

## VL-MRS Series

Our series of Precision Electric Rotary Stages is designed to achieve 360° continuous rotation and precise angular positioning. Featuring a high-precision ground worm gear drive mechanism combined with high-resolution stepper motors, these stages ensure smooth motion, high load capacity, and self-locking capability upon power loss. The unique anti-backlash design effectively eliminates gear play, making it the ideal choice for precision optics, laser processing, and automated inspection applications.

### Key Features

- **High-Precision Worm Gear Drive**  
High transmission ratio, smooth motion, self-locking capability for enhanced safety.
- **Precision Shafting Design**  
High-precision bearing system ensures minimal runout and wobble, stable rotation center.
- **Anti-Backlash Mechanism**  
Adjustable worm gear meshing eliminates backlash, boosts repeat positioning accuracy.
- **Standard Compatibility**  
Standard stepper motors & DB9 interfaces; central aperture enables wiring/optical path transmission.

### Applications

- **Laser Marking & Processing:** Rotating parts for cylindrical marking.
- **Optical Polarization Analysis:** Precise rotation of polarizers or waveplates.
- **3D Scanning & Imaging:** 360-degree object rotation for model reconstruction.
- **Automated Indexing:** Precise angular indexing in assembly lines.

## One Platform Many Possibilities

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## Part 1: Standard Electric Rotary Stages (VL Series)

### Overview:

The VL Series utilizes a precision worm gear mechanism to provide smooth, unlimited 360° rotation. Designed for general-purpose industrial and scientific applications, these stages offer a reliable balance of load capacity, torque, and positioning accuracy.

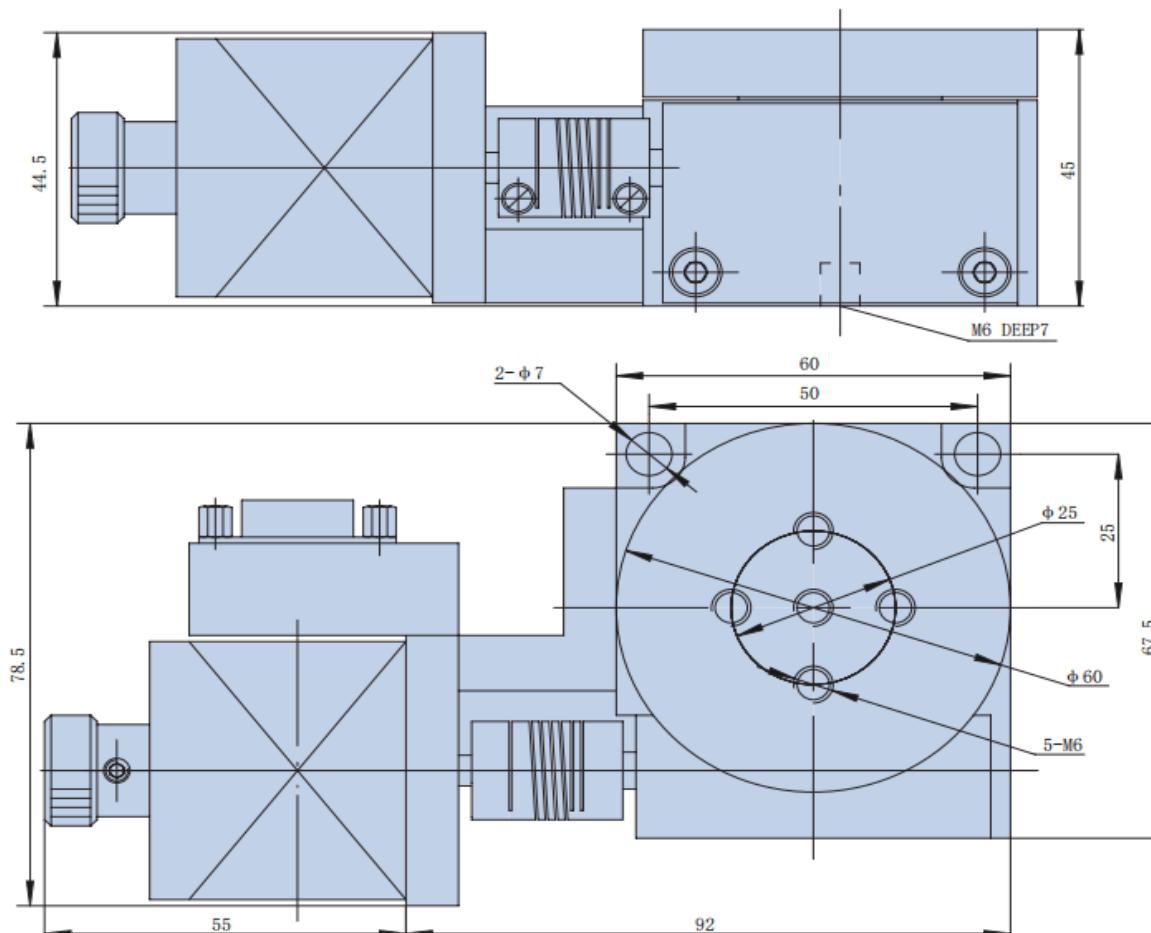
#### 1. VL01RA Series-60M

New Model: VL01RA60M



Model No.	Table Size	Transmission Ratio	Load Capacity	Max Speed	Resolution
VL01RA60M	φ60 mm	90:1	30 kg	50°/sec	0.001° ( 3.6 )

### Dimensions



### Applications

- **Cylindrical Laser Marking:** Rotates small cylindrical parts (like pens or tubes) for seamless laser engraving.
- **Small Component Assembly:** Precision angular positioning for assembling micro-mechanical parts.
- **Optical Sensor Testing:** Rotating sensors to test angular sensitivity and calibration.

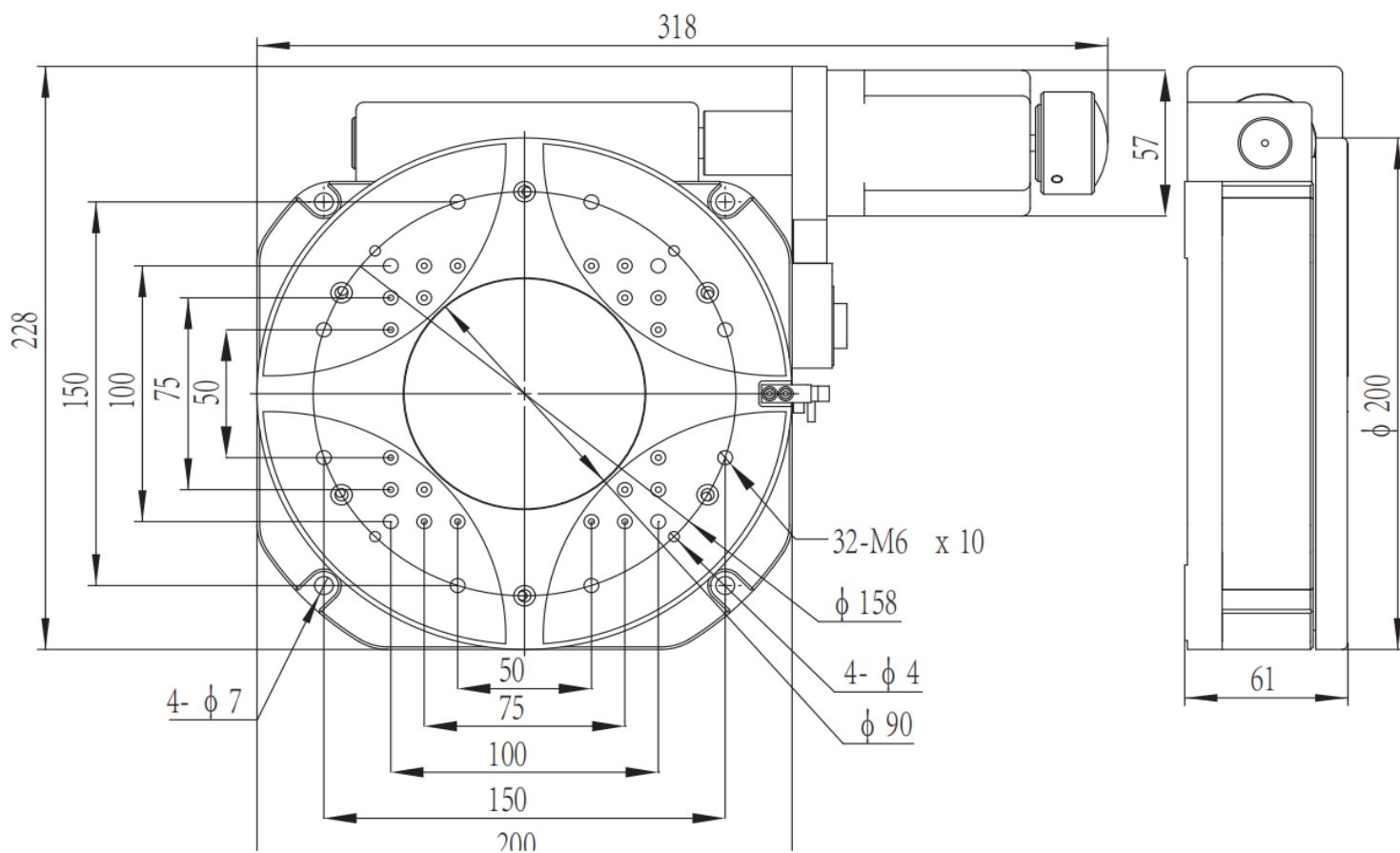
## 2. VL02RA Series-100

New Models: VL02RA100S-90, VL02RA100S-180



Model No.	Table Size	Transmission Ratio	Load Capacity	Max Speed	Resolution
VL02RA100S-90	φ100 mm	90:1	25 kg	45°/sec	0.001° ( 3.6 )
VL02RA100S-180	φ100 mm	180:1	45 kg	20°/sec	0.0005° ( 1.8 )

### Dimensions



### Applications

- **3D Scanning Turntables:** Provides smooth, automated rotation for capturing 3D object geometries.
- **Automated Visual Inspection:** Rotates products 360 degrees under a camera to check for defects on all sides.
- **University Laboratory Research:** General-purpose positioning for physics and optical experiments.

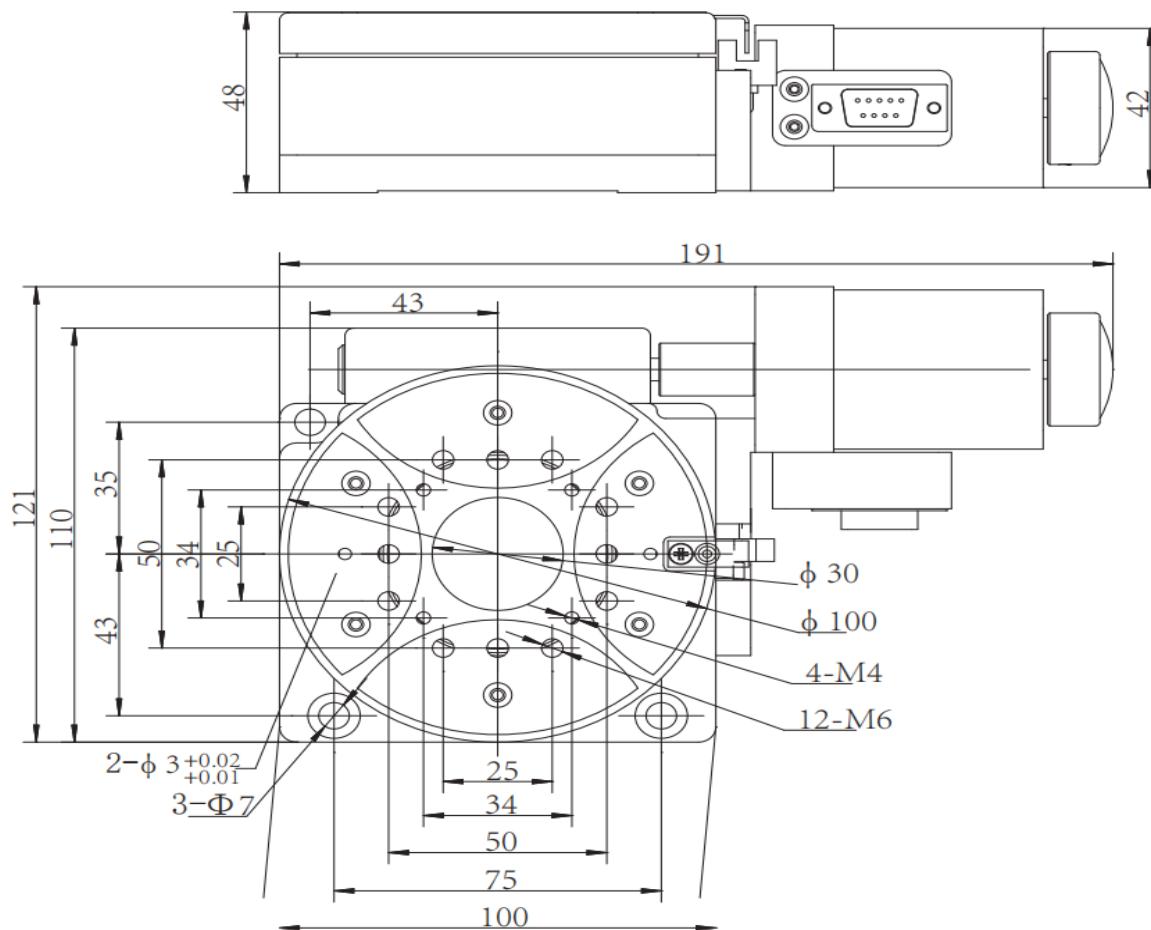
### 3. VL03RA Series-200

New Models: VL03RA200S-90, VL03RA200S-180



Model No.	Table Size	Transmission Ratio	Load Capacity	Max Speed	Resolution
VL03RA200S-90	φ200 mm	90:1	120 kg	45°/sec	0.001° ( 3.6 )
VL03RA200S-180	φ200 mm	180:1	250 kg	20°/sec	0.0005° ( 1.8 )

### Dimensions



### Applications

- **Heavy Industrial Indexing:** Accurate indexing for machining or assembly of heavy mechanical components.
- **Antenna Positioning:** Rotating communication antennas or receivers for signal strength testing.
- **Vacuum Chamber Positioning:** (Requires customization) Sample rotation inside vacuum environments for deposition processes.



## Part 2: VenusLab-R Heavy Duty Series

### Overview:

Engineered for maximum load capacity, this series features a large-diameter platform capable of handling industrial loads up to 450kg while maintaining high angular precision.

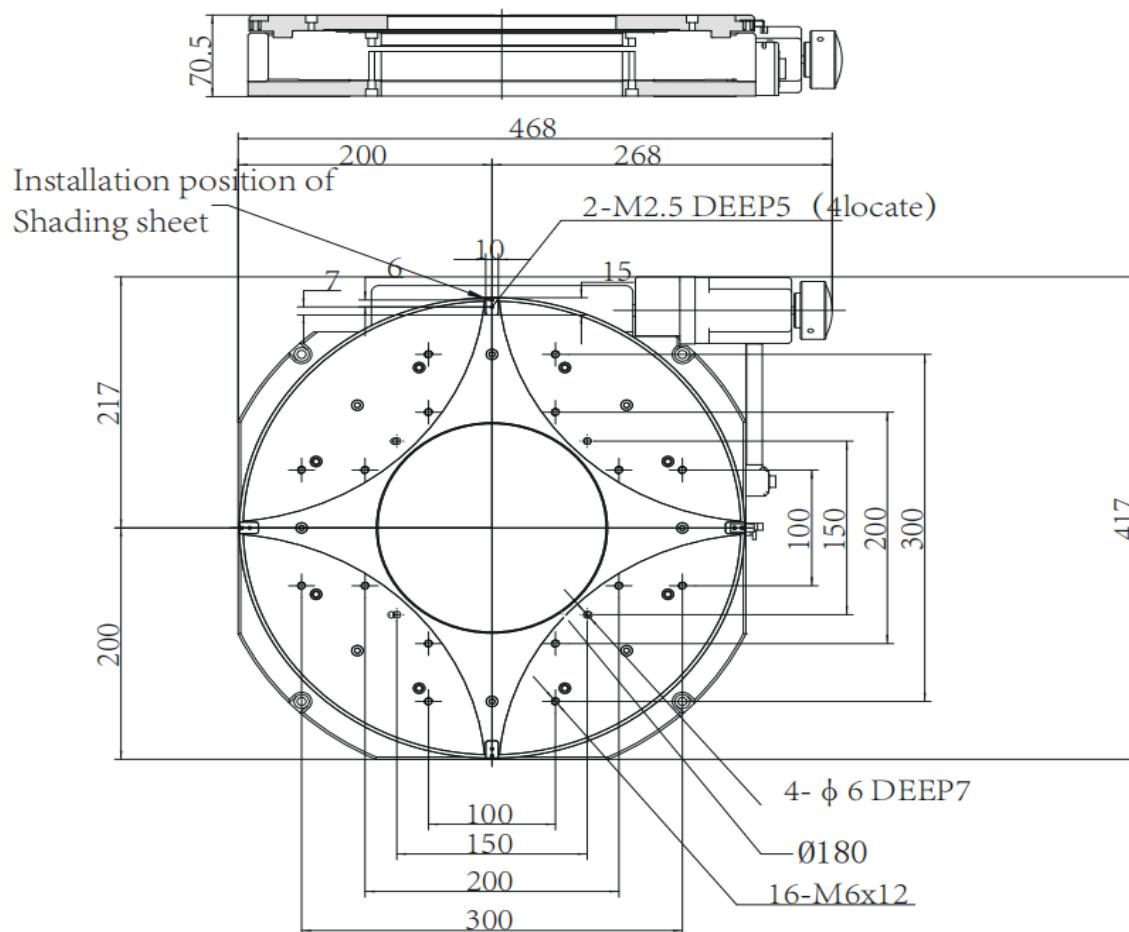
### 5. VL05RA400S Series

New Model: VL-R-B400-720



Model No.	Table Size	Transmission Ratio	Load Capacity	Max Speed	Repeatability
VL-R-B400-720	φ400 mm	720:1	450 kg	5°/sec	0.002° ( 7.2 )

## Dimensions



## Applications

- **Aerospace Component Testing:** Rotating heavy aerospace parts for non-destructive testing (NDT) and X-ray inspection.
- **High-Load CNC Machining:** Acting as a 4th axis for heavy-duty drilling or milling operations.
- **Large Telescope Mounts:** Precision azimuth control for optical telescope bases.

## Part 3: VenusLab-R Precision Series (Compact & Hollow)

### Overview:

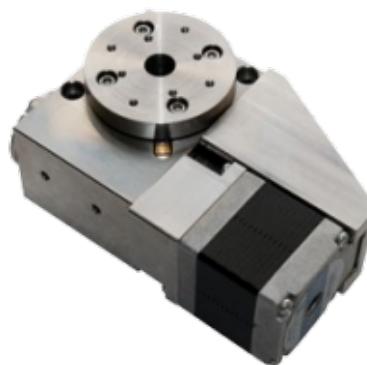
This series focuses on high precision and versatility. It includes ultra-compact models for tight spaces and hollow-shaft models that allow for easy cable routing or optical beam transmission.

### 1. Compact Precision Models

New Models: VL-R-P40H, VL-R-P40P



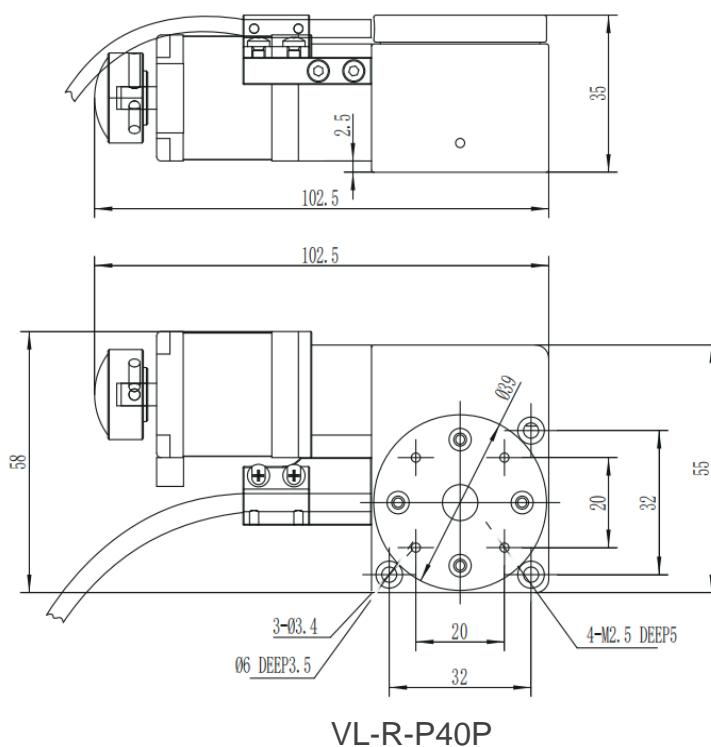
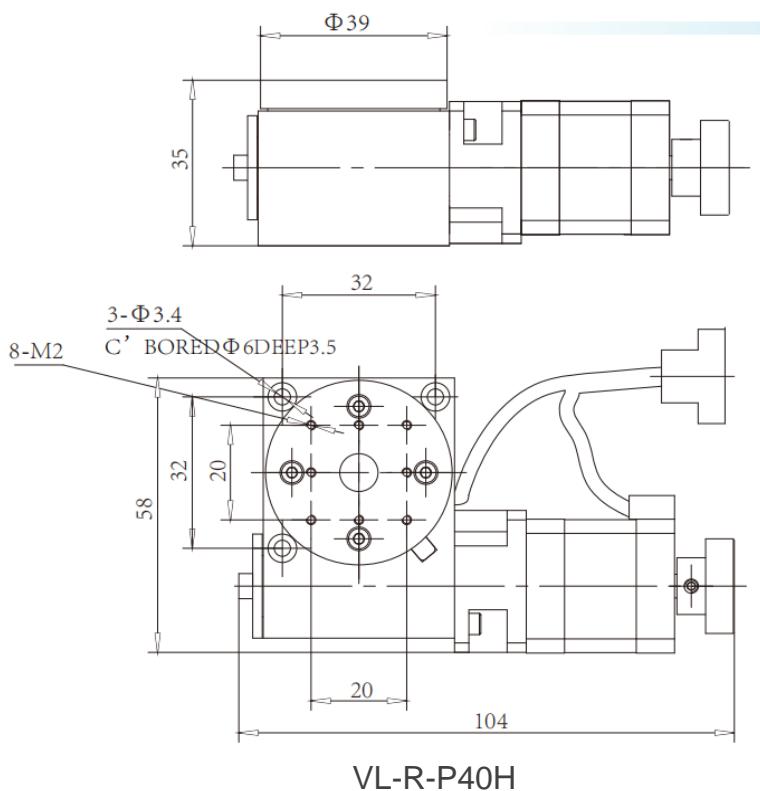
VL-R-P40H



VL-R-P40P

Model No.	Size	Ratio	Load	Material	Feature
VL-R-P40H	φ39 mm	120:1	2 kg	Aluminum Alloy	Lightweight, Cost-effective
VL-R-P40P	φ39 mm	120:1	2 kg	<b>Stainless Steel</b>	Corrosion Resistant, High Stability

### Dimensions



### Applications

- **Micromanipulation:** Precise rotation of biological samples or micro-needles under microscopes.
- **Vacuum & Cleanroom Environments:** The stainless steel version (P40P) is ideal for environments requiring low outgassing and corrosion resistance.
- **Fiber Alignment:** Fine angular adjustment of fiber optic components in compact packages.

## 2. Hollow Shaft & Thin Models

New Models: VL-R-P60H, VL-R-P200H



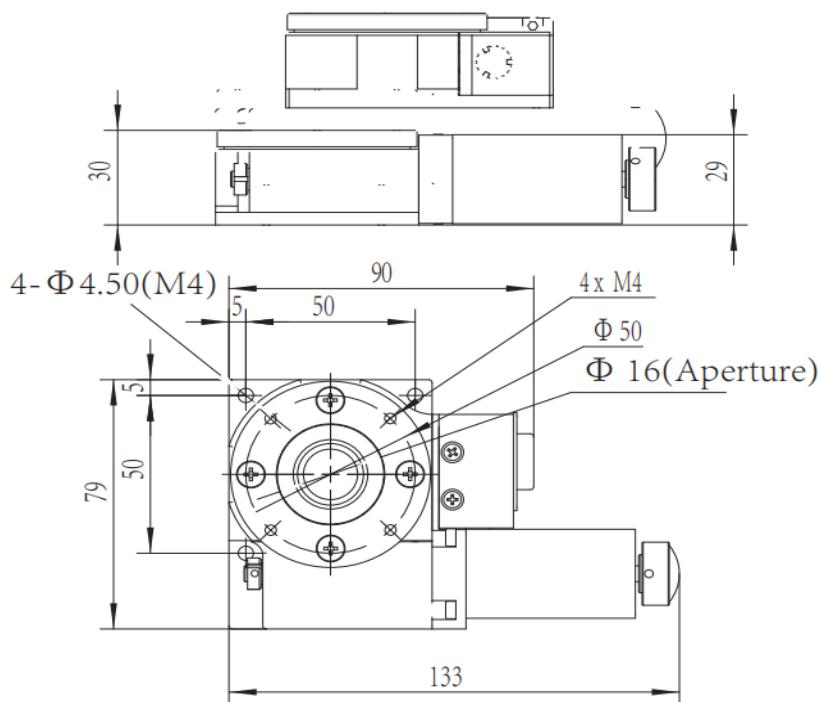
VL-R-P60H



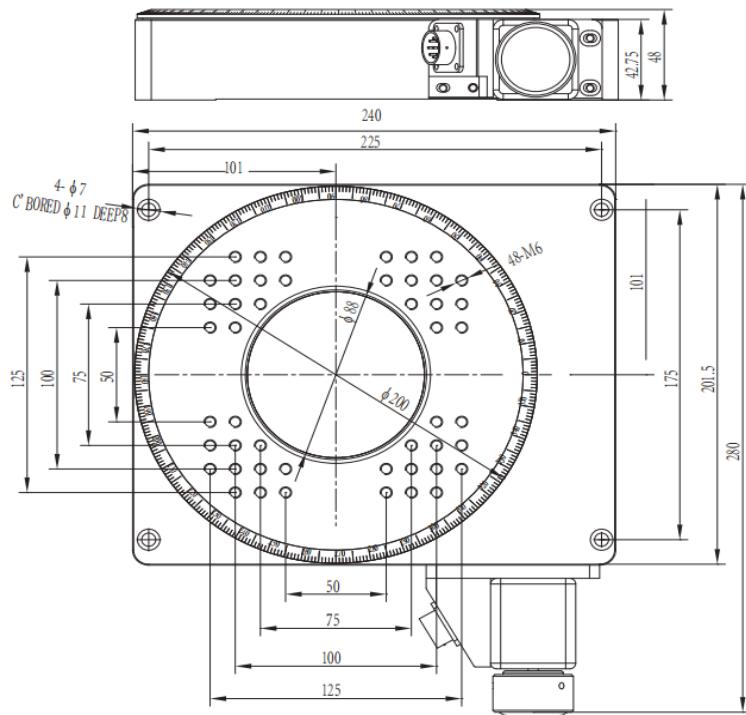
VL-R-P200H

Model No.	Size	Ratio	Center Load	Feature
VL-R-P60H	φ60 mm	110:1	5 kg	Cross-Roller Bearing Guide
VL-R-P200H	φ200 mm	180:1	100 kg	Large Hollow Aperture

### Dimensions



VL-R-P60H



VL-R-P200H

### Applications

- **Through-Hole Wiring:** The hollow center allows electrical cables or pneumatic tubes to pass through, perfect for slip-ring integration.
- **Beam Steering:** Laser beams can pass through the center of the stage for optical modulation experiments.
- **Polarization Analysis:** Rotating polarizers or waveplates with high precision cross-roller stability.

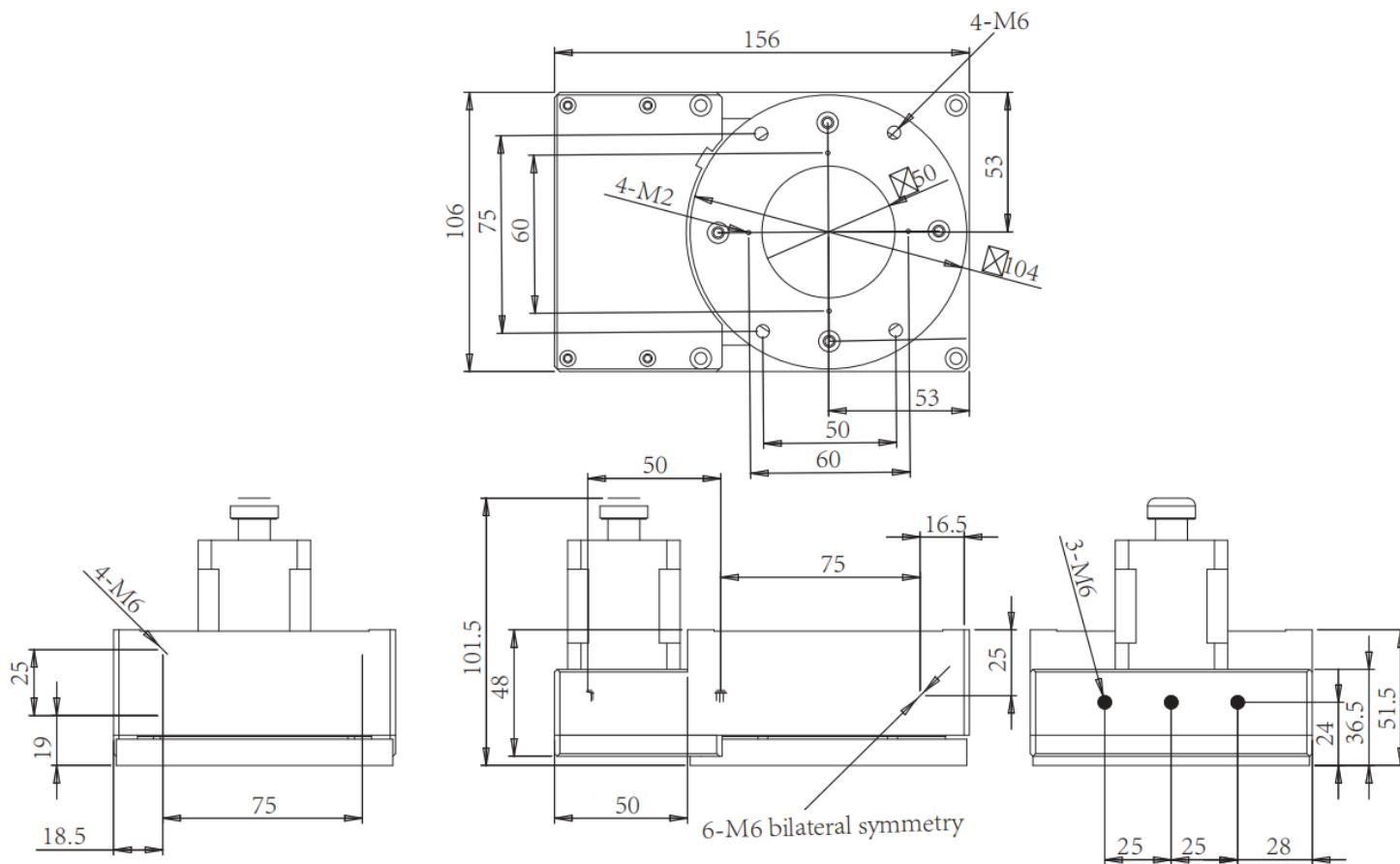


## 2. VenusLab-R-N100 (High Speed 100) New Model: VL-R-N100



Model No.	Size	Ratio	Max Speed	Drive Mechanism
VL-R-N100	φ100 mm	1:3	360°/sec	Synchronous Belt

### Dimensions



### Applications

- **Industrial Automation Sorting:** Fast orientation of parts on conveyor systems for packaging or sorting.
- **Dynamic Imaging:** Capturing high-speed events from multiple angles in rapid succession.
- **Laser Drilling:** Rapid positioning of workpieces for multi-angle laser percussion drilling.

 Get in touch with our team to explore configurations, request a quote, or learn more about customized solutions tailored to your needs.

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