

VLAR SERIES

Voice Coil Linear Rotary Actuator

VLAR-20-15(Magnetic encoder)

VLAR-20-15(Optical encoder)

VLAR-20-25(Optical/Magnetic encoder)

VLAR-25-25(Magnetic encoder)



PRODUCT FEATURES

High performance Linear/Rotary motion Adjustable parameters

Provide accurate linear and rotary actions of the Z-axis during high-speed motion, with adjustable velocity, thrust, and position parameters, enabling complex actions requiring high frequency and high precision.

Hollow rod Soft landing Power-off protection

The product is compact, light, and thin. It employs a hollow rod design to support pick-and-place tasks. The intelligent soft landing function protects the picked and placed workpiece with precise force control. The Z-axis has a built-in spring to prevent the axis from falling off due to power-off during vertical operations.

Precision resolution Long life over 100 million cycles

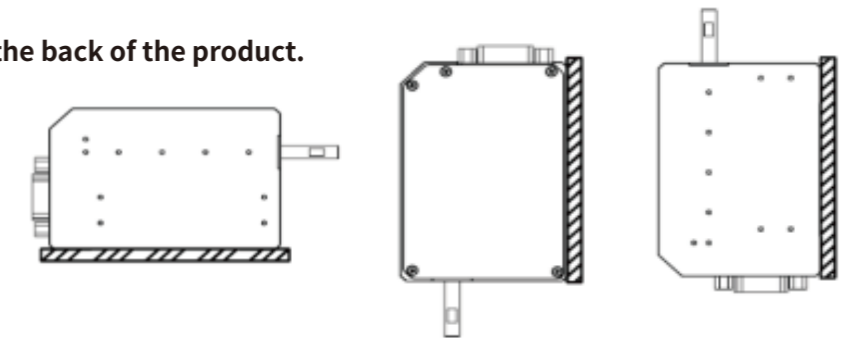
Regarding this product, the stroke resolution is up to $0.5 \mu\text{m}$, the rotary position resolution is 0.005° , and the thrust repeatability is within $\pm 3 \text{ g}$. With high-quality guide rail-level related components, it has a service life of up to 100 million cycles, and it is stable and durable.

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

The force repeatability of $\pm 3 \text{ g}$ and the micron-level resolution can be applied to the fast pick-and-place, assembly, testing, and other scenarios in semiconductors, 3C electronics, and other industries.

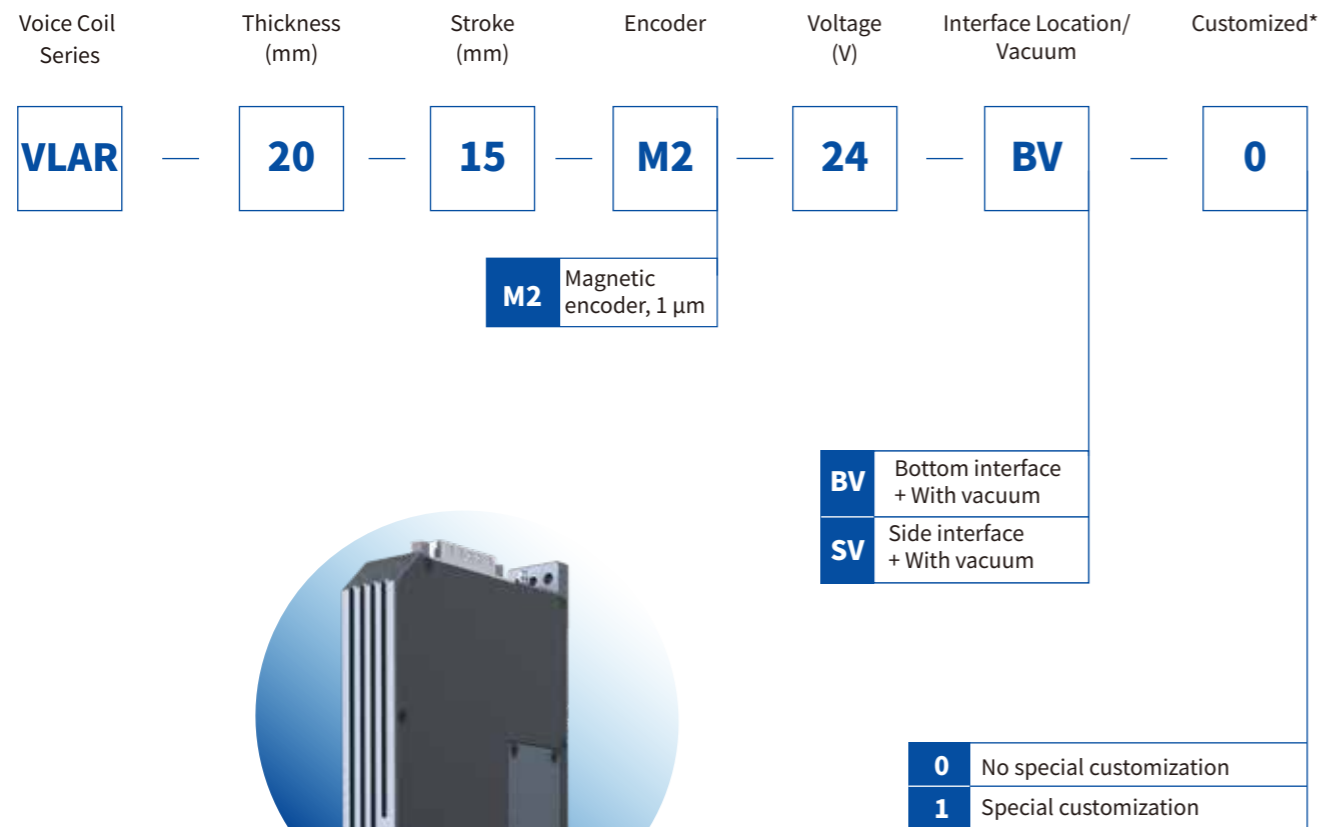
The unique linear and rotary motions of the Z-axis of the VLAR series can adapt to more abundant industrial scenarios, such as positioning, correction, and assembly in medical automation, 3C, and packaging automation.



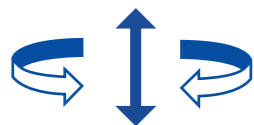
VLAR-20-15 (Magnetic encoder)

VOICE COIL LINEAR ROTARY ACTUATOR

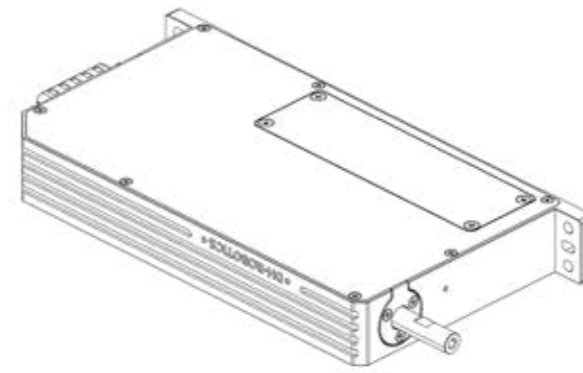
SELECTION METHOD



*Note: For customization fees, consult the company's sales staff.



TECHNICAL SPECIFICATIONS



Performance specifications

Peak thrust	16.5 N
Continuous thrust	8 N
Total stroke	15 mm
Force repeatability	± 3 g
Force constant	6.7 N/A
Maximum torque	0.04 N·m
Maximum speed	2000 rpm
Linear stroke resolution	1 μ m
Positioning repeatability	± 5 μ m
Rotary encoder resolution	0.02°

Mechanical specifications

Overall mass	555 g
Movable part mass	144 g
Size	140 mm x 80 mm x 20 mm
Vacuum	With vacuum

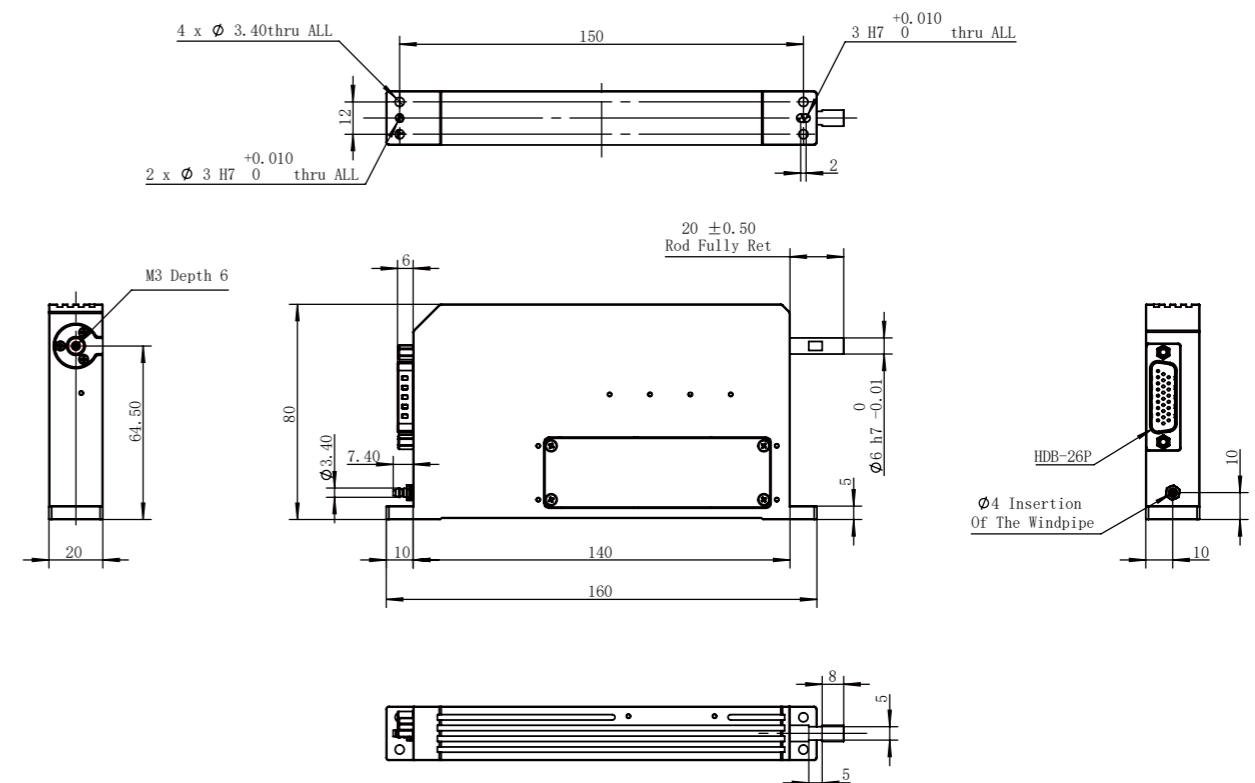
Operating environment

Operating voltage	24 V DC $\pm 10\%$
Continuous current	(Linear) 1.2 A (Rotary) 0.6 A
Peak current	(Linear) 2.5 A (Rotary) 2.5 A
Recommended load	≤ 150 g
Recommended load inertia	20 g·cm ²
IP rating	IP 40
Recommended operating environment	0°C-40°C, 85% RH or less
International standard compliance	CE, FCC, RoHS



For specific selection of voice coil products, please contact DH-Robotics or authorized agent for application and process confirmation. When higher requirements for actuators are required, please contact engineering staff.

Dimensions

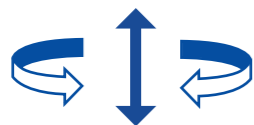


VLAR-20-15 (Optical encoder)

VOICE COIL LINEAR ROTARY ACTUATOR

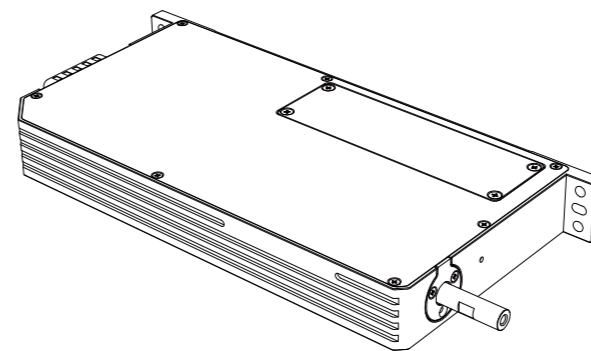
SELECTION METHOD

Voice Coil Series	Thickness (mm)	Stroke (mm)	Encoder	Voltage (V)	Interface Location/ Vacuum	Customized*
VLAR	20	15	H1	24	BV	0
			H1 Optical encoder, 0.5 μm		BV Bottom interface + With vacuum SV Side interface + With vacuum	0 No special customization 1 Special customization



*Note: For customization fees, consult the company's sales staff.

TECHNICAL SPECIFICATIONS

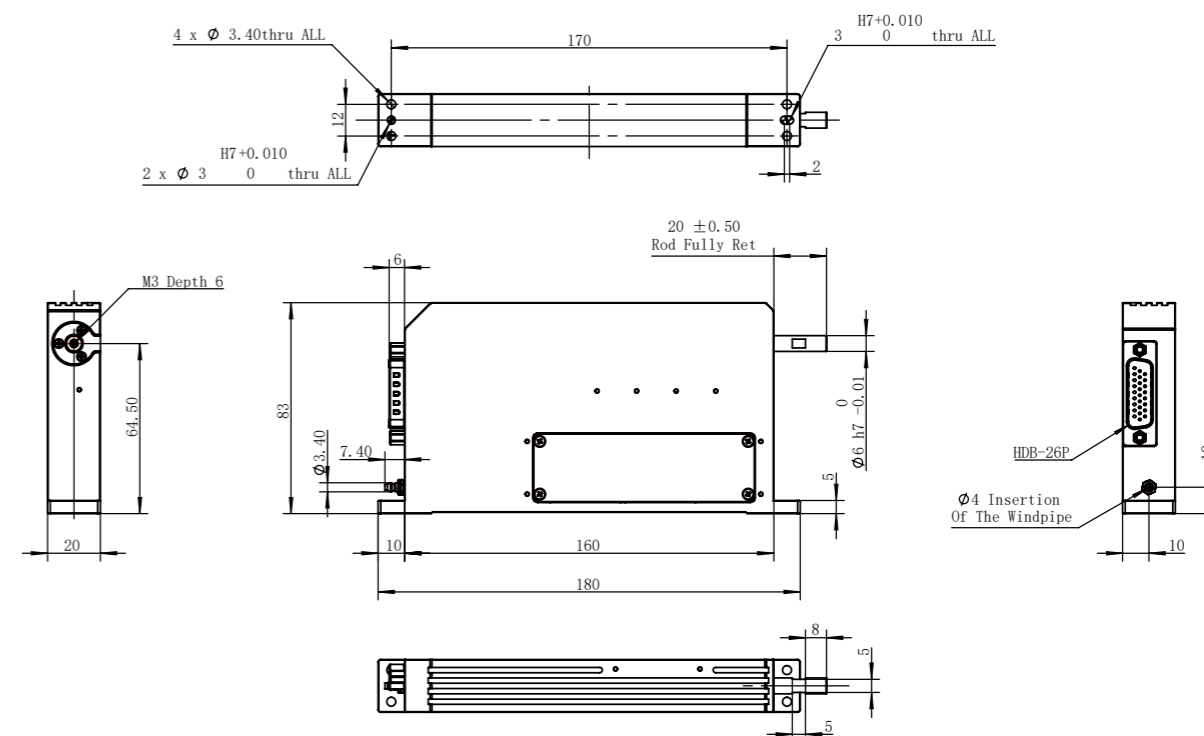


Performance specifications	
Peak thrust	16.5 N
Continuous thrust	8 N
Total stroke	15 mm
Force repeatability	±3 g
Force constant	6.7 N/A
Maximum torque	0.04 N·m
Maximum speed	2000 rpm
Linear stroke resolution	0.5 μm
Positioning repeatability	±2 μm
Rotary encoder resolution	0.005°
Mechanical specifications	
Overall mass	600 g
Movable part mass	156 g
Size	160 mm x 83 mm x 20 mm
Vacuum	With vacuum
Operating environment	
Operating voltage	24 V DC ± 10%
Continuous current	(Linear) 1.2 A (Rotary) 0.6 A
Peak current	(Linear) 2.5 A (Rotary) 2.5 A
Recommended load	≤150 g
Recommended load inertia	20 g·cm ²
IP rating	IP 40
Recommended operating environment	0°C-40°C, 85% RH or less
International standard compliance	CE, FCC, RoHS



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Dimensions



VLAR-20-25 (Optical/Magnetic encoder)

VOICE COIL LINEAR ROTARY ACTUATOR

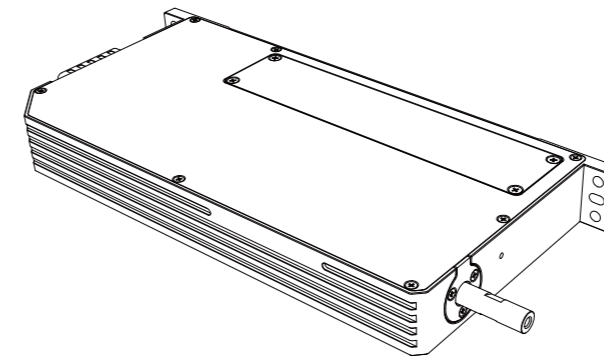
SELECTION METHOD

Voice Coil Series	Thickness (mm)	Stroke (mm)	Encoder	Voltage (V)	Interface Location/ Vacuum	Customized*
VLAR	20	25	H1	24	BV	0
			M2 Magnetic encoder, 1 μm			
			H1 Optical encoder, 0.5 μm			
				BV Bottom interface + With vacuum		
				SV Side interface + With vacuum		
						0 No special customization
						1 Special customization



*Note: For customization fees, consult the company's sales staff.

TECHNICAL SPECIFICATIONS

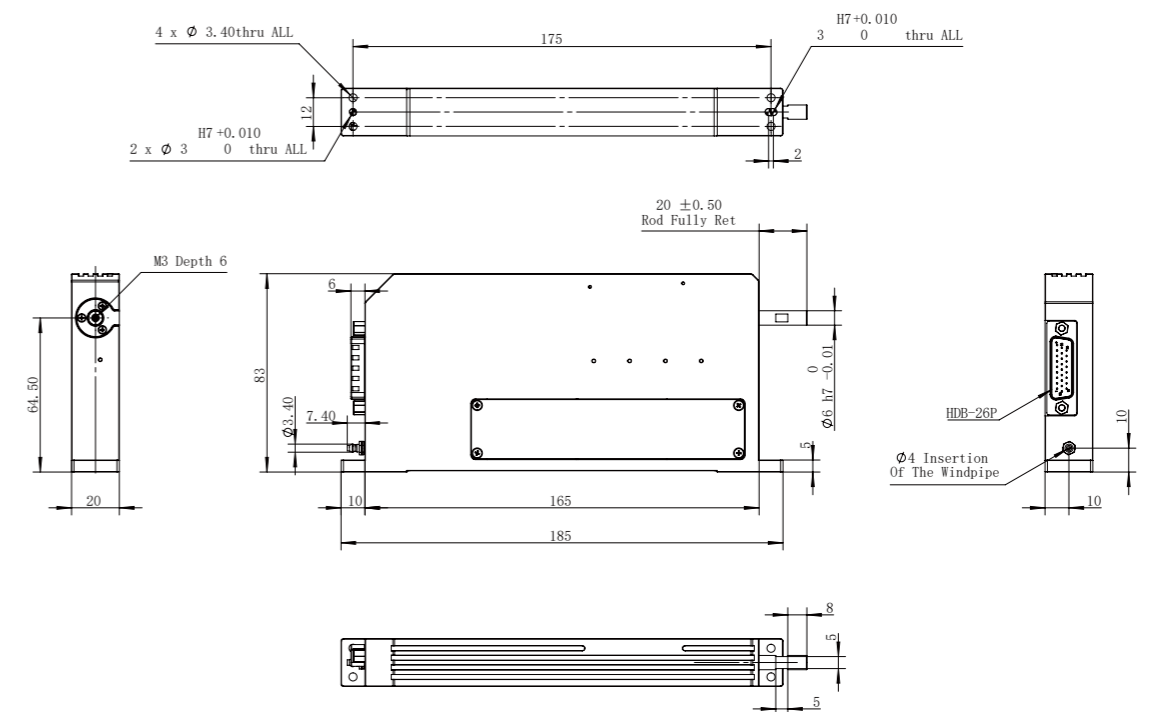


Performance specifications	
Peak thrust	16 N
Continuous thrust	8 N
Total stroke	25 mm
Force repeatability	± 3 g
Force constant	6.5 N/A
Maximum torque	0.056 N·m
Maximum speed	2000 rpm
Linear stroke resolution	1 μm <small>(Magnetic grid encoder)</small> / 0.5 μm <small>(Optical encoder)</small>
Positioning repeatability	± 5 μm <small>(Magnetic grid encoder)</small> / ± 2 μm <small>(Optical encoder)</small>
Rotary encoder resolution	0.02° <small>(Magnetic grid encoder)</small> / 0.005° <small>(Optical encoder)</small>
Mechanical specifications	
Overall mass	687 g
Movable part mass	166 g
Size	165 mm x 83 mm x 20 mm
Vacuum	With vacuum
Operating environment	
Operating voltage	24 V DC $\pm 10\%$
Continuous current	(Linear) 1.2 A / (Rotary) 0.6 A
Peak current	(Linear) 2.5 A / (Rotary) 2.5 A
Recommended load	≤ 150 g
Recommended load inertia	20 g·cm ²
IP rating	IP 40
Recommended operating environment	0°C-40°C, 85% RH or less
International standard compliance	CE, FCC, RoHS



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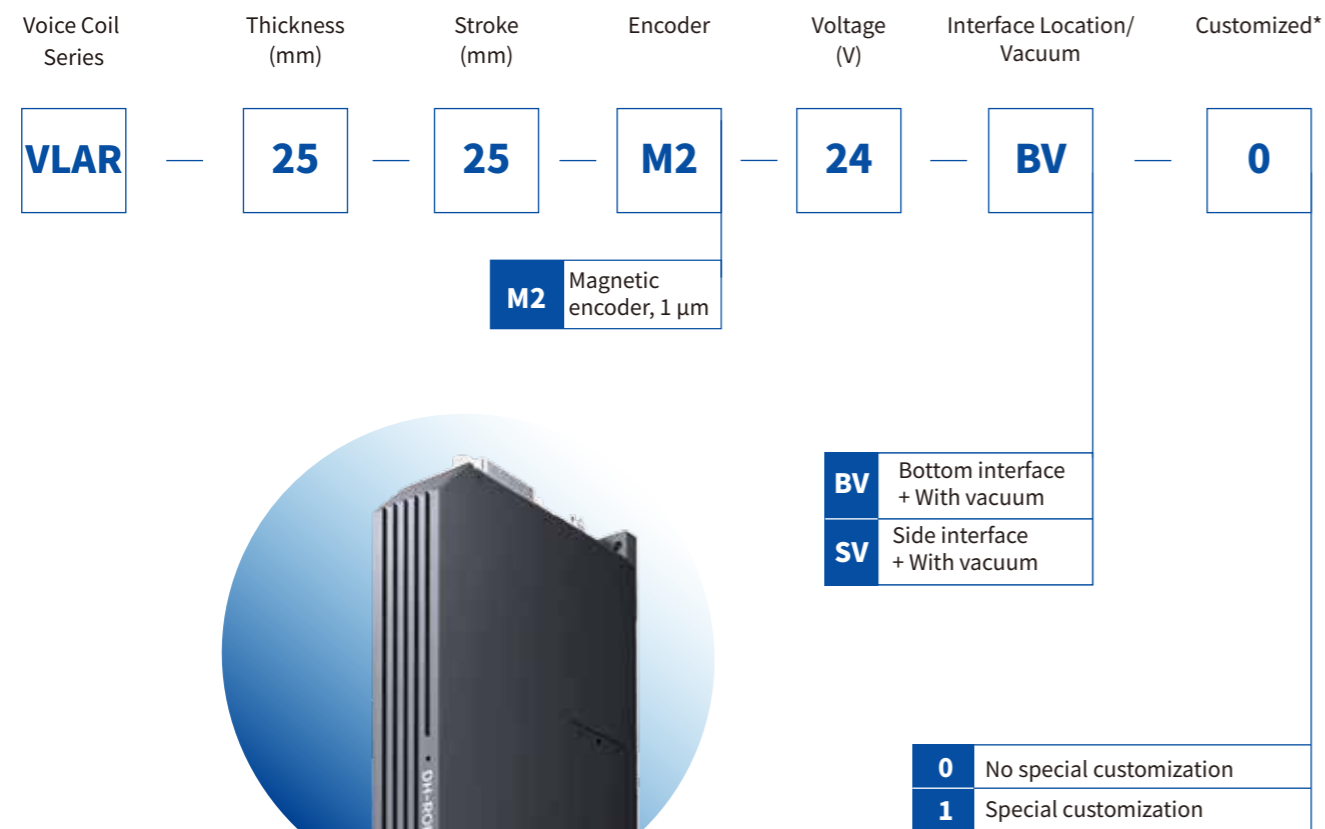
Dimensions



VLAR-25-25 (Magnetic encoder)

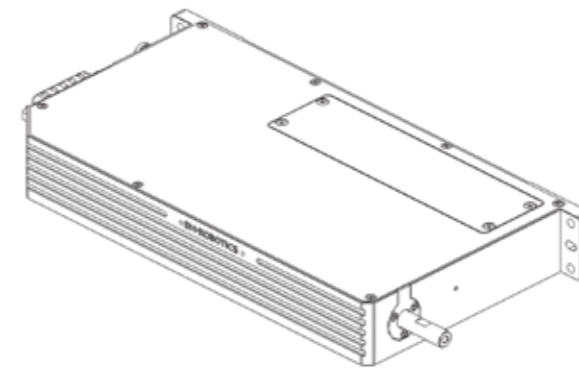
VOICE COIL LINEAR ROTARY ACTUATOR

SELECTION METHOD



*Note: For customization fees, consult the company's sales staff.

TECHNICAL SPECIFICATIONS



Performance specifications	
Peak thrust	15 N
Continuous thrust	8 N
Total stroke	25 mm
Force repeatability	±5 g
Force constant	6.67 N/A
Maximum torque	0.072 N·m
Maximum speed	2000 rpm
Linear stroke resolution	1 μm
Positioning repeatability	±5 μm
Rotary encoder resolution	0.02°
Mechanical specifications	
Overall mass	1020 g
Movable part mass	280 g
Size	180 mm x 100 mm x 25 mm
Vacuum	With vacuum
Operating environment	
Operating voltage	24 V DC ± 10%
Continuous current	(Linear)1.2 A (Rotary)1.0 A
Peak current	(Linear)2.2 A (Rotary)2.5 A
Recommended load	≤200 g
Recommended load inertia	140 g·cm ²
IP rating	IP 40
Recommended operating environment	0°C-40°C, 85% RH or less
International standard compliance	CE, FCC, RoHS



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Dimensions

