ENGINEERING UPDATE

CIMES closed numerical pass (Rev D)

This note supersedes the published 118 N·m average-torque / 10.1 kW continuous figures for the passive, fixed-gap model. It is written so the public site matches the audit.

What changed

An independent magnetostatic check — CIMES Rev D — was run on the locked 0.20 m, 28° cone, 120 × N52 array. Cuboids are treated as uniformly magnetised (Br = 1.44 T). Near-field interactions use bound surface charge with Gauss–Legendre quadrature; far-field uses dipole completion. Shaft torque is taken from the magnetic interaction energy as $T(\theta) = -dU/d\theta$. No scale factor toward 118 N·m is applied.

For a passive rotor at fixed axial gap, the magnetic state at 360° is the same as at 0°. U(θ) is periodic. The signed mean torque over a full turn, and the signed magnetic work over a full turn, close to numerical zero.

The earlier public claim of ~118 N·m average shaft torque (and 10.1 kW continuous at 1,000 rpm) is not reproduced by this model. What the model does show is large positive and negative torque lobes whose RMS magnitude rises as the face gap closes — cogging that gets stronger under compression, not a net motor.

Locked-point result (c = 11 mm, face gap g = 4 mm)

Quantity	Rev D (order 12, 180 angles)	Prior public figure
Signed mean torque	≈ 0 N·m (–3.16×10■¹■)	118 N·m average
Full-cycle magnetic work	≈ 0 J (–1.98×10■¹■)	not stated as zero
RMS local torque	171.4 N·m	—
Local torque min / max	–461.3 / +456.2 N·m	—
U(θ) peak-to-peak	19.73 J	59 J compression work*

*The 59 J figure on the old page was compression work (force × axial travel), not cycle work. Rev D's 19.7 J is the magnetic interaction-energy swing over one revolution at fixed gap. They are different quantities and must not be stacked into a "gain ratio."

Compression still changes amplitude — not average power

A full c/g sweep (order 8) shows RMS torque rising from 21 N·m at a 15 mm face gap to 179 N·m at 4 mm. The signed mean remains machine-zero at every station. Compression is a throttle on cogging amplitude. It is not a source of net shaft work per revolution in this passive model.

Geometry caveat (still open)

The locked coordinate radii (~143.7 / 171.8 / 200.0 mm) with 40 magnets per ring and a 25 mm circumferential block width make the inner ring overlap (mean clearance –2.4 mm; minimum –4.4 mm). The middle ring nicks overlap at the tightest stagger. Rev D retained those locked coordinates so the energy-closure test would be on the published pack. Overlap does not change the mean-torque = 0 conclusion. It does mean RMS and peak numbers are not yet hardware numbers. The next formal FEA pass should use a non-intersecting packing.

What would be required for a nonzero mean

A later model can produce a nonzero signed-mean torque only if something in the system changes state through the cycle (moving gap, electrical excitation, magnetisation switching, or another explicit actuator). That ingredient and its energy cost must appear in the same ledger as shaft work. Until that model exists and is measured, CIMES is not described here as a continuous generator.

What the public challenge is now

The six-point challenge that asked independent teams to match 118 N·m average and 10.1 kW continuous is withdrawn for the passive fixed-gap article. Independent work is still welcome on this narrower brief:

1. Reproduce U(θ) periodicity and signed-mean torque ≈ 0 on the locked (or corrected non-intersecting) pack.
2. Reproduce the RMS-versus-gap trend (amplitude rises as the face gap closes).
3. State the force model, tool, and whether bodies interpenetrate.
4. If a nonzero mean is claimed, name the cycle-changing input and put its work in the ledger.

What this document does not claim

It does not claim over-unity, free power, data-centre replacement, or maritime prime-mover performance. It does not retire U.S. Patent 11,799,400 B2. The patent remains a granted apparatus claim on a compressed inverted magnet geometry. The audit constrains how that geometry behaves when nothing but rotation happens at fixed gap.

Files

Rev D package: rerunnable Python model, locked magnet CSV, T(θ)/U(θ) waveform, c/g table, spatial and angular convergence, packing audit. Contact: danbucklives@gmail.com. Assignee: Buck Maynard Houston LLC.

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