FRONTGRADE

THE ELECTRONICS BACKBONE BEHIND MISSION-CRITICAL SYSTEMS

Voice Coil Motors



A frictionless, direct-drive electromagnetic actuator that converts electrical current directly into fast, precise linear or rotary motion

Designed for applications requiring fast, accurate, and highly repeatable motion, Frontgrade's Voice Coil Motor (VCM) provides direct-drive actuation with force proportional to input current. VCM's low moving mass enables rapid acceleration and high control bandwidth, while the non-contact electromagnetic drive minimizes friction, wear, noise, and maintenance.

The VCM can be integrated with position sensors and closed-loop controls for precision positioning, force control, vibration cancellation, stabilization, and dynamic scanning. VCM's compact architecture is ideal for Size-, Weight-, and Power (SWAP)-constrained commercial, aerospace, defense, medical, and industrial systems.

FEATURES:

- Direct-drive, backlash-free motion
- Fast transient response and high acceleration
- Smooth, bidirectional force
- Precise position and force control
- Compact, lightweight construction

APPLICATIONS:

- Electro-optical and infrared sensor stabilization
- Gimbal, adaptive optics, and focal-plane positioning / fine-pointing
- Active vibration and jitter cancellation
- Radar and communications antenna tuning
- Guidance, navigation, and control mechanisms

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Part Number	Excursion Angle (Degrees)	Winding Resistance (Ω)	Torque Constant $(\frac{in-oz}{amp})$	Rotation Axis (inches)	Rated Torque (in-oz)	Mass (lbs)	Size (L x H x W, inches)
16224	± 6°	4.8	53.0	9.25	222.0	0.900	5.150 x 0.620 x 3.180
16273	± 5°	9.0	77.0	4.80	120.0	0.600	2.800 x1.186 x 1.072
16348	± 5°	5.2	78.0	4.80	120.0	0.600	2.800 x 1.186 x 1.072
16503	± 5°	4.8	53.0	10.56	222.0	0.900	5.150 x 1.630 x 3.180
16520	± 6°	2.6	56.0	2.44	180.0	0.705	3.250 x 0.895 x 2.230
16583	± 2°	7.2	52.4	3.95	35.4	0.794	2.800 x 1.339 x 2.953

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