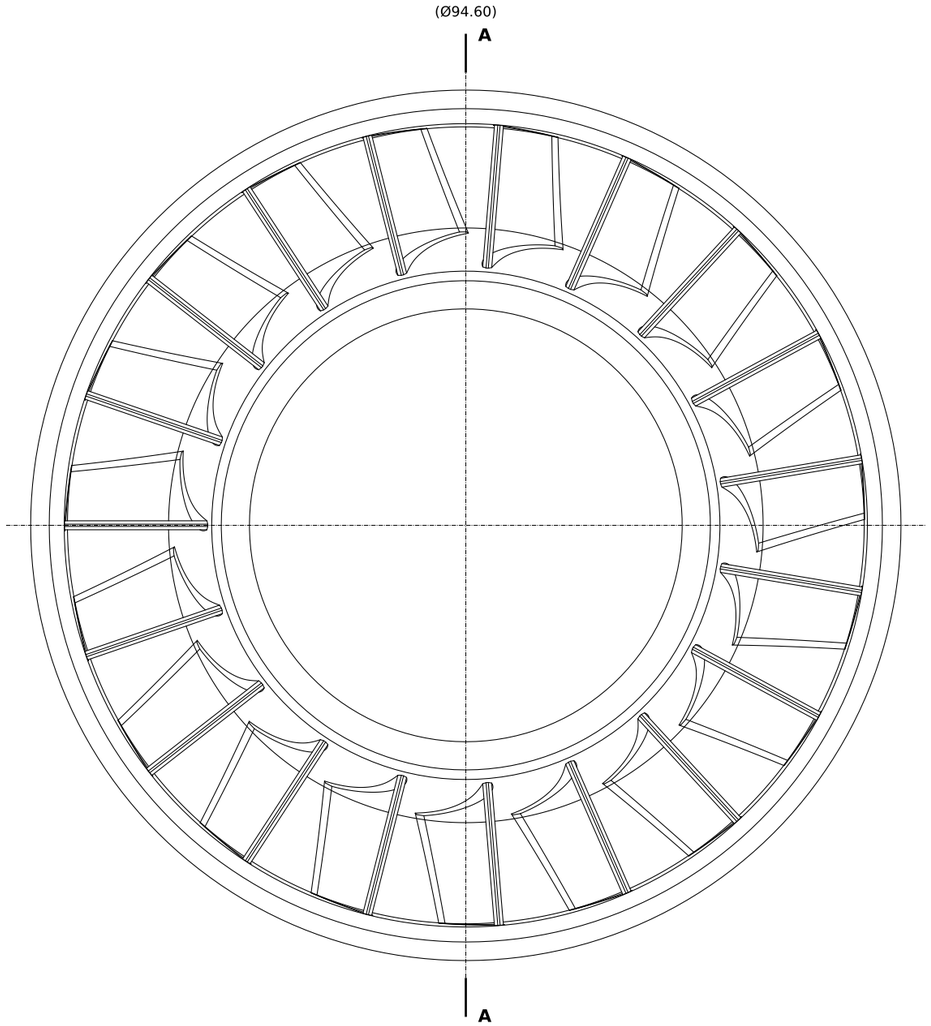
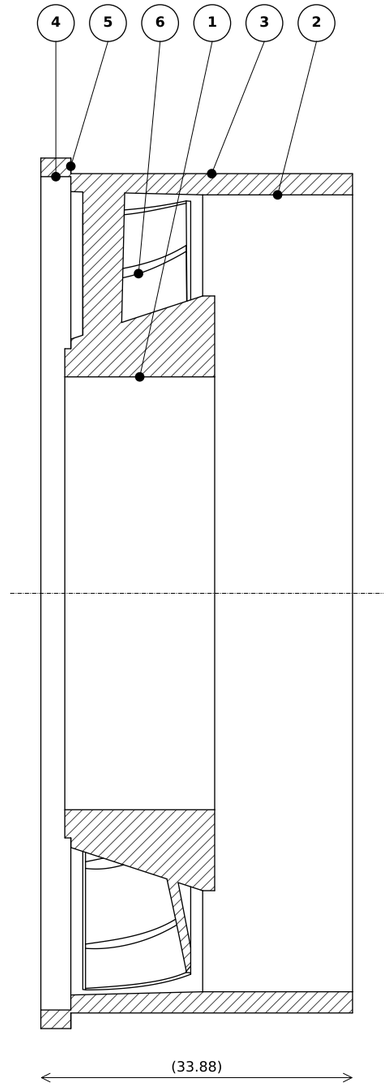


VIEW FROM THE INLET



SECTION A-A

REQUIREMENTS

1 A: bore Ø47.04 +0.03/0, over the tunnel's pilot (machined)

2 Shroud bore Ø86.60 +0.02/0, coaxial Ø0.02 to A (the turbine's 0.3 mm tip clearance; machined)

3 Shroud OD Ø91.21 0/−0.03, coaxial Ø0.03 to A (the closure ring and nozzle sit on it; machined)

4 Lip bore Ø90.56 +0.05/0, for the combustor exit cone (machined)

5 Shoulder face: perpendicular 0.02 to A (the closure ring bears on it; machined)

6 19 vanes, as cast: exit angle 58° ±0.5° at mid-span (sets the throat area); edges as modelled ±0.1

NOTES

1. Model is master: sizes not called out come from ngv.step, at the general tolerance.
2. Break sharp edges 0.1–0.3 unless noted. No burrs. No tool marks across sealing or seating faces.
3. Surface finish Ra 1.6 µm unless noted. Threads to ISO 965 (metric fine).
4. Investment cast in Alloy 713C (AMS 5391), used as cast. Machining stock 0.5 mm on the bore, shroud bore, shroud OD, lip and faces; the vanes are as cast. Cast from a pattern printed in castable resin (patterns.py), scaled for the shrink the foundry gives.
5. Fluorescent penetrant inspection (ASTM E1417) of the casting before first run: an add-on.
6. Inspection report, CMM and material certificates are add-ons on the quote.

HIGHLAND Turbojet, 170 N class

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PART Nozzle guide vane ring	PART NUMBER HL-TJ-15		REVISION A
MATERIAL Alloy 713C (UNS N07713), investment cast to AMS 5391, as cast			
FINISH None, as machined		HEAT TREAT None (used as cast)	
TOLERANCE UNLESS NOTED ±0.13 mm (±0.005 in) unless noted; angles ±0.5°			
QUANTITY 1 per engine	MASS 342.2 g		SCALE 1.5:1
UNITS mm	PROJECTION Third angle	DATE 2026-11-20	SHEET A3, 1 of 1