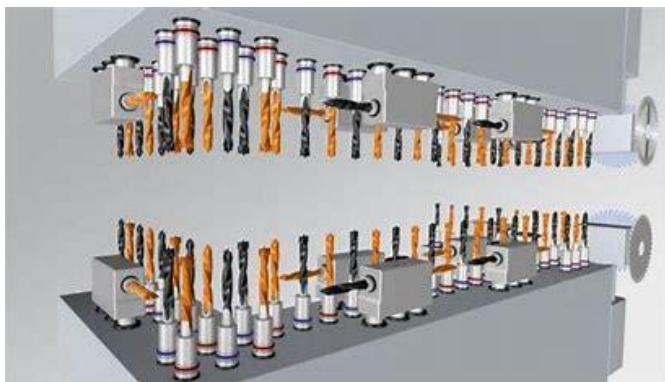
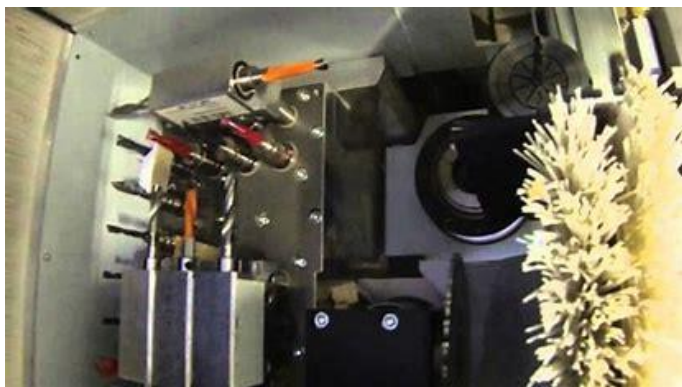
IZRADA OTVORA CNC PORTALNE BUŠILICE



- Posluživanje: 1 radnik
- Br.vretena: 13+ burgija + k.pila+ glodalo
- $u = 1 \div 2$ m/min (mehanizovano)

IZRADA OTVORA VEŠEVREtenA STOLNA BUŠILICA

Glavno kretanje



IZRADA OTVORA VEŠEVREtenA STOLNA BUŠILICA

Poziciono kretenje



<https://wtp.hoechsmann.com/lexikon/28909/TBO-System#gallery-2>

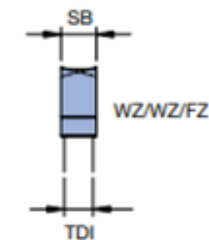
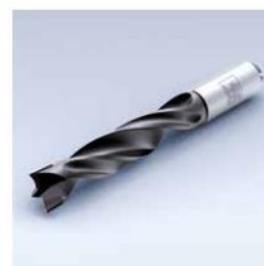
DETALJ SA 2 OSE

DETALJI SA PRIZMATIČNIM POPREČNIM PRESEKOM

TEHNOLOŠKI PROCES - DIMENZIONISANJE ŠIRINE

Alati /režimi

alat	D (mm)	a (mm)	n (o/min)	u (m/mim)
Glodalo 1	10	0,2÷2	22.000	6÷12
Glodalo 2	60	0,2÷4	16.000	<16
Burgije	>5	2	2÷4.500	1÷4(2)
K.testere	<250	a=debljini materijala	<16	<16



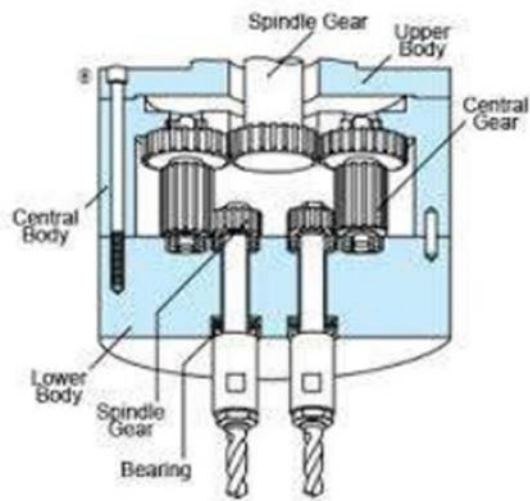
IZRADA OTVORA VERTIKALNE/HORIZONTALNE BUŠILICE



- Posluživanje: 1 radnik
- Pripremak: buši se element
- Br.vretena: **ne rade** u sistemu „32“
- $u = 1 \div 2$ m/min (mehanizovano)

IZRADA OTVORA VEŠEVREtenA STOLNA BUŠILICA

Glavno kretanje



Pomoćno kretanje

Pravolinijsko kretanje ili radnog stola ili
suporta sa alatima



IZRADA OTVORA VERTIKALNE BUŠILICE



IZRADA OTVORA VERTIKALNE BUŠILICE



IZRADA OTVORA HORIZONTALNE BUŠILICE



IZRADA OTVORA HORIZONTALNE BUŠILICE



IZRADA OTVORA BUŠILICE ZA RAMOVE I POSTOLJA



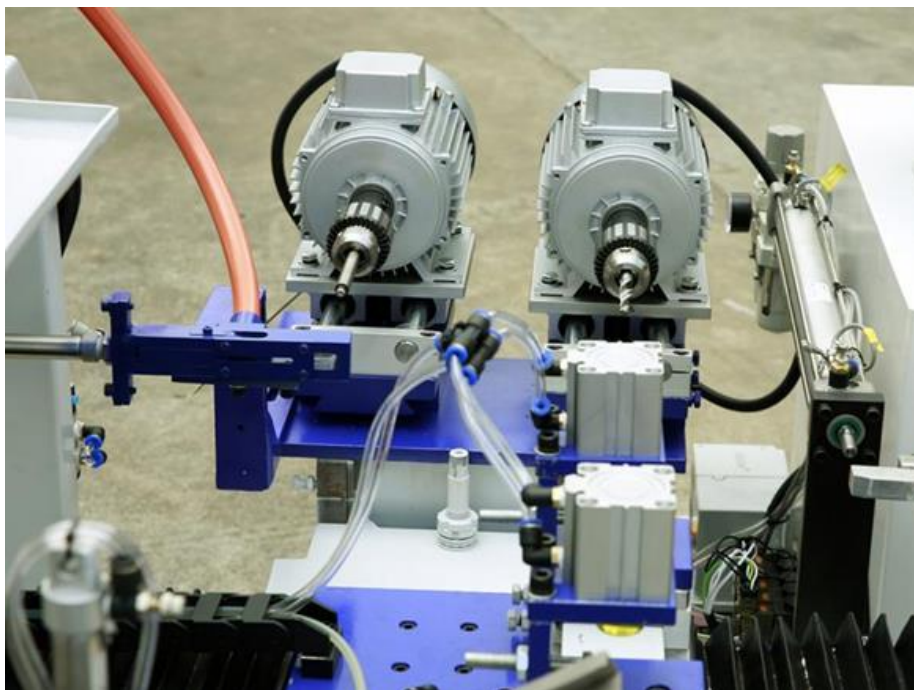
- Posluživanje: 1 radnik
- Pripremak: buši se sastav!
- Br.vretena: **ne rade** u sistemu „32“
- $u = 1 \div 2$ m/min (mehanizovano)

IZRADA OTVORA BUŠILICE ZA RAMOVE I POSTOLJA

Glavno kretanje

Pomoćno kretanje

Pravolinijsko kretanje suporta sa alatima



IZRADA OTVORA BUŠILICE ZA RAMOVE I POSTOLJA

