38-05 Solution

Multistart Thread

The solution to the multistart threading project uses the same program as developed in project *35-05*. It summarizes four new programs for threading, from a single start to a four start thread. Toolpath for the non-threading tools is the same, listed on this page. On the next page, all four threading programs are listed for comparison. Any one of these programs should be inserted after the block N37 (T06), and blocks for the part-off tool should be renumbered as needed. Study the solution carefully, and pay attention to the start of thread for each start and the feedrate. Also note the decrease in spindle speed for the three and four start threads.

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(38-05 - MULTISTART THREAD)
(BASED ON 35-05 - FACE - TURN - PART-OFF)

(T01 - 80/55 DEG OD - ROUGH OD ONLY - NO U/CUT)
N1 G20 G50 T0100
N2 G96 S550 M03
N3 G00 X1.2 Z0 T0101 M08
N4 G01 X-0.07 F0.003
N5 G00 Z0.1
N6 G42 X1.03
N7 G71 P8 Q13 U0.02 W0.002 D0500 F0.01
N8 G00 X0.535
N9 G01 X0.875 Z-0.07 F0.002
N10 Z-1.5
N11 X0.975 K-0.02
N12 Z-2.125
N13 U0.2 F0.03
N14 G00 G40 X4.0 Z4.0 T0100
N15 M01

(T05 - 0.125 WIDE PART-OFF TOOL - CLEAN-UP U/CUT)
N16 T0500
N17 G97 S1750 M03
N18 G00 Z-1.46 T0505 M08
N19 X1.2
N20 G01 X0.795 F0.003
N21 G00 X1.2
N22 X4.0 Z4.0 T0500
N23 M01

(T06 - 35 DEGREE OD TOOL)
N24 T0600
N25 G96 S750 M03
N26 G00 G42 X0.535 Z0.2 T0606 M08
N27 G01 Z0.1 F0.02
N28 X0.875 Z-0.07 F0.002
N29 Z-1.25
N30 X0.775 Z-1.3366
N31 Z-1.46
N32 G02 X0.855 Z-1.5 R0.04
N33 G01 X0.975 K-0.025 F0.001
N34 Z-2.125 F0.002
N35 U0.2 F0.03
N36 G00 G40 X4.0 Z4.0 T0600
N37 M01
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(*** T07 - INSERT G76 THREADING OPERATION HERE ***)
(=============================================================================)
(PROGRAM FOR 1 START THREAD)
(T07 - OD THREADING TOOL ------------------------------------ 1 START THREAD ONLY)
N38 T0700
N39 G97 S700 M03
N40 G00 X1.2 Z0.3 T0707 M08
N41 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.071429
N42 G00 X4.0 Z4.0 T0700
N43 M01

(=============================================================================)
(PROGRAM FOR 2 START THREAD)
(T07 - OD THREADING TOOL ------------------------------------ 2 START THREAD ONLY)
N38 T0700 (T07 - OD THREADING TOOL)
N39 G97 S700 M03
N40 G00 X1.2 Z0.6 T0707 M08
N41 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.142858
N42 G00 W0.071429
N43 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.142858
N44 G00 X4.0 Z4.0 T0700
N45 M01

(=============================================================================)
(PROGRAM FOR 3 START THREAD)
(T07 - OD THREADING TOOL ------------------------------------ 3 START THREAD ONLY)
N38 T0700 (T07 - OD THREADING TOOL)
N39 G97 S500 M03
N40 G00 X1.2 Z0.9 T0707 M08
N41 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.214286
N42 G00 W0.071429
N43 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.214286
N44 G00 W0.071429
N45 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.214286
N46 G00 X4.0 Z4.0 T0700
N47 M01

(=============================================================================)
(PROGRAM FOR 4 START THREAD)
(T07 - OD THREADING TOOL ------------------------------------ 4 START THREAD ONLY)
N38 T0700 (T07 - OD THREADING TOOL)
N39 G97 S500 M03
N40 G00 X1.2 Z1.2 T0707 M08
N41 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.285714
N42 G00 W0.071429
N43 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.285714
N44 G00 W0.071429
N45 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.285714
N46 G00 W0.071429
N47 G76 X0.7874 Z-1.45 I0 K0.0438 D0150 A60 P2 F0.285714
N48 G00 X4.0 Z4.0 T0700
N49 M01


(*** RENUMBER BLOCKS FOR THE PART-OFF TOOL ***)
(T05 - 0.125 WIDE PART-OFF TOOL - BACK CHAMFER AND PART-OFF)
T0500
G97 S1750 M03
G00 Z-2.135 T0505 M08
X1.2
G01 X0.75 F0.003
X1.075 F0.03
Z-2.05
X0.925 Z-2.125 F0.002
G01 X-0.005
G00 X1.2
X4.0 Z4.0 T0500
M30
%
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