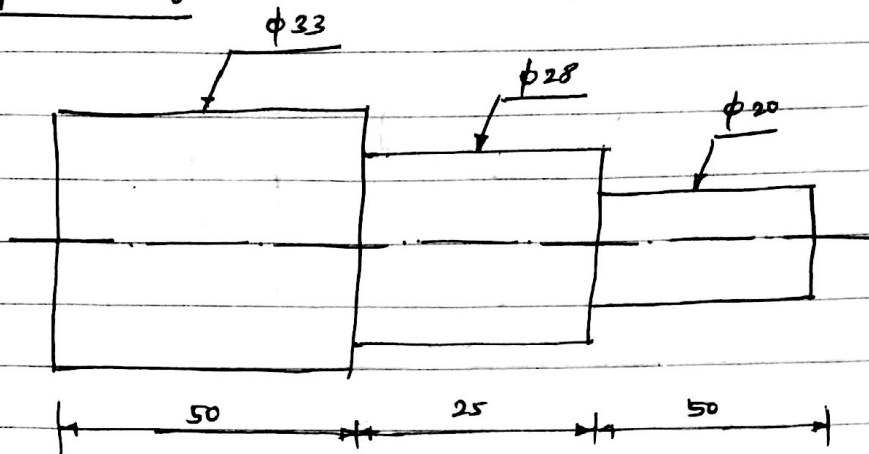


CNC LATHE

Step Turning:

①

Ex 1



G21 G98

G28 U0 W0

M06 T0101

M03 S1000 M08

G00 X33 Z0

G00 X30.5 Z0

G01 X30.5 Z-75 F100

G00 X33 Z-75

G00 X28 Z0

G00 X28 Z0

G01 X28 Z-75 F100

G00 X33 Z-75

G00 X33 Z0

G00 X24 Z0

G01 X24 Z-50 F100

G00 X33 Z-50

G00 X33 Z0

G00 X20 Z0

G01 X20 Z-50 F100

G00 X33 Z-50

G00 X33 Z0

G28 U0 W0

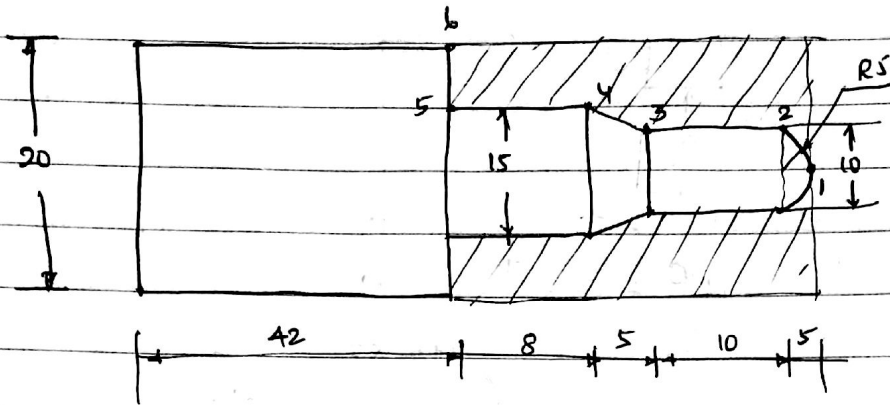
M09

M05 M30

Ex: 2

Multiple Turning Cycle:

(2)



BILLET $\phi 22 \times 65 \text{ mm}$

G21 G98

G28 U0 W0

M06 T0101

M03 S1500

G00 X21 Z2

G71 U0.5 R1

G71 P1 Q7 W0.1 W0.1 F100

N01 G01 X0

N02 G01 Z0

N03 G03 X10 Z-5 R5

N04 G01 X10 Z-5

N05 G01 X15 Z-20

N06 G01 X22 Z-28

G70 P1 Q7 S1500 F60

G28 U0 W0

M05

M30

U = depth of cut

R = Retraction

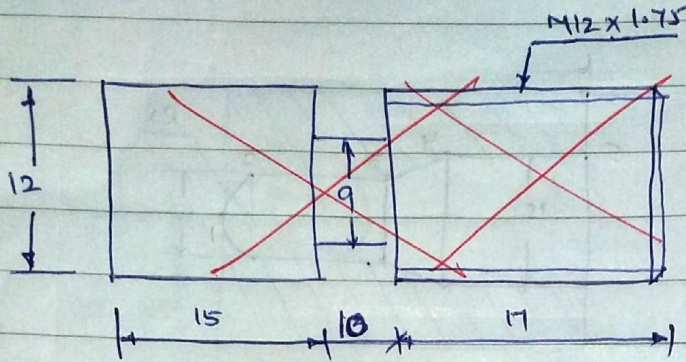
P = Starting block

Q = Ending block

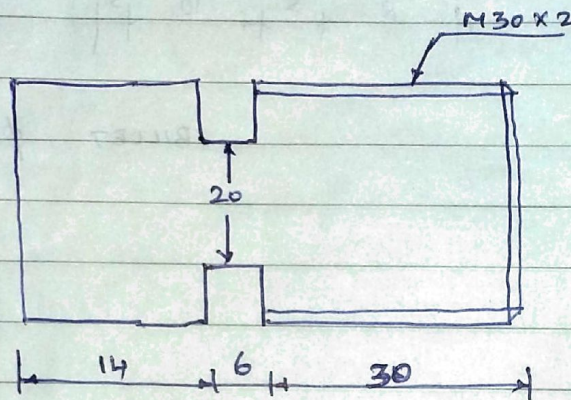
U = finishing allowance

W = 1 X-axis
Z-axis

Grooving and Threading operation



3



3

$$\text{core dia} = d - 2p$$

$$= 30 - (2 \times 0.613)$$

$$\text{core dia} = 28.774 \text{ mm}$$

G21 G98
G100 X30 Z0
M06 T0202 (Parting tool)

M03 S750 M08

G00 X30 Z-33

G75 R1

G75 X20 Z-36 P50 Q3000 F30

G00 X30 Z-36

M06 T0505 (Threading tool)

M03 S500

G00 X30 Z0

G76 P030060 Q100 R1

G76 X28.774 Z-30 P1000 Q100 F2

G00 X30 Z0

G28 U0 W0

M09 M05 M30

G75

R = Retract amount after each pass.

X = Final groove dia. to be cut

Z = Z position of last groove

P = depth of each cut in X

Q = step over in Z

F = feed rate.

G76

P03 No. of finish cuts.

00 No. of leads for pull out

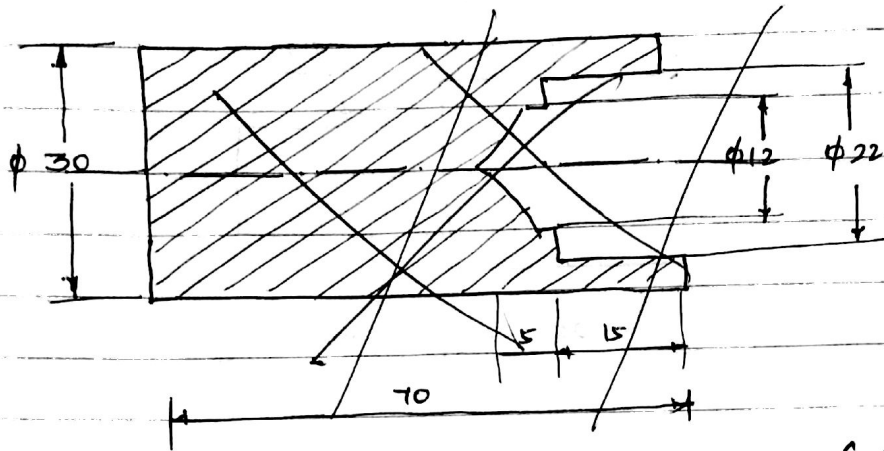
60 Angle of thread.

P Single depth of thread.

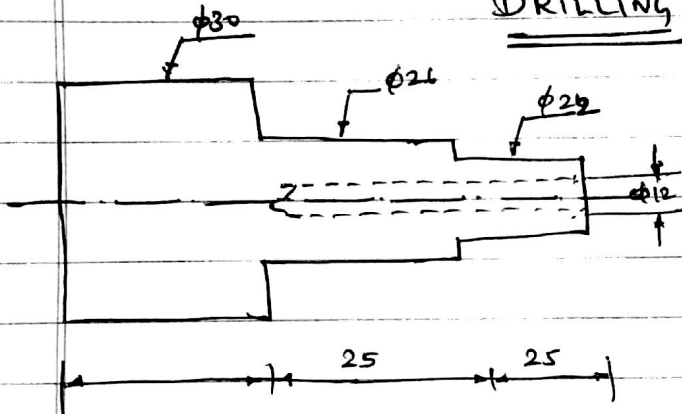
F Feed rate (pitch)

4

Drilling & Boring operation:



DRILLING



G74

R = Retract amount after each peck.

X = Finish dia.

Z = End Z position.

p = Stepover in X

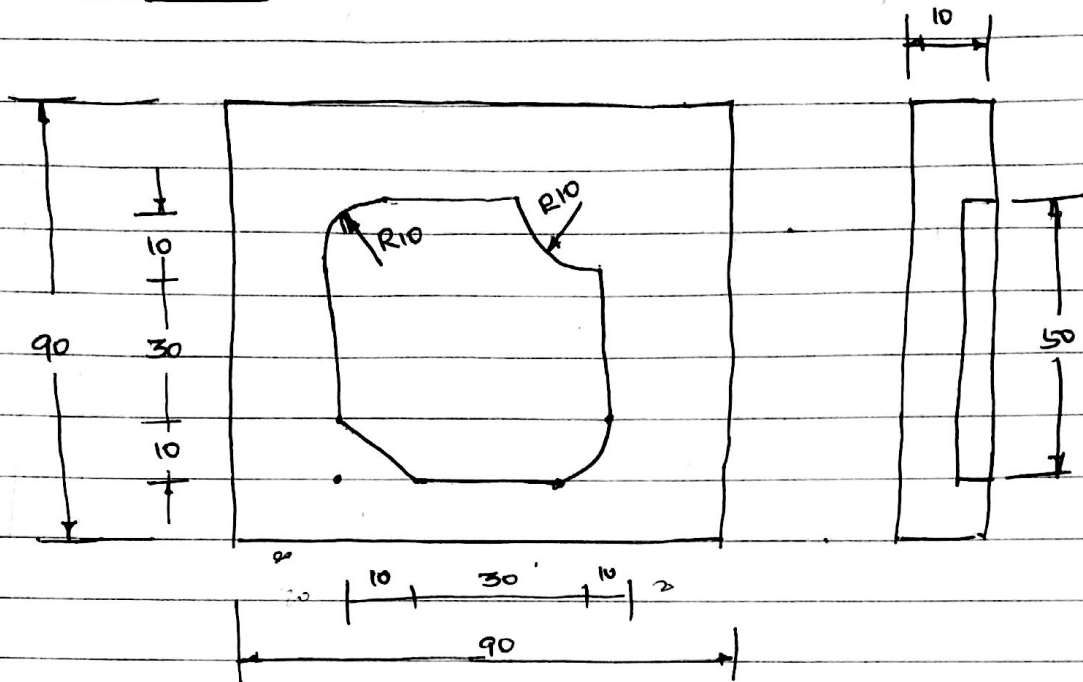
Q = Retract amount at the end of each cut.

F = Feed rate.

G21 G98
G28 U0 W0
M06 T0101
M03 S1200 M08
G00 X28 Z0
G01 X28 Z-50 F10
G00 X30 Z0
G00 X26 Z0
G01 X26 Z-50 F10
G00 X30 Z0
G00 X24 Z0
G01 X24 Z-25 F10

G00 X30 Z0
G00 X22 Z0
G01 X22 Z-25 F10
G00 X30 Z0
G00 X0 Z0
M06 T0606
M03 S500 M03
G74 R2
G74 X12 Z-50 P10 Q200 R0.1 F1
G00 X0 Z0
M09 M05 M30

Contour Milling.



[BILLET x90 y90 z10

G21 G28 Z0

G91 G28 X0 Y0

G40 G80 G90 G94

M06 T0101

M03 S1500

G00 X20 Y20 Z5 M08

G01 Z-5 F100

G01 X60 Y20 F100

G03 X70 Y30 R10 F50

G01 X70 Y60 F100

G02 X60 Y70 R10 F50

G01 X30 Y70 F100

G03 X20 Y60 R10 F50

G01 X20 Y30 F100

G01 X30 Y20 F100

G00 Z5 M05

M09

G28 Z0

G28 X0 Y0

M30

G21 - Metric units

G40 Radius compensation off

G90 - Abs. coordinate mode

G94 - Feed rate /min

G80 - Fixed cycle cancel

M03 - Spindle on CW

M06 - Automatic tool change

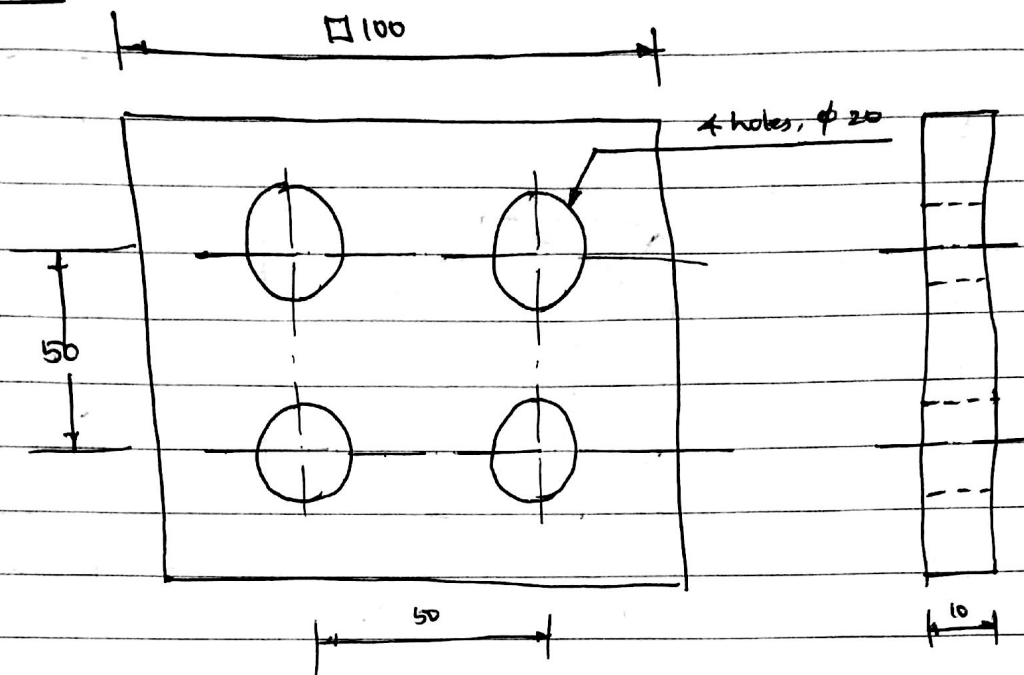
M08 - coolant on

M09 - coolant off

M30 - End of program with reset & rewind.

2

Peck Drilling :



[BILLET X100 Y100 Z10

G21 G28 Z0

G21 G28 X0 Y0

G40 G90 G94

M06 T0202

M03 S500

G00 Z10

G00 X25 Y25 M03

G83 Z-5 @1 R1 K1

G00 Z10

G00 X75 Y25

G83 Z-5 @1 R1 K1

G00 Z10

G00 X75 Y75

G83 Z-5 @1 R1 K1

G00 Z10

G00 X25 Y75

G83 Z-5 @1 R1 K1

G00 Z10

M09

G28 Z0

G28 X0 Y0

M30

G83 - deep hole drilling cycle

~~G81 G83 Z-5 R-10 F50~~

G83 Z-5 @1 R1 K1

@ = depth of cut for each Pass

R = Return point level

Drilling cycle

G81 X25 Y25 Z-5 R1 F0.1

X75 Y25

X75 Y75

X25 Y75