2.9.27 HOLE PATTERN CYCLESS (G70, G71, G72)†

With this function, when a radius and a center angle are specified, the corresponding rectangular coordinate positions are computed automatically and the tool is brought to the required positions. This function is used in conjunction with one of the canned cycles G81 through G89, G73, G74, G76 and G77. With this function, the bolt hole cycle, the arc cycle, and the line at angle cycle are programmed. The tool moves to the position specified by a radius and an angle in rapid traverse (G00).

· Bolt hole cycle (G70)

G70 X··· Y··· I··· J··· L··· ;

With this command, the tool is positioned successively at equally spaced L points on a circle with the center at X, Y and the radius of I, starting at a point located on a line forming J degree with the X axis. In the command,

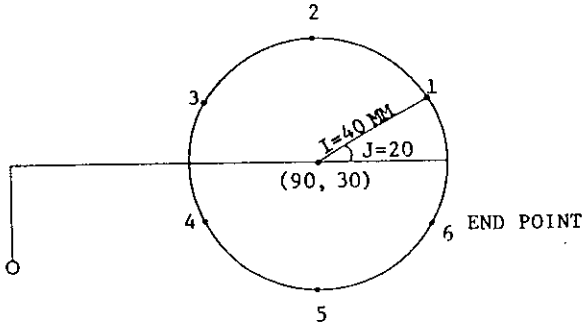
X,Y: Coordinates of the bolt hole cycle, defined either in G90 or G91 mode.

I is the radius of the bolt hole circle, programmed in a positive number and programmed with an accuracy of the least input increment.

J is the angular position of the first hole, programmed in degrees with an accuracy of 0.001 degree. CCW direction is regarded positive.

L is the number of division of the circumference.
For the counter-clockwise sequence, positive numbers are programmed, and vice versa.

EXAMPLE



G81 G98 G90 Z-50. R-20. F20 L0 ;
G70 X90 Y30 I40. J20. L6 ;
G80 G00 X0 Y0 ;

Fig. 2.77

· Arc cycle (G71)

With this function, when the following command is given, the tool is successively positioned to L points located on a circular arc with the center located at X, Y and with the radius of I, at a center angle of K degrees, starting from the point lying on a line intersecting the X axis at J degrees.

G71 X··· Y··· I··· J··· K··· L··· ;

X, Y: Coordinates of the arc center, defind either in G90 or G91 mode

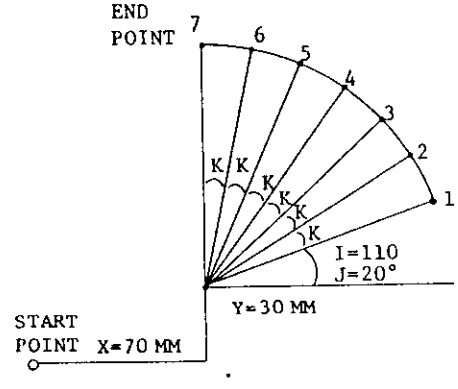
I: Radius of the arc programmed with an accuracy of the least programmable increment, and in positive numbers

J: Angular position of the first hole, programmed in 0.001 degrees. Positive values are used to command counter-clockwise direction.

K: Angular spacing in degrees with an accuracy of 0.001 degrees. Positive values are used to command counter-clockwise direction.

L: Number of holes, to be set in positive numbers.

EXAMPLE



G81 G98 G90 Z-50. R-20. F20 L0 ;
G71 X70. Y30. I110. J20. K15.2 L7 ;
G80 G00 X0 Y0 ;

Fig. 2.78