

Practical No. 7

AIM: - Using canned cycle - Create a part program for drilling, tapping, counter sinking and produce component in the Machine

Canned cycle

Theory: - Canned cycle or fixed cycle may be defined as a set of instructions, inbuilt or stored in the system memory, to perform a fixed sequence of operations. A canned cycles defines a series of machining sequence for drilling, boring, tapping etc. The canned cycle G81 to G89 are stored as subroutines L81 to L89. These cycles are used for repetitive and commonly used machining operations.

Part Program for Canned cycle for drilling, counter sinking and tapping on a workpiece of size 100 (L) x 100 (W) x 50 (H) (All dimensions are in mm). Fig. 7.1(a), 7.1(b) and 7.1(c) represent the front view side view and top view of workpiece, respectively. Figure 5.2 is final workpiece after milling operation.

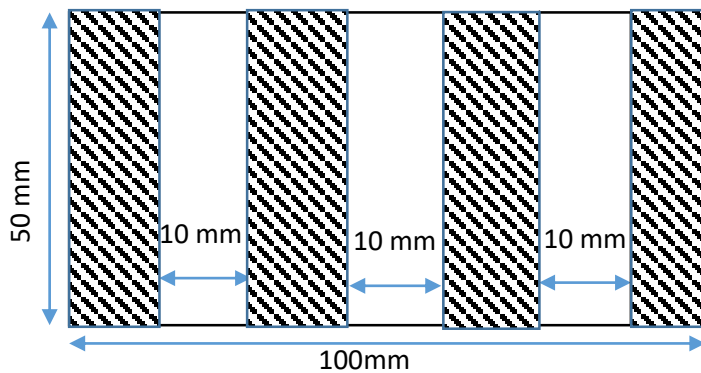


Fig 7.1(a) Front View

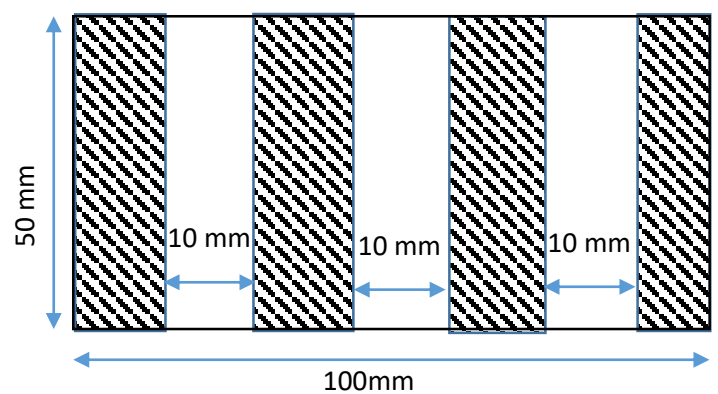


Fig 7.1(b) side View

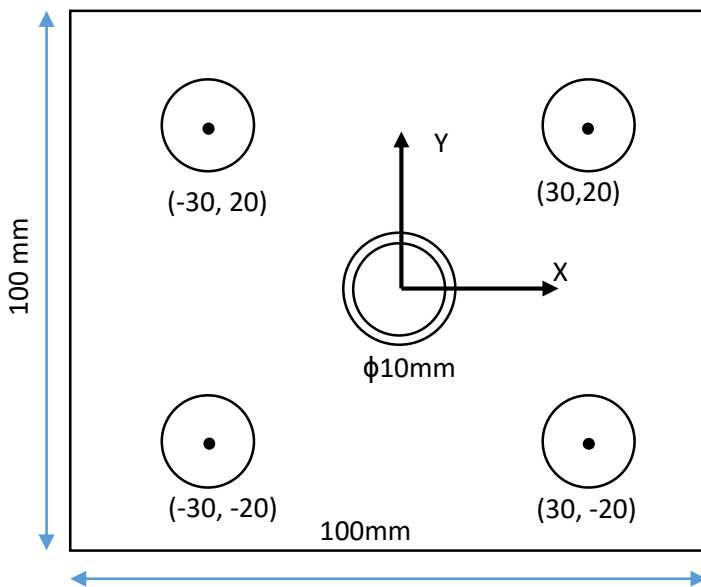


Fig 7.1(c) Top View

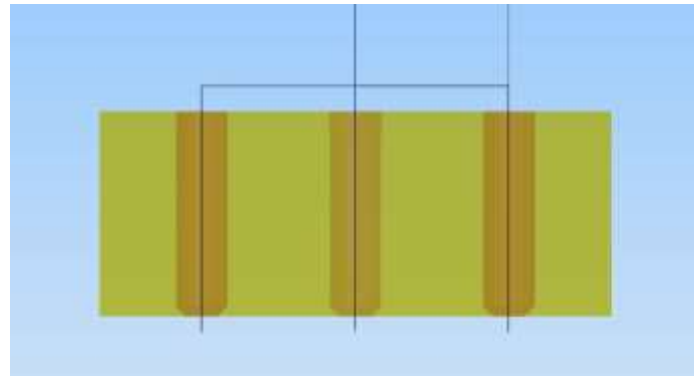


Fig 7.2 final workpiece

Table 1 represent the part program for drilling, tapping, counter sinking canned cycle

Table 1 Program for Canned cycle - drilling, tapping and counter sinking

Program	Comment
G90G55G40G17	(Parameter settings)
M06T1D1	(Tool change for drilling of diameter 10mm)
M03S200	(Spindle Rotate clock wise at 200 rpm)
M07	(Coolant On)
G00X0Y0	(Rapid travel in x and y)
Z5	(Rapid travel in z)
G98G73X0Y0Z-43.0Q1.0R0.5F0.5	(Drilling cycle G73 or G81 first hole at (0,0))
X30Y20	(Second hole at (30,20))
X-30Y20	(Third hole at (-30,20))
X-30Y-20	(Fourth hole at (-30, -20))
X30Y-20	(Fifth hole at (30, -20))
G80	(Cancel canned cycle)
G74Z0	(Return to home position)
M05	(Spindle Stop)
M06T2D1	(Tool change for counter sinking)
M03S200	(Spindle Rotate clock wise at 200 rpm)
G00X0Y0	(Rapid travel in x and y)
Z5	(Rapid travel in z)
G98G82X0Y0Z-8.0R0.0P1000F0.5	(Counter sinking cycle G82)
G80	(Cancel canned cycle)
G74Z0	(Return to home position)
M05	(Spindle Stop)
M06T3D1	(Tool change for tapping of diameter 10mm)
M03S200	(Spindle Rotate clock wise at 200 rpm)
G00X0Y0	(Rapid travel in x and y)
Z5	(Rapid travel in z)
G98G84X0Y0Z-30.0R0.0P1000F1.0	(Tapping cycle G81)
G80	(Cancel canned cycle)
G00Z5	(Rapid travel in z)
G74Z0	(Return to home position)
M09	(Coolant off)
M05	(Spindle Stop)
M30	(End Program)