

Part name Flange bush	Part / drawing no. FB-100	Revision B	Customer Demo customer
Job / works order J-1042	Quantity 25	Material EN8	Stock size Ø55 bar
Machine Gang-tool lathe	Control HAAS / Fanuc	Program O01200	Set-up Op 1 of 2
Programmer Programmer	Date 2026-10-27	Tools / operations 5 / 6	Cycle time (est.) 3:06

PROGRAM SUMMARY

Work offsets	G54	Spindle	limit 2,500 rpm, highest 2,500 rpm
X range (dia.)	-1.6 to 54	Z range	-83 to 5
Max feed	437 mm/min	Coolant	Flood
Canned cycles	G71, G70, G83, G76	Program stops	no M00; 4 x M01
Cycle time (est.)	3:06 (cutting 2:34, rapid 0:16, tool changes 0:15, spindle starts 0:02)	Program size	97 lines, example-flange-bush.nc

WORKHOLDING AND DATUM

Method	3-jaw chuck, soft jaws
Jaws / vice / fixture	Soft jaws bored Ø55, 12 deep
Grip length	12 mm
Part stick-out	95 mm (program needs at least 88 mm)
Clamping	12 bar
Stop / locator	Bar stop at Z+3
Datum	G54: Z0 on the finished front face, X0 on the spindle centre line

TOOLS

Tool	Offset	Description	Holder / insert	Stick-out	Speed	Feed	Limits	Time
T1	01	Turning tool Facing, Rough turning (G71)	CNMG 120408 in PCLNR 2020	40 mm	Vc 180 m/min	0.2–0.25 mm/rev Flood	X-1.6...54, Z min -80	1:17
T2	02	Turning tool Finish profile (G70)	VBMT 160404 in SVJBR 2020	40 mm	Vc 220 m/min	0.1 mm/rev Flood	X16...52, Z min -80	0:26
T3	03	Drill Peck drilling (G83)	Ø10 carbide drill, ER25 collet	45 mm min 35	800 rpm	0.12 mm/rev Flood	X0, Z min -30	0:25
T4	04	Threading tool Threading (G76)	16ER 1.5 ISO in SER 2020	35 mm	800 rpm	Flood	X18.16...24, Z min -25	0:20
T7	07	Parting tool Parting off	3 mm parting blade	28 mm	Vc 120 m/min	0.06 mm/rev Flood	X-1...54, Z min -83	0:21

OPERATION SEQUENCE

#	Operation	Tool	WCS	Speed	Feed	Coolant	Lines	Time
1	Facing	T1 01	G54	Vc 180 m/min	0.2 mm/rev	Flood	12–20	0:06
2	Rough turning (G71)	T1 01	G54	Vc 180 m/min	0.25 mm/rev	Flood	21–37	1:12
3	Finish profile (G70)	T2 02	G54	Vc 220 m/min	0.1 mm/rev	Flood	38–51	0:26
4	Peck drilling (G83)	T3 03	G54	800 rpm	0.12 mm/rev	Flood	52–66	0:25
5	Threading (G76)	T4 04	G54	800 rpm	pitch 1.5	Flood	67–80	0:20

#	Operation	Tool	WCS	Speed	Feed	Coolant	Lines	Time
6	Parting off	T7 07	G54	Vc 120 m/min	0.06 mm/rev	Flood	81–95	0:21

FIRST-OFF CHECKS

#	Feature	Nominal	Tolerance	Instrument	Part 1	Part 2	Part 3
1	Diameter	Ø40	0 / -0.05	Micrometer			
2	Diameter	Ø30	±0.05	Micrometer			
3	Diameter	Ø20	±0.02	Micrometer			
4	Length to shoulder from Z0	30	±0.1	Vernier / depth gauge			
5	Length to shoulder from Z0	80	±0.1	Vernier / depth gauge			
6	Overall length	83	±0.2	Vernier			
7	Drilled hole depth (T3)	30	+0.5 / 0	Depth gauge			
8	Thread, pitch 1.5 mm	per drawing		Thread ring / plug gauge go / no-go			
9	Surface finish	Ra per drawing		Comparator			
10	Burrs and sharp edges removed			Visual			

SETTER NOTES

Face 1 mm off the bar end before the first part. Check T7 blade height after a crash or blade change.
Deburr the bore and thread by hand. Op 2: face to length and chamfer the back edge.

Set up by

Name Date

Signature

First-off checked by

Name Date

Signature

Released for production

Name Date

Signature