The Future of Flowmeters: Non-Contact, Non-Invasive, Calibrationless

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The Growing Flowmeter Industry:
Projected growth of 24–29% in North America, Europe, and Asia Pacific during the next four years.¹ ²

Market Penetration By Type ³ ⁴ ⁵:

RLFF Benefits:
• Non-contact & non-invasive
• No moving parts or extra seals in contact with the fluid
• Ideal for high-temp, corrosive, or dangerous applications
• External installation (no shutdown or loss of productivity)
• Independent of fluid properties
• Reversible operation
• Can work with any electrically conductive fluid

Conventional Bearings: Weighted Magnetic Bearing:

Low-Friction Bearing Performance:
Torque balance on the flowmeter:

\[ \Sigma \tau = \tau_1 [v_0 - \omega r] + \tau_F[\omega] = I \alpha \]

No friction (\( \tau_F = 0 \)) and steady-state (\( \alpha = 0 \)):

\[ v_0 = \omega r \]

• Better sensitivity at low-flow rates
• Faster response time
• No calibration required
• Fully demonstrated for $600

Industries That Will Benefit:
• Concentrated Solar Power
• Nuclear Energy
• Pharmaceutical / Chemical Production
• Water & Waste Treatment

Future Work:
• Demonstrate operation with different fluids
• Develop “Electromagnetic Bearing”
• Improve transient performance
