

VLM SERIES CIRCULAR VOICE COIL ACTUATOR

VLM (F) -50C-10



PRODUCT FEATURES

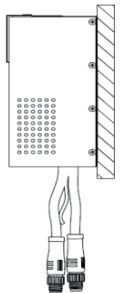
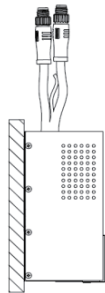
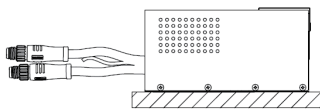
Compact and Refined Design High Dynamic Response Adjustable Parameters	Soft Landing High-Precision Force Control Enhanced by Intelligent Algorithms	Power-Off Protection High Durability
VLM-50C-10 Circular Voice Coil Actuator — featuring a compact structure with dimensions of 55 × 53.5 × 105 mm. Speed, thrust, and position are fully adjustable, enabling high-frequency, high-precision motion control.	Smart Soft-Landing Function enables gentle contact, preventing object damage. Built-in Force Sensor enables ±1 g Closed-Loop Force Control. Integrated High-Precision Grating Encoder with Micron-Level Position Accuracy	Built-in Magnetic Spring prevents vertical axis drop during power loss. Adopts Crossed Roller Guide with Service Life Over Tens of Millions of Cycles

INSTALLATION METHOD

Install it using the screw holes on the back of the product.

Installation directions:

- Horizontal direction
- Vertical installation with the vertical rod pointing down
- Vertical installation with the vertical rod pointing up



APPLICATION SCENARIOS

VLM offers compact size and high performance. With an integrated force sensor for precise closed-loop force control, it is ideal for applications such as mobile button testing, keyboard inspection, and wafer cleaning force control.



DIRECT DRIVE LINEAR MODULE

Voice Coil Series	Thickness (mm)	Stroke (mm)	Encoder	Voltage (V)	Interface Location	Force Sensor Range	Accessories* Bag	Drive /Cable
VLM ☐	50 C	10	H0	24U	B	S20	1	M L1
无 Without Force Sensor F With Force Sensor	50 Thickness: 50 mm C Crossed Roller Guide	H0 Optical encoder, 0.1 μm H1 Optical encoder, 0.5 μm HN20 Optical encoder, 20mm M2 Magnetic encoder, 1 μm	24U 24V main with 48V compatibility			M SAC2-NP1 (DH Single-Axis Controller) Y SAC-NP2 (DH Dual-Axis Controller)		



b、高采样率放大器为进口品牌，采样频率最高支持4800HZ，通用型放大器为国产品牌，采样频率最高支持1920HZ。

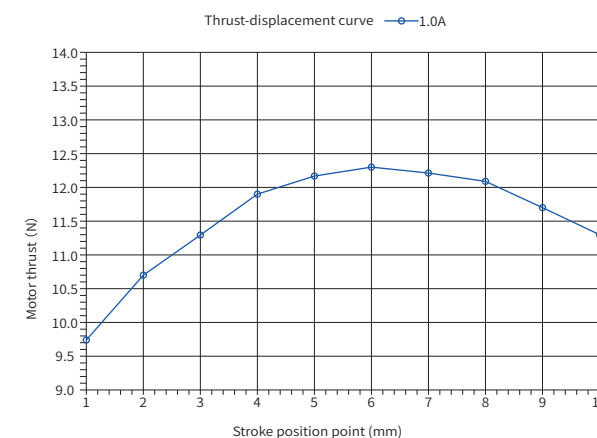
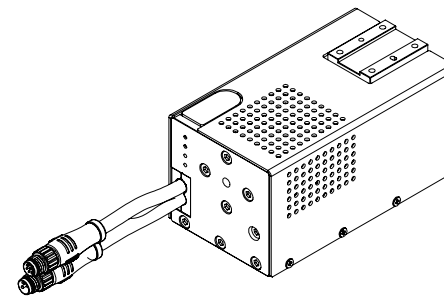
B	Rear Cable Outlet
S	Front Cable Outlet

无	Leave Blank if No Force Sensor
S05	Measuring Range: 0.5 kg
S10	Measuring Range: 1 kg
S20	Measuring Range: 2 kg

0	Accessory Kit (Without I/O Cable)
1	Accessory Kit (With I/O Cable) + High Sampling Rate Amplifier
2	Accessory Kit (With I/O Cable) + General-Purpose Amplifier
N	Without Accessory Kit

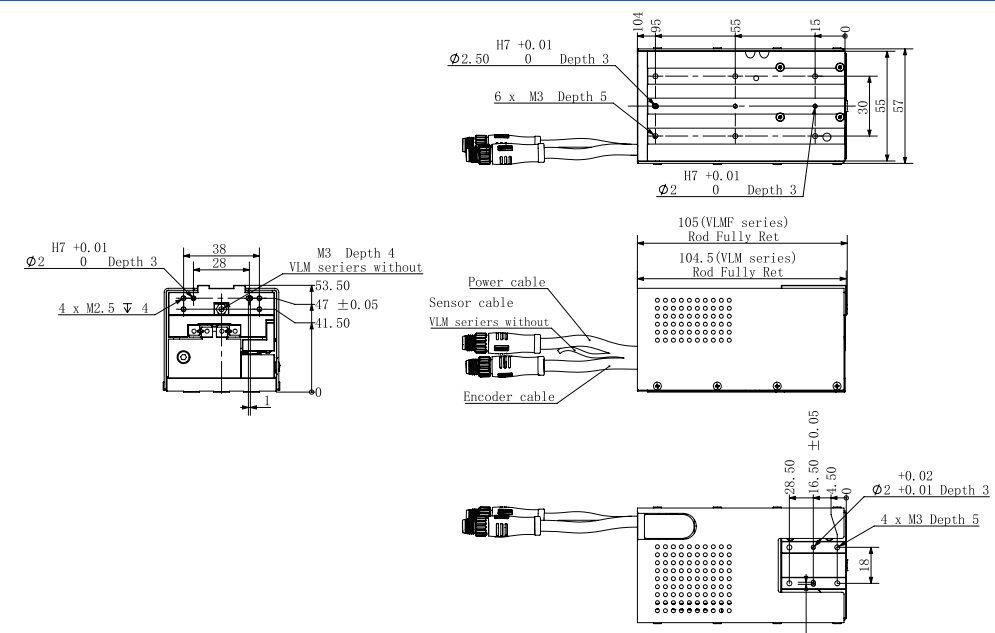
L1	1m Cable
L3	3m Cable
L5	5m Cable
L7	7m Cable
L10	10m Cable
LX	Without Cable

TECHNICAL SPECIFICATIONS



*② Recommended value under suggested load. The actual force control accuracy depends on factors such as load characteristics and motion cycle. For higher precision requirements, please consult DH Robotics technical support.

Dimensions



Performance Specifications	VLM-50C-10	VLMF-50C-10		
Peak thrust		30N		
Continuous thrust* ^①		10 N		
Total stroke		10 mm		
Maximum speed		0.8 m/s		
Force constant		9.9 N/Arms		
Force sensor range	— —	2 kg	1 kg	0.5 kg
Force control accuracy* ^②	20g~250g: ±5g 250g~1000g: ±2%	±1 g	±0.5 g	±0.3 g
Linear encoder resolution	1 μm (Magnetic encoder)	0.5 μm (Optical encoder)		
Linear positioning repeatability	±5 μm (Magnetic encoder)	±2 μm (Optical encoder)		

Mechanical Specifications

Overall mass	650 g
Movable part mass	240 g
Size	104.5 x 55 x 53.5 mm 105 x 55 x 53.5 mm

Operating Environment

Operating voltage	24 V DC $\pm 10\%$
Continuous current	1.0 A
Peak current	3.0A
Recommended load	< 50 g
Maintenance interval	Refer to Maintenance Instructions for DH-Robotics Linear coil actuator
IP rating	IP 40
Recommended operating environment	0~40°C, 85% RH or less
International standard compliance	CE, FCC, RoHS