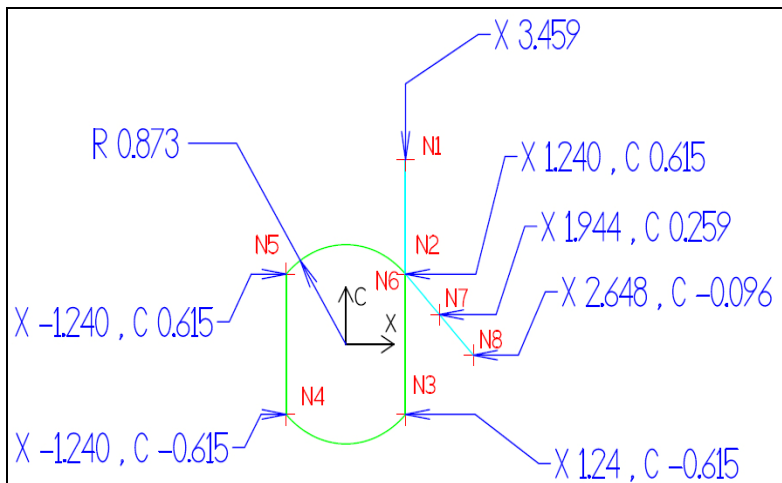


## Polar Interpolation Cycle – Hyundai-Kia SKT LMS Lathe Series

### Application Notes:

- Polar Interpolation Cycle, lathe live tooling – C-Axis programming is done using diameter values. When the part is analyzed on the X-Y coordinate map, double X values, and change Y to C for coding.
- Cutter compensation needs to be entered into and exited inside the G12.1 Cycle.
- Rapid moves are not allowed.



**Figure 1 Milling on a Lathe**

### Example One - Hyundai-Kia SKT LMS

*Please refer to Figure 1 for the following code*

(POLAR INTERPOLATION CYCLE)

M01

G18 G40 G96 G80

G28 G0 U0. W0.

N1 T0606

M43 (TURN ON C-AXIS)

G0 C0. (MAIN SPINDLE C-AXIS POSITIONING)

M111 (SELECT LATHE MILLING LIVE TOOL SPINDLE)

G97 S4500 M13 (TURN ON LATHE DRIVEN TOOL SPINDLE)

N1 G0 G98 G54 X3.459 Z0.1

G1 Z-.078 F75.

G12.1 (START G12.1 POLAR INTERPOLATION CYCLE)

N2 G1 G41 X1.240 C.615 F15.

N3 C-.615

N4 G2 X-1.24 R.873

N5 G1 C.615

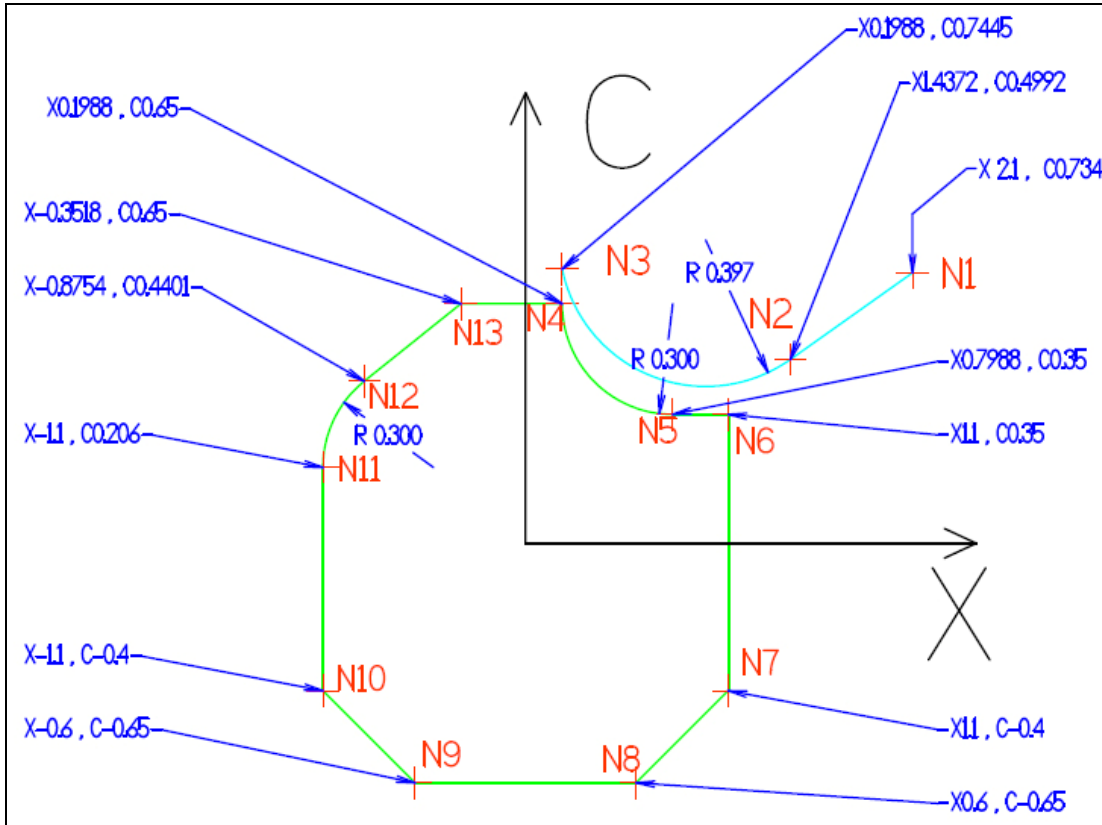
N6 G2 X1.24

N7 G1 X1.944 C0.259 F45. (FEED OFF PART)

N8 G40 X2.648 C-.096 (CUTTER COMP OFF WITH FEED MOVE)

G13.1 (END G12.1 POLAR INTERPOLATION CYCLE)

G0 X3.5



**Figure 2 Milling on a Lathe**

## Example Two Hyundai-Kia SKT LMS

Please refer to Figure 2 for the following code

(POLAR INTERPOLATION CYCLE)

M01

G18 G40 G96 G80

G28 G0 U0. W0.

T????

M43 ((TURN ON C-AXIS)

G0 C0. (MAIN SPINDLE POSITION)

M111 (SELECT MILL SPINDLE)

G97 S4500 M13

N1 G0 G98 G54 X1.24 Z0.1

G1 Z-.3 F75. (ROUGH CONTOUR .3 DEEP)

G12.1 (START G12.1 POLAR INTERPOLATION CYCLE)

N2 G1 G42 X1.4373 C.4992 F15.

N3 G2 X.1989 C.7445 R.3972 F18.

N4 G1 G41 X.1989 C.65 F15.

N5 G3 X.7989 C0.35 R.3

N6 G1 X1.1

N7 C-.4

N8 X.6 C-.65

N9 X-.6

N10 X-1.1 C-.4

N11 C.206

N12 G2 X-.8753 C.4401 R.3

N13 G1 X-.3517 C.65

N40 X.1989

X1.7227 C.6005 F45. (FEED OFF PART)

G40 X2.0997 C.7343 F75. (CUTTER COMP OFF WITH FEED MOVE)

G13.1 (END G12.1 POLAR INTERPOLATION CYCLE)