

VOICE COIL ACTUATOR

MMA Series

The designs of the Moving Magnet Voice Coil Actuators have been proven in various high-end industrial equipment. These actuators can be applied frequently where high speed, high force density and a high reliability/lifetime are required. This frameless actuator family allows for a free choice of external guiding system depending on the required linear accuracy of the system.

The working principle of these moving magnet voice coil actuators is that the moving part is a magnet. The coils are attached to the static part of the actuator which enables a good thermal path. A good thermal path is beneficial for high force densities. The absence of moving wires leads to very high reliability and lifetime and does not limit the achievable accelerations and speeds.

MMA Actuator Series Performance Parameters

Parameters*	Unit	1525	1555	3070	5536	9054
OD ¹	mm	15	15	30	55	90
Height ¹	mm	25	55	70	36	54
Stroke ¹	mm	5	18	25	8	12
F continuous middle position ²	N	2.6	2.6	16.6	39	140
F peak ³	N	6.2	6.2	60	131	605
Maximum operating Voltage	Vdc	48	48	48	48	48
Moving mass	Kg	0.0063	0.0175	0.090	0.175	0.7

*Preliminary info

Note:

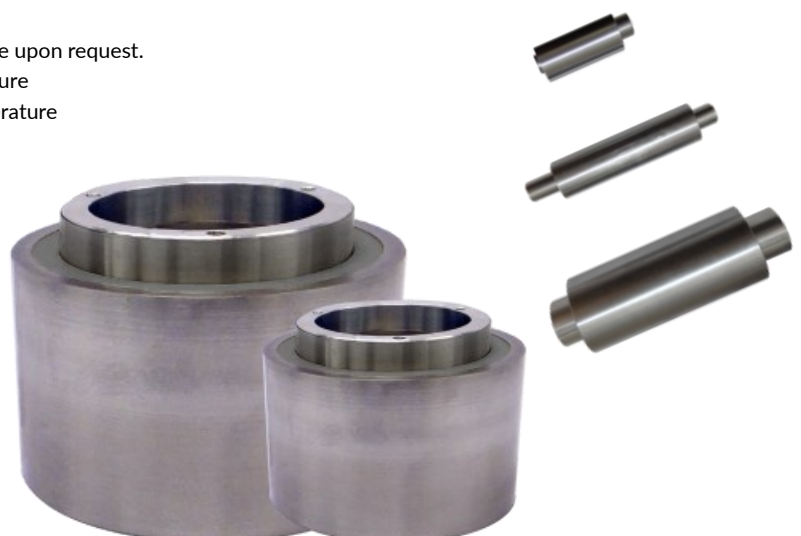
¹ Standard range. Other dimensions and force ranges available upon request.

² Continuous force at 40°C ambient and 120°C coil temperature

³ Peak force for 5 sec. at 25°C ambient and 155 °C coil temperature

Features Voice Coil Actuator

- High force Density
- Low power
- High reliability and lifetime
- Single-phase or 3-Phase
- Bi-directional
- Moving Magnet technology
- Frameless (external guiding is required)
- Option: VCA Motor controller



MOTOR CONTROLLER

Single phase 2-wire VCA Drive

Magnetic Innovations' Moving Magnet VCA series are matched with a dedicated motor controller which is able to establish sensorless position control (no external encoder required). Hence only 2 wires are required to power and position control the actuator. The controller is an encoder and drive in one package at the size of a matchbox which can power Moving Magnet VCA's up to 1kW.

Customers are able to program their required motion patterns into the motor controller utilizing a HMI running on a PC. After programming the motor controller one is able to save all data onboard in non-volatile memory and the MI Moving Magnet VCA will operate standalone after power up. Activation and de-activation of the motion pattern is invoked by controlling digital inputs, allowing for simple integration with customer specific applications.

Available motion patterns (executed motion with configurable filter settings to omit high frequent content):

- Sinusoidal point to point movement with specific frequency
- Triangular point to point movement
- Block point to point movement
- Point to point movement

Two configurable analog inputs allow for external analog control of current, position and 2 configurable analog outputs allow for remote monitoring of a variety of parameters (among which position, velocity, temperature, force, etc.).

Features Motor Controller

- No encoder required
- 2-wire actuator control
- 48Vdc, 1kW drive power
- Digital I/O (4+4)
- Configurable Analog inputs (2) & outputs (2)
- Compatible w/all MI Moving Magnet VCA's
- Canbus & Analog interface
- Matchbox size (86,5mm x 55mm x 21mm)
- HMI included

