Cylindrical Voice Coil Motor

Features

- Compact design
- High velocity and acceleration
- High thrust, high dynamic response
- Excellent positioning accuracy up to nano level

Description

This motor is linear motor based on the Lorentz principle, which features compact design, high acceleration, and high dynamic response.

Applications

- Widely applied in ultra-precision positioning systems, extensively used in industries such as semiconductor manufacturing, high-end CNC machines, and optical electronic microscopes. Additionally, it is frequently employed in high-excitation motion systems such as medical equipment, vibration platforms, and active vibration reduction systems.

Technical Specifications

	VCM20-5	VCM20-10	VCM25-5	VCM25-10	VCM30-5
Travel range	±2.50 mm	±5.00 mm	±2.50 mm	±5.00 mm	±2.50 mm
Clearance of side of coil	0.4 mm	0.4 mm	0.5 mm	0.5 mm	0.5 mm
Continuous force	1.9 N	1.56 N	2.7 N	3.3 N	5.2 N
Peak force	6.94 N	7.6 N	10.5 N	12.5 N	19.6 N
Force constant	1.9 N/A	2.05 N/A	3.62 N/A	4.55 N/A	4.6 N/A
Back EMF constant	1.9 V/(m/s)	2.05 V/(m/s)	3.62 V/(m/s)	4.55 V/(m/s)	4.6 V/(m/s)
Electrical resistance	2.56 ohms	3.78 ohms	4.53 ohms	7.67 ohms	3.41 ohms
Electrical inductance	0.35 mH	0.35 mH	0.8 mH	1.65 mH	0.46 mH
Electrical time constant	0.14 ms	0.09 ms	0.18 ms	0.22 ms	0.13 ms
Continuous current	1 A	0.78 A	0.75 A	0.73 A	1.13 A
Continuous power	2.56 W	2.3 W	2.52 W	4.04 W	4.36 W
Peak current	3.65 A	3.8 A	2.9 A	2.75 A	4.26 A

Technical Specifications(Continued from previous page)

	VCM20-5	VCM20-10	VCM25-5	VCM25-10	VCM30-5
Peak power	34.11 W	54.57 W	38.15 W	57.9 W	61.92 W
Drive voltage	24 V	24 V	24 V	24 V	24 V
Motor constant	1.19 Sqrt(N^2/W)	1.03 Sqrt(N^2/W)	1.7 Sqrt(N^2/W)	1.64 Sqrt(N^2/W)	2.49 Sqrt(N^2/W)
Thermal resistance constant	0.03 W/°C	0.03 W/°C	0.03 W/°C	0.05 W/°C	0.06 W/°C
Max. coil temperature	100 °C	100 °C	100 °C	100 °C	100 °C
Weight of coil assembly	7.5 g	11 g	11 g	13.89 g	18 g
Weight of field assembly	27.5 g	33 g	36 g	56.7 g	65.4 g