OPERATION SHEET

OP	SETUP	OPERATION	TOOL	CRITICAL
10	Vice, soft jaws	Face one side, skim to 25.0	50 mm face mill	datum face
20	Vice, flip	Face to 12.0 ±0.05 overall	50 mm face mill	THICKNESS 12 ±0.05
30	4-jaw / fixture plate	Bore Ø244 outside profile	Ø12 carbide end mill	—
40	SAME SETUP AS 30	Bore Ø120 fan aperture	Ø12 helical ramp	concentric 0.05
50	SAME SETUP AS 30	Mill 3 × pad bosses to 17.0 h	Ø10 end mill	COPLANAR 0.05
60	SAME SETUP AS 30	Mill 3 × collimation bosses to 20.0	Ø10 end mill	—
70	SAME SETUP AS 30	Drill+tap 3 × M6 collimation, R108.5	Ø5.0 drill, M6 tap	120° ±0.1°
80	SAME SETUP AS 30	Mill 3 × adjustment slots 9 × 5.5	Ø5 end mill	±15 travel
90	SAME SETUP AS 30	Drill 4 × Ø4.4 fan holes, 105 sq	Ø4.4 drill	—
100	Deburr bench	Break all edges 0.3 × 45°	Hand deburr	no burr in bore
110	Inspection	Verify G1 pad coplanarity	Surface plate + DTI	GATE G1
120	Anodise	Clear anodise, MASK PAD FACES	—	pads bare metal

CRITICAL MACHINING NOTES

1. OPS 30–90 MUST BE A SINGLE SETUP. DO NOT RE-FIXTURE BETWEEN THEM.
   RE-FIXTURING IS THE ONLY REALISTIC WAY TO LOSE PAD COPLANARITY 0.05,
   AND PAD COPLANARITY IS WHAT KEEPS THE PRIMARY FROM BEING TILTED.
2. MASK THE THREE PAD FACES BEFORE ANODISING. ANODIC LAYER IS 15–25 µm AND
   WILL DESTROY THE COPLANARITY YOU JUST HELD TO 50 µm.
3. CLIMB MILL THE Ø120 BORE. CONVENTIONAL MILLING PULLS THIN SECTIONS.
4. COOLANT THROUGHOUT. DRY-CUT 6061 WELDS TO THE FLUTE AND TEARS THE FINISH.

REVISION HISTORY

REV	DESCRIPTION	DATE
A	First issue for manufacture	2026-08-16

FLOWMATIC · ASTROGRAPH PROGRAMME

200 mm f/4 NEWTONIAN ASTROGRAPH · CANBERRA ACT 35.28°S

MACHINING OPERATIONS — PRIMARY MIRROR CELL

DRAWING NUMBER	REVISION	SHEET
FM-AST-P02	**A**	**2 OF 6**
SCALE	MATERIAL	MASS
NTS	**ALUMINIUM 6061-T6**	**1.20 kg**
PROJECTION	FINISH	UNITS
FIRST ANGLE (ISO 128)	**CLEAR ANODISE AFTER MACHINING**	**MILLIMETRES**

GENERAL TOL ISO 2768-mK UNLESS STATED · DO NOT SCALE
DRAWN NaXief's Claude CHECKED SELF-CHECK + VISUAL JUDGE, SEE SHEET 6 QA GATES
DATE 2026-08-16 STATUS ISSUED FOR MANUFACTURE