PROGRAM O0100 PART RING MATERIAL MSO7 · MILD STEEL · 14 GA .080" MACHINE LASER · 80" × 160" DATE 2026-08-21

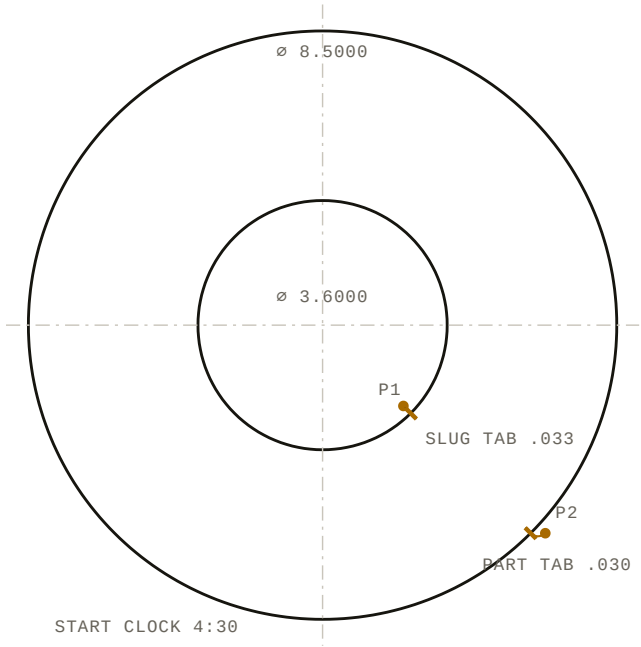
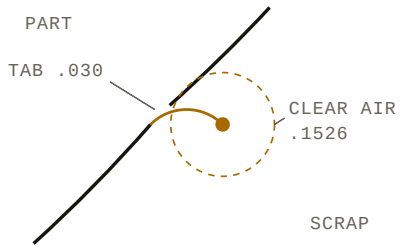


FIG. 1 — O0100 RING · P = PIERCE · TABS AT THE 4:30 START POINT



DETAIL A — START POINT AT 4:30 · LEAD-IN, TAB GAP, PIERCE CLEAR AIR (4× · GAP EXAGGERATED)

/ PART

OUTER PROFILE	⌀ 8.5000	CW · G2 UNDER G41
INNER HOLE	⌀ 3.6000	CCW · G3 UNDER G41
CUT LENGTH	38.3359	2 CONTOURS · 2 PIERCES
COMP	G41 D7	#2007 = .0070
JOB SHIFT	G52 X.2 Y.2	MARGIN AT POST, NOT IN CAD

/ PIERCE CLEAR-AIR · GATE .1500 MIN, EVERY DIRECTION

NO	LOCATION	CLEAR AIR	LANDS IN	RESULT
P1	X5.4167 Y3.0833	.1500	HOLE SLUG	PASS
P2	X7.4673 Y1.2448	.1526	SHEET SCRAP	PASS

Measured from the pierce point to any geometry, in every direction — never as distance travelled along the lead, which can run parallel to a wall and still crater finished metal.

/ SLUG REPORT · DROP-THROUGH 0.75"

SLUG	LONGEST DIM	AREA IN²	DISPOSITION
1 — INNER DISC	3.6000	10.18	EXCEEDS → TAB .033

Report a dropped or hung slug by its number — that feedback tightens the tab table. Later rapids crossing this held slug: 0.

/ TABS · SPAN AT THE START POINT, LOWER-RIGHT

TAB	WIDTH	ON	AT	LEAD IN SPAN
SLUG TAB	.033	HOLE WALL	4:30 (−45.0°)	NO — VERIFIED
PART TAB	.030	OUTER PROFILE	4:30 (−45.0°)	NO — VERIFIED

Production-validated widths: the part tab snaps by hand, the slug tab holds the drop-out so it can't tip into the head. On a circle every point is a flat, so both take the 4:30 default the floor expects.

/ CUT ORDER · SAFETY, NOT TRAVEL

SEQ	CONTOUR	WHY HERE
1	INNER HOLE	INTERIOR FIRST · SLUG HELD BY TAB
2	OUTER PROFILE	ALWAYS LAST — NOTHING CUTS AFTER SEVER

Rapids over freed, tab-held pieces: 0 — the head never flies over anything that could sit proud of the sheet.

AUDIT: PASS

POSTED NC RE-READ · EVERY CUT MOVE ON SOURCE ≤ .005" — WORST .0004"
COMP SIDE IN SCRAP: OK · TAB GAPS: 2/2 · PIERCE CLEAR-AIR: MET · ANOMALIES: 0

/ POSTED PROGRAM · WHAT THE MACHINE SEES IS WHAT WAS AUDITED

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O0100 (KerfMaster DEMO - RING)
G20 G90 G40
G52 X.2 Y.2
(PIERCE 1 - INNER HOLE)
G0 X5.4167 Y3.0833
M98 P9001
G41 D7
G1 X5.5228 Y2.9772
G3 X2.9772 Y5.5228 I-1.2728 J1.2728
G3 X5.4992 Y2.9541 I1.2728 J-1.2728
(SLUG TAB .033 HOLDS THE DROP-OUT)
G40
(PIERCE 2 - OUTER PROFILE)
G0 X7.4673 Y1.2448
M98 P9001
G41 D7
G3 X7.2552 Y1.2448 I-.1061 J-.1061
G2 X1.2448 Y7.2552 I-3.0052 J3.0052
G2 X7.2763 Y1.2661 I3.0052 J-3.0052
(PART TAB .030)
G40
G0 X9.3500 Y.5500
M30
```

`G52 X.2 Y.2`	Sheet margin applied at post time as a work shift — the DXF keeps true part coordinates. Per-job value.
`M98 P9001`	Pierce subprogram. Each pierce point was checked for clear air in every direction before posting (table, page 1).
`G41 D7`	Cutter comp on the shop's norm side. `D7` is the control's comp register — a machine constant; the kerf value rides in `#2007 = .0070`. Never derived from kerf.
`G3 · G3`	The hole cuts counter-clockwise, so the comp offset falls on the slug side. The second arc stops `.033` short of close — the slug tab.
`G2 · G2`	The outer cuts clockwise — offset in sheet scrap. True arcs with I/J centers; a circle posts as two arcs, never as hundreds of little lines.
`G2 …X7.2763`	Ends `.030` short of the start point: the part tab. The lead-in's quarter arc lands outside this span — verified, both tabs.
`4 DECIMALS`	Every coordinate word carries four decimals — the machine's own resolution. One count = .0001".

/ GEOMETRY PROOF · POSTED NC RE-READ, EACH MOVE MEASURED AGAINST SOURCE · GATE .005

BLOCK	MOVE	SOURCE FEATURE	MAX DEV	RESULT
G1 X5.5228…	LEAD, LINE .1500	LEAD-IN (SCRAP)	.0000	PASS
G3 X2.9772…	ARC 180.0° R1.8	HOLE ⌀3.6000	.0002	PASS
G3 X5.4992…	ARC 178.9° R1.8	HOLE ⌀3.6000	.0002	PASS
G3 X7.2552…	ARC 90.0° R.15	LEAD-IN (SCRAP)	.0001	PASS
G2 X1.2448…	ARC 180.0° R4.25	OUTER ⌀8.5000	.0004	PASS
G2 X7.2763…	ARC 179.6° R4.25	OUTER ⌀8.5000	.0003	PASS

Worst deviation `.0004"` against a gate of `.005"`. The audit reads the posted file back — what the machine will run is what gets judged, never the in-memory geometry.

/ NUMBERS WITH PROVENANCE · EVERY VALUE SAYS WHERE IT CAME FROM

VALUE	NUMBER	LIVES IN	PROVENANCE
BEAM COMP / KERF (#2007)	.0070	MATERIAL TABLE	MEASURED
COMP REGISTER	D7	MACHINE TABLE	MEASURED
PART TAB WIDTH	.030	MATERIAL TABLE	MEASURED
SLUG TAB WIDTH — LARGE	.033	MATERIAL TABLE	MEASURED — TEST CUT
DROP-THROUGH	.75	MACHINE TABLE	MEASURED
PIERCE CLEAR-AIR FLOOR	.150	MATERIAL TABLE	DECIDED
START CLOCK	4:30	MACHINE TABLE	DECIDED — OPERATOR SETTING
AUDIT GATE	.005	MACHINE TABLE	DECIDED

Machine and material numbers live in editable tables — measured, decided or assumed; an unsourced value is flagged, not defaulted. No magic constants in code.