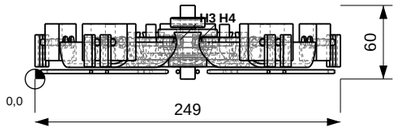
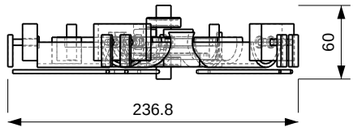
FRONT VIEW



LEFT SIDE VIEW



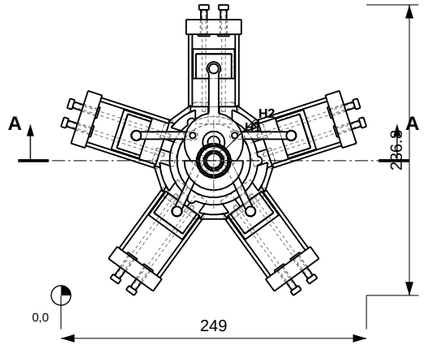
DRIVING DIMENSIONS

Parameter	Value	Unit
Crank angle	0	deg
Bore	35	mm
Stroke	30	mm
Master rod length	60	mm
Knuckle radius	18	mm
Articulated rod length	46	mm
N cyl	5	mm
Piston h	24	mm
Pin d	8	mm
Case r	50	mm
Case w	40	mm
Liner t	3	mm
Head clear	4	mm
Rod t	8	mm
Cam lobes	3	mm
Valve d	12	mm
Explode offset	0	mm

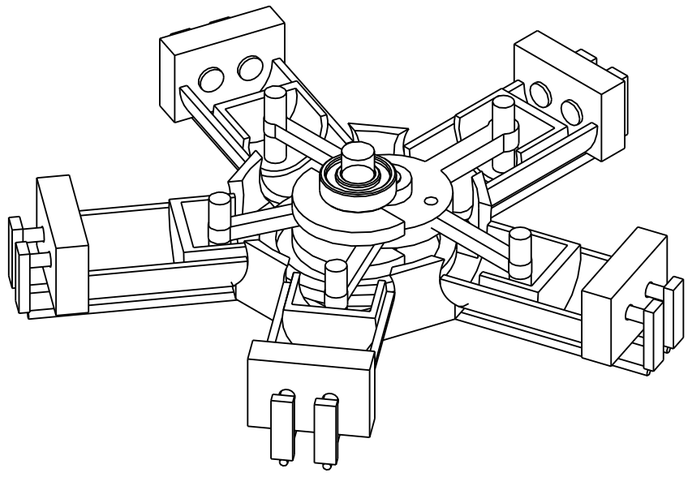
PARTS LIST

Pos	Part	Qty	Standard / mass
1	crankcase	1	288.6 g
2	Deep groove ball bearing 6001	2	main_bearing
3	crankshaft	1	163.3 g
4	master_rod	1	135.4 g
5	cam_ring	1	51.1 g
6	piston_1	1	41.5 g
7	wrist_pin_1	1	11.4 g
8	cylinder_1	1	82.9 g
9	head_1	1	121.8 g
10	valve_intake_1	1	3.9 g
11	rocker_intake_1	1	6.5 g
12	pushrod_intake_1	1	4.6 g
13	valve_exhaust_1	1	3.9 g
14	rocker_exhaust_1	1	6.5 g

TOP VIEW



ISOMETRIC



NOTES

1. Bearing 6001 (front): life 259 h is below 2,000.0 h - choose a larger bearing or reduce the load
2. Bearing 6001 (rear): life 259 h is below 2,000.0 h - choose a larger bearing or reduce the load
3. Shaft crankshaft: safety 1.1 below 2.5 - increase to at least Ø16 mm or use a stronger steel (C45 / 42CrMo4)
4. The articulated rods cause each slave piston to deviate up to ~0.8 mm from master piston kinematics at mid-stroke; the strokes differ by ~0.2-0.4 mm (computed in specs). The compression ratio therefore differs slightly per cylinder.
5. The model shows a single crank angle; a 720 deg animation requires a parameter sweep.
6. Clearance checks are analytic (formula-based) and are not a full collision analysis.
7. Master rod length L = 60 mm (crank-to-wrist), lambda = r/L = 0.25.
8. Articulation (knuckle) pins on a circle of radius 18 mm on the master big end, at the cylinder angles (72 deg multiples) relative to the master rod axis.
9. Articulated rods are all 46 mm long. This length puts every piston TDC at the same height (r + L = 75 mm from the crank axis), within 0.3 mm.

TITLE

Five-cylinder radial engine demonstrator

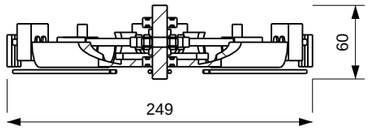
LUXXO

DRAWN BY Luxxo AI design engineer	DATE 2026-11-14	PROJECTION ISO first angle [|O] -O
MATERIAL Steel (S235)	GENERAL TOLERANCE ISO 2768-m ± 0.2 mm	MASS (calc.) 2.20 kg
SCALE 1 : 5	SHEET 1 / 2 A3	DRAWING No. LX-38FE45-v1

Dimensions in mm · unspecified tolerances ISO 2768-m · surface Ra 3.2 unless noted · break sharp edges 0.5 × 45° · machining

Hidden lines omitted · not to scale

SECTION A-A



A-A (1 : 5) cutting plane y = 0 mm, viewed from the front

HOLE TABLE (X / Y from datum 0,0 of the view F / S / T on sheet 1)

Tag	Ø	X	Y	Depth	View	Thread / fit / note
H1	Ø28	124.5	109.8	THRU	T	Ø28 H7 (+0.021 / 0) bearing housing
H2	Ø60	124.5	109.8	THRU	T	Bored
H3	Ø6	116.5	30	THRU	F	Drilled
H4	Ø6	132.5	30	THRU	F	Drilled
H5	Ø6	-	-	THRU	-	Drilled
H6	Ø6	-	-	THRU	-	Drilled
H7	Ø6	-	-	THRU	-	Drilled
H8	Ø6	-	-	THRU	-	Drilled
H9	Ø6	-	-	THRU	-	Drilled
H10	Ø6	-	-	THRU	-	Drilled
H11	Ø6	-	-	THRU	-	Drilled
H12	Ø6	-	-	THRU	-	Drilled

FITS & TOLERANCES (ISO 286)

Feature	Size	Max / min	Fit
main bearing seat	Ø12 k6	12.012 / 12.001	H7/k6 transition
bearing housing	Ø28 H7	28.021 / 28.0	H7/k6 transition
wrist pin	Ø8 H7	8.015 / 8.0	H7/g6 clearance

ENGINEERING CHECKS (simplified hand calculations)

!! front: 6001: P = 1500 N, C = 5.4 kN → L10 = 46.7 mil. rev = 259 h at 3000 rpm (need 2,000.0 h)

!! rear: 6001: P = 1500 N, C = 5.4 kN → L10 = 46.7 mil. rev = 259 h at 3000 rpm (need 2,000.0 h)

!! crankshaft: Ø12: T = 3.2 N·m, M = 36 N·m → σv = 212.8 MPa, safety 1.1 vs. Re 235 MPa (need 2.5), min. Ø15.8

Flat patterns: 4 DXF files (6 pcs) for laser cutting - download in the app.

Section hatching per ISO 128-50 · hole coordinates from the datum symbol · fits ISO 286-2 · weld symbols ISO 2553 · weld preparation EN ISO 9692-1

TITLE

Five-cylinder radial engine demonstrator

LUXXO

DRAWN BY Luxxo AI design engineer	DATE 2026-11-14	PROJECTION ISO first angle [|O] -O
MATERIAL Steel (S235)	GENERAL TOLERANCE ISO 2768-m ± 0.2 mm	MASS (calc.) 2.20 kg
SCALE 1 : 5	SHEET 2 / 2 A3	DRAWING No. LX-38FE45-v1