

# VenusLab-Translation Axis

VL Series high-precision translation stage: precise motion for research & automation.

## Key Features

- **High-Precision Drive System**  
Equipped with ground ball screws (or precision lead screws) and standard stepper motors for micron-level resolution and repeatability.
- **Superior Guide Mechanism**  
Built-in precision linear guides (or cross-roller guides) minimize motion backlash, ensuring straightness and smooth operation under high loads.
- **Robust & Durable Construction**  
Aviation-grade aluminum alloy with black anodized finish delivers corrosion and wear resistance for complex lab and industrial environments.
- **Flexible Expandability**  
Standard mounting holes enable XY/XYZ multi-axis setups. Optional linear scales for full closed-loop control or servo motor upgrade for higher speeds.

## Applications

- **Photonics & Laser Applications:** Beam alignment, fiber coupling, crystal adjustment.
- **Semiconductor & Microelectronics:** Wafer inspection, chip packaging positioning.
- **Biomedical:** Microscope stage movement, cell manipulation. **Automated Inspection:** Sensor calibration, custom automation equipment integration.

## One Platform Many Possibilities

Contact Us [sales@venuslabtech.com](mailto:sales@venuslabtech.com)

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Part 1: High Precision Motorized Linear Stage (VL-200UPTA Series)  
**Product Series:** VL-200UPTA-(50-600)H



| Model No.       | Travel Range | Table Size | Load Capacity | Weight  |
|-----------------|--------------|------------|---------------|---------|
| VL-200UPTA-H50  | 50 mm        | 150x150 mm | 20 kg         | 2.8 kg  |
| VL-200UPTA-H100 | 100 mm       | 150x150 mm | 20 kg         | 3.4 kg  |
| VL-200UPTA-H150 | 150 mm       | 150x150 mm | 30 kg         | 4.5 kg  |
| VL-200UPTA-H200 | 200 mm       | 150x150 mm | 30 kg         | 5.2 kg  |
| VL-200UPTA-H300 | 300 mm       | 150x150 mm | 30 kg         | 6.3 kg  |
| VL-200UPTA-H400 | 400 mm       | 150x150 mm | 50 kg         | 7.2 kg  |
| VL-200UPTA-H500 | 500 mm       | 150x150 mm | 50 kg         | 8.3 kg  |
| VL-200UPTA-H600 | 600 mm       | 150x150 mm | 50 kg         | 10.3 kg |

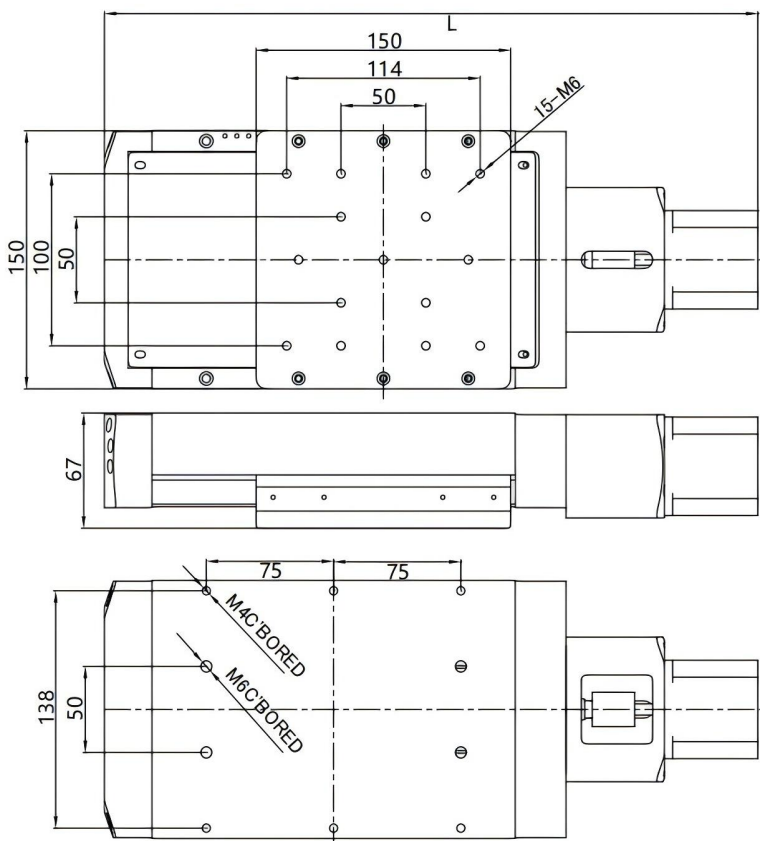
## Key Specifications:

**Drive Mechanism:** High Precision Ball Screw (Lead: 4mm/5mm)  
**Resolution:** 1 $\mu$ m (20 Micro-steps) / 20 $\mu$ m (Full Step)  
**Repeatability:** 1 $\mu$ m (Travel < 400mm) / 2 $\mu$ m (Travel 400mm)

## Applications

- Precision Optical Alignment
- Laser Interferometry Systems
- Laboratory Sample Positioning

## Dimensions



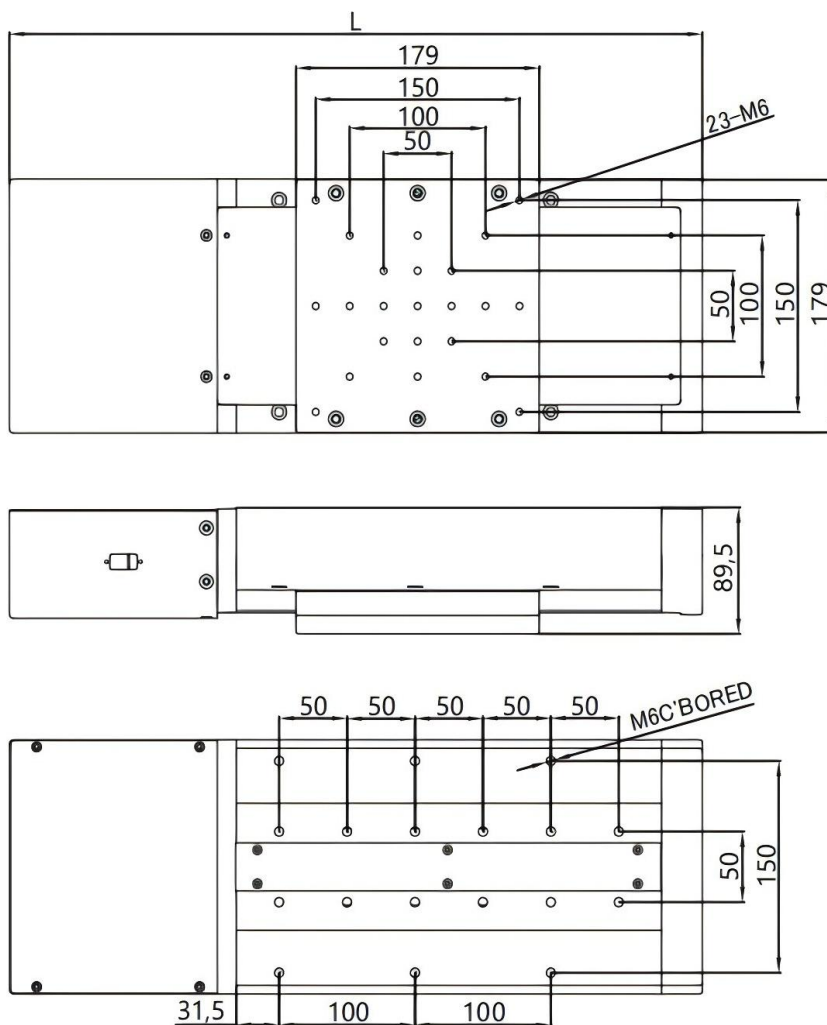
Part 2: Large Platform Motorized Linear Stage (VL-210UPTA Series)

Product Series: VL-210UPTA-(50-600)H



| Model No.       | Travel Range | Table Size | Load Capacity | Weight  |
|-----------------|--------------|------------|---------------|---------|
| VL-210UPTA-H50  | 50 mm        | 179x179 mm | 20 kg         | 2.8 kg  |
| VL-210UPTA-H100 | 100 mm       | 179x179 mm | 20 kg         | 3.4 kg  |
| VL-210UPTA-H150 | 150 mm       | 179x179 mm | 30 kg         | 4.5 kg  |
| VL-210UPTA-H200 | 200 mm       | 179x179 mm | 30 kg         | 5.2 kg  |
| VL-210UPTA-H300 | 300 mm       | 179x179 mm | 30 kg         | 6.3 kg  |
| VL-210UPTA-H400 | 400 mm       | 179x179 mm | 50 kg         | 7.2 kg  |
| VL-210UPTA-H500 | 500 mm       | 179x179 mm | 50 kg         | 8.3 kg  |
| VL-210UPTA-H600 | 600 mm       | 179x179 mm | 50 kg         | 10.3 kg |

Dimensions



Applications

- Semiconductor Wafer Inspection
- Bio-imaging & Scanning
- Multi-sensor Integration

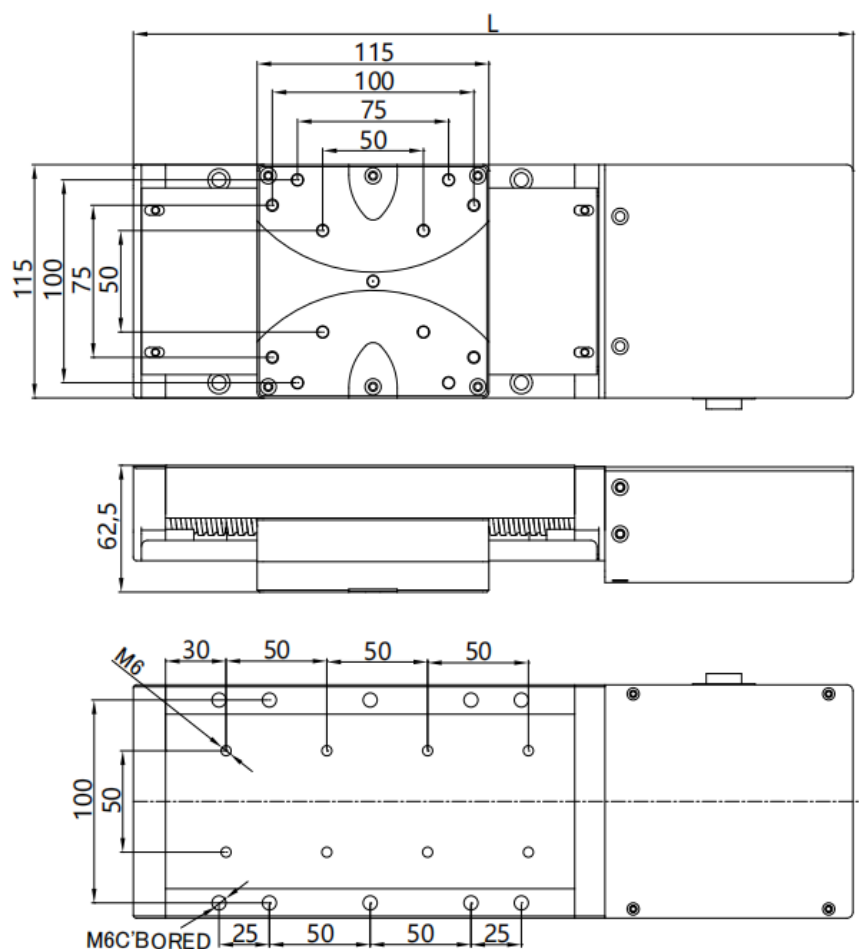
Part 3: Compact Motorized Linear Stage (VL-220UPTA Series)

Product Serie: VL-220UPTA-(50-300)H



| Model No.       | Travel Range | Table Size | Load Capacity | Weight |
|-----------------|--------------|------------|---------------|--------|
| VL-220UPTA-H50  | 50 mm        | 115x115 mm | 15 kg         | 2.8 kg |
| VL-220UPTA-H100 | 100 mm       | 115x115 mm | 15 kg         | 3.4 kg |
| VL-220UPTA-H150 | 150 mm       | 115x115 mm | 10 kg         | 4.5 kg |
| VL-220UPTA-H200 | 200 mm       | 115x115 mm | 7 kg          | 5.2 kg |
| VL-220UPTA-H300 | 300 mm       | 115x115 mm | 5 kg          | 6.3 kg |

Dimensions



Applications

- Microscope XY Stages
- Fiber Coupling & Alignment
- Portable Device Integration

Part 4: Heavy Duty High Precision Linear Stage (VL-230HPTA Series)

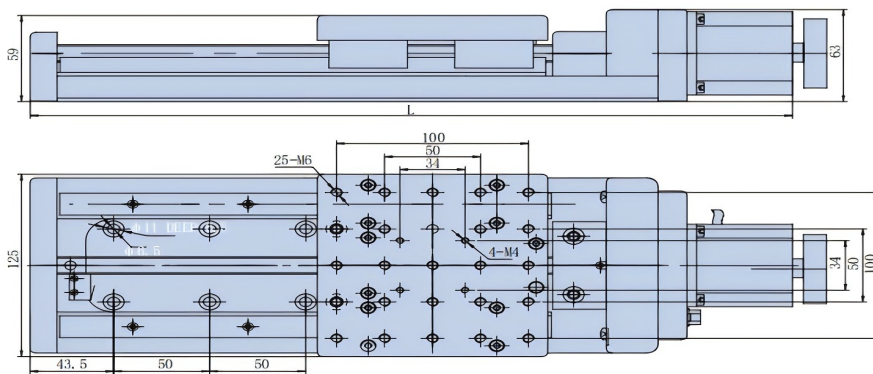
Product Series: VL-230HPTA-(50-500)M



| Model No.       | Travel Range | Table Size | Load Capacity | Weight |
|-----------------|--------------|------------|---------------|--------|
| VL-230HPTA-M50  | 50 mm        | 120x125 mm | 20 kg         | 5μm    |
| VL-230HPTA-M100 | 100 mm       | 120x125 mm | 20 kg         | 5μm    |
| VL-230HPTA-M150 | 150 mm       | 120x125 mm | 30 kg         | 5μm    |
| VL-230HPTA-M200 | 200 mm       | 120x125 mm | 30 kg         | 5μm    |
| VL-230HPTA-M300 | 300 mm       | 120x125 mm | 30 kg         | 5μm    |
| VL-230HPTA-M400 | 400 mm       | 160x160 mm | 50 kg         | 5μm    |
| VL-230HPTA-M500 | 500 mm       | 160x160 mm | 50 kg         | 5μm    |
| VL-230HPTA-M600 | 600 mm       | 160x160 mm | 50 kg         | 5μm    |

Dimensions

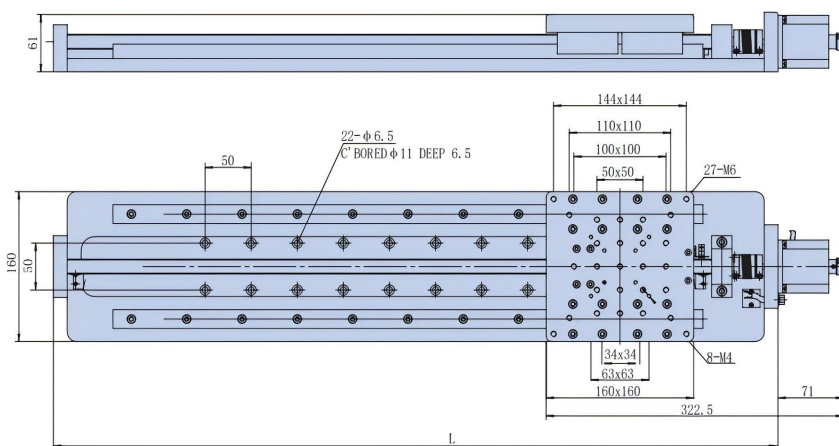
VL-230HPTA-(50-300)M



Applications

- Industrial Automation Lines
- Large Object 3D Scanning
- Material Handling & Dispensing

VL-230HPTA-(400-500)M



Part 5: Specialized Series

1. Closed-Loop Series (Linear Scale Integrated)

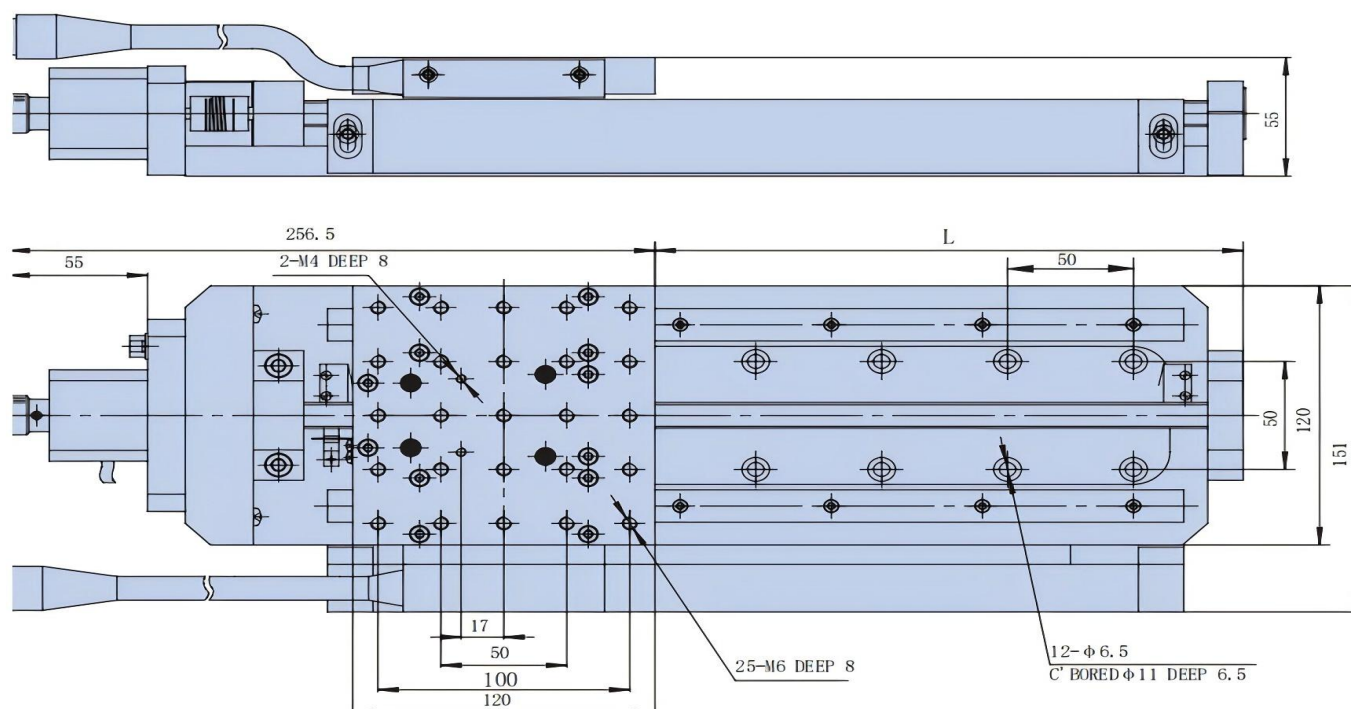
**Series Name:** VL-GSxxTA (50-500) M Series



**Description:** Motorized stage equipped with an integrated linear scale for closed-loop control, achieving micron-level positioning accuracy.

**Features:** High position feedback accuracy, ideal for precision automation.

**Dimensions**



**Applications**

- Ultra-precision Metrology
- Lithography Process
- Closed-loop Feedback Control

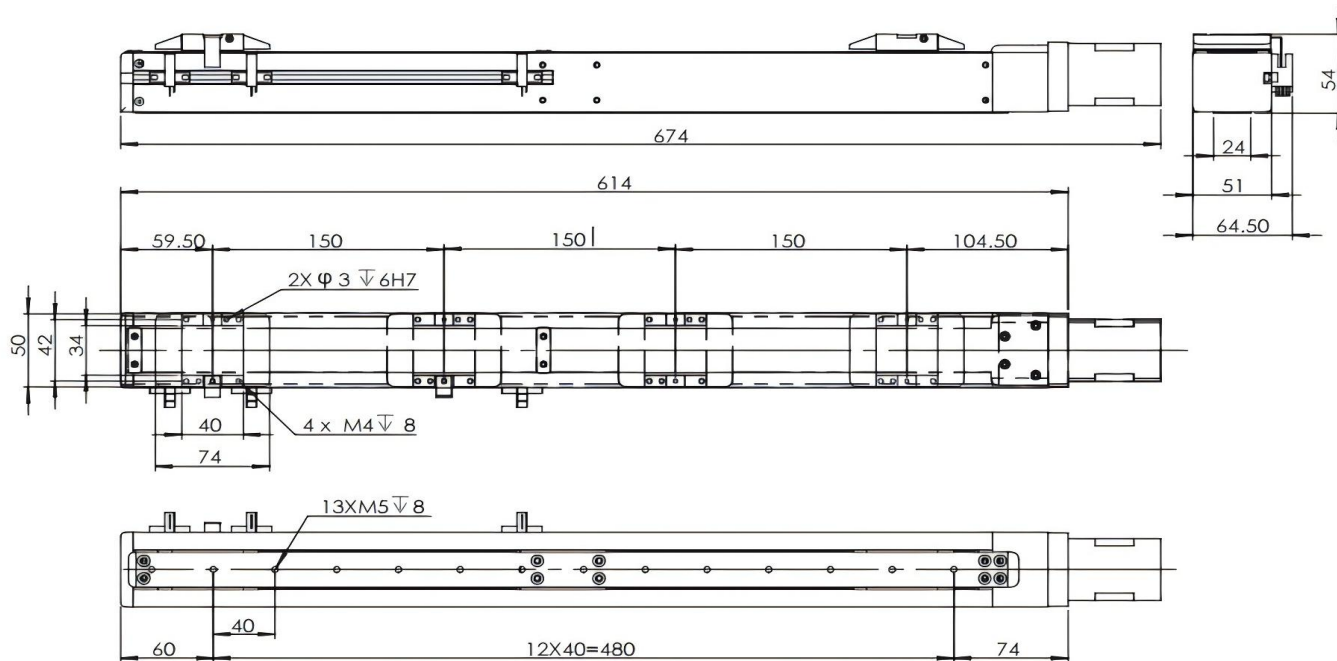
## 2. Reverse Synchronous Dual Slider Series

**Series Name:** VL710TR150-SR



|               |                                  |
|---------------|----------------------------------|
| Drive Mode    | Reverse Synchronous Dual Sliders |
| Travel Range  | 150 mm                           |
| Screw Type    | Precision Ball Screw (Lead: 2mm) |
| Load Capacity | 2 kg (Per Slider)                |

### Dimensions



### Applications

- Automatic Centering & Gripping
- Optical Slit Adjustment
- Symmetrical Material Testing

## Part 6: Miniature Precision Motorized Stage (VL160TA Series)

Original Series: WN160TA

Feature: Compact 60x60mm platform, ideal for limited space applications.

**Series Name: VL160TA (50-400)**



| Model No.   | Travel Range | Table Size | Load Capacity | Weight |
|-------------|--------------|------------|---------------|--------|
| VL160TA50H  | 50 mm        | 60x60 mm   | 8 kg          | 1.4 kg |
| VL160TA100H | 100 mm       | 60x60 mm   | 8 kg          | 1.7 kg |
| VL160TA150H | 150 mm       | 60x60 mm   | 5 kg          | 2.3 kg |
| VL160TA200H | 200 mm       | 60x60 mm   | 5 kg          | 2.6 kg |
| VL160TA300H | 300 mm       | 60x60 mm   | 3 kg          | 3.0 kg |
| VL160TA400H | 400 mm       | 60x60 mm   | 3 kg          | 4.5 kg |

### Key Specifications:

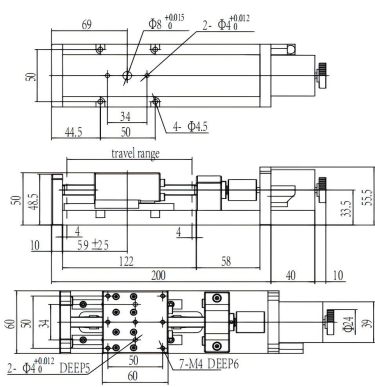
**Drive Mechanism:** Precision Ball Screw (Lead: 2mm)

**Resolution:** 10 $\mu$ m (Full step) / 0.5 $\mu$ m (1/20 Micro-step)

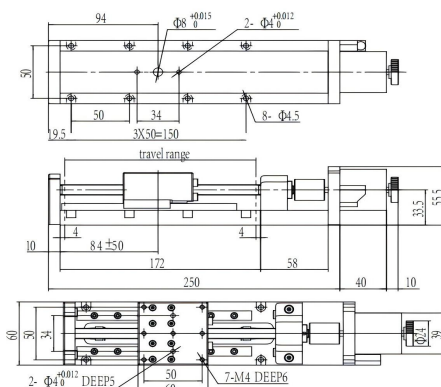
**Max Speed:** 10mm/sec

**Guide Type:** Precision Linear Guide

### Dimensions



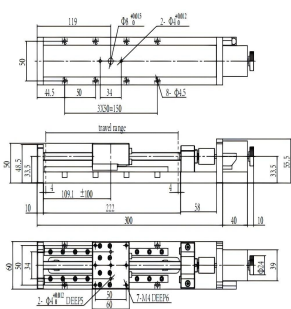
VL160TA50H



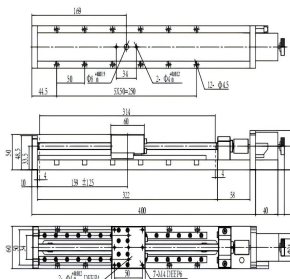
VL160TA100H

### Applications

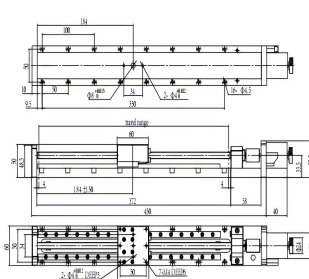
- **Compact Optical Alignment:**  
Ideal for adjusting lenses and mirrors in small optical setups.
- **Limited Space Positioning:**  
Perfect for instruments where internal space is restricted.
- **Small Sample Scanning:**  
Automated movement for small biological or material samples.



VL160TA150H



VL160TA250H



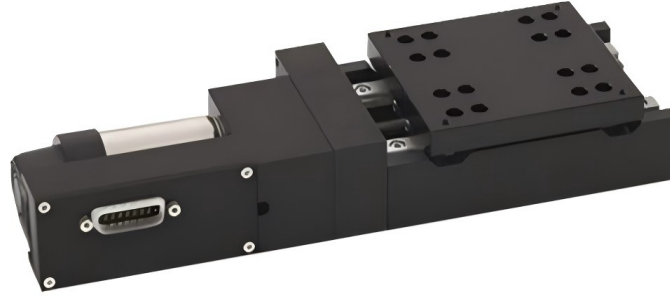
VL160TAH

Part 7: Closed-Loop Stepper Motor Stage (VL180TA Series)

Original Series: WN180TA

Feature: 80x80mm platform equipped with a closed-loop stepper motor to prevent step loss.

**Series Name:** VL180TA (50-200)H



| Model No.   | Travel Range | Table Size | Load Capacity | Motor Type          |
|-------------|--------------|------------|---------------|---------------------|
| VL180TA50H  | 50 mm        | 80x80 mm   | 15 kg         | Closed-Loop Stepper |
| VL180TA100H | 100 mm       | 80x80 mm   | 15 kg         | Closed-Loop Stepper |
| VL180TA150H | 150 mm       | 80x80 mm   | 10 kg         | Closed-Loop Stepper |
| VL180TA200H | 200 mm       | 80x80 mm   | 7 kg          | Closed-Loop Stepper |

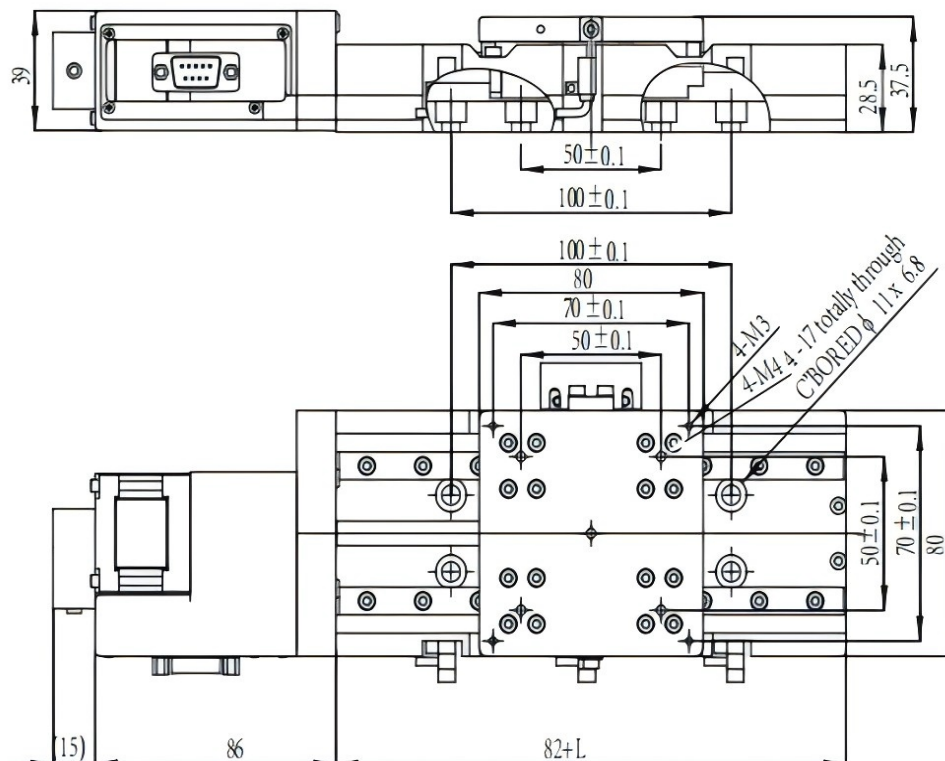
**Key Specifications:**

Drive Mechanism: High Precision Ball Screw (Lead: 2mm)

Repeatability: 1µm

Max Speed: 12mm/sec

**Dimensions**



**Applications**

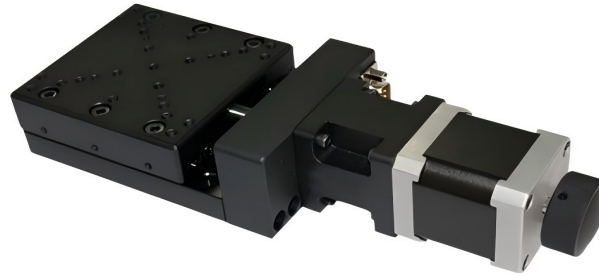
- **Reliable Automation:** Prevents step loss during long-duration automated tasks.
- **Feedback-Critical Positioning:** Used in processes where position verification is mandatory.
- **Vision Inspection Systems:** Ensures exact camera positioning without drift.

## Part 8:High Load Cross-Roller Stage (VL260TH Series)

Original Series: WN260TA

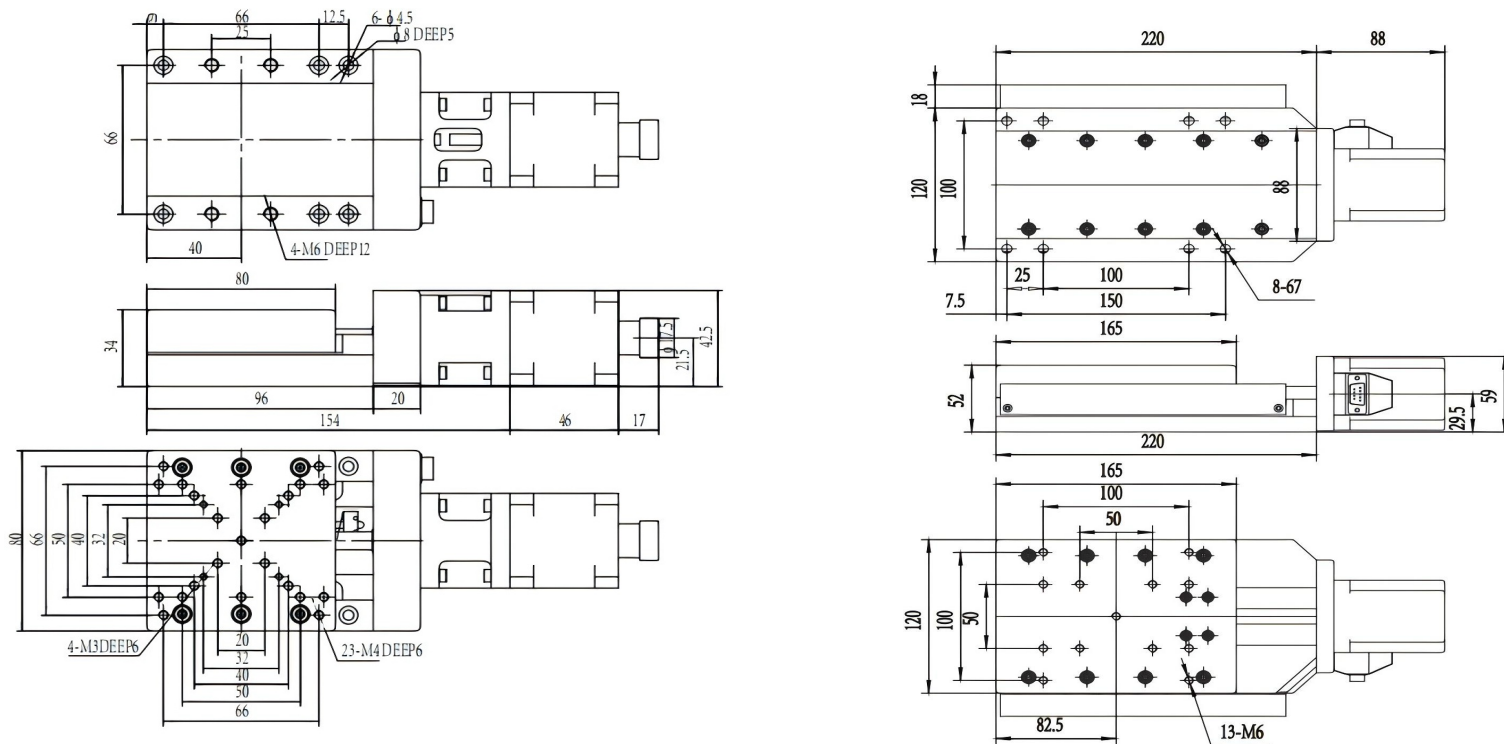
Feature: Uses high-precision cross-roller guides for superior load capacity and stability.

**Series Name:** VL260TH Series



| Model No.   | Travel Range | Table Size | Load Capacity | Screw Lead |
|-------------|--------------|------------|---------------|------------|
| VL260TH30H  | 30 mm        | 80x80 mm   | 40 kg         | 1 mm       |
| VL260TH50H  | 50 mm        | 120x125 mm | 80 kg         | 4 mm       |
| VL260TH100H | 100 mm       | 120x165 mm | 80 kg         | 4 mm       |
| VL260TH150H | 150 mm       | 165x245 mm | 80 kg         | 4 mm       |

### Dimensions



### Applications

- **Heavy Load Material Handling:** Moving heavy industrial parts or fixtures (up to 80kg).
- **Industrial Production Lines:** Integration into assembly or dispensing machines.
- **Large Equipment Calibration:** Positioning heavy measurement devices.



Part 10: Ultra-Compact Motorized Stage (VL-Micro TS)

Original Series: WN262TA15H4040

Feature: Extremely small footprint (40x40mm) for microscopic applications.

**Series Name: VL-Micro TS**



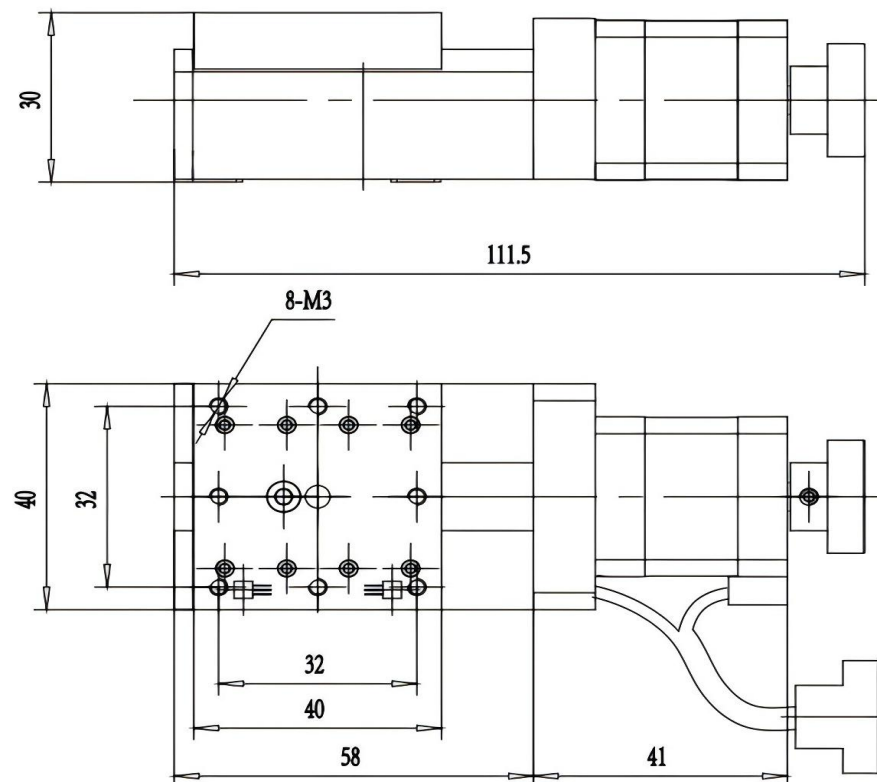
| Model No.       | Travel Range | Table Size | Load Capacity | Repeatability |
|-----------------|--------------|------------|---------------|---------------|
| VL-M262T15H4040 | 15 mm        | 40x40 mm   | 3 kg          | 1 $\mu$ m     |

**Key Specifications:**

Drive: High Precision Ball Screw (Lead: 1mm)

Guide: Cross Roller Guide

**Dimensions**



**Applications**

- **Microscopy Applications:** Precise sample movement under high-magnification microscopes.
- **Bio-chip Inspection:** Positioning alignment for microfluidic chips.
- **Fiber Optics:** Fine alignment of optical fibers in confined spaces.

Part 11: Configurable Precision Stage (VL-S262 Series)

Original Series: WN262TA20...6060

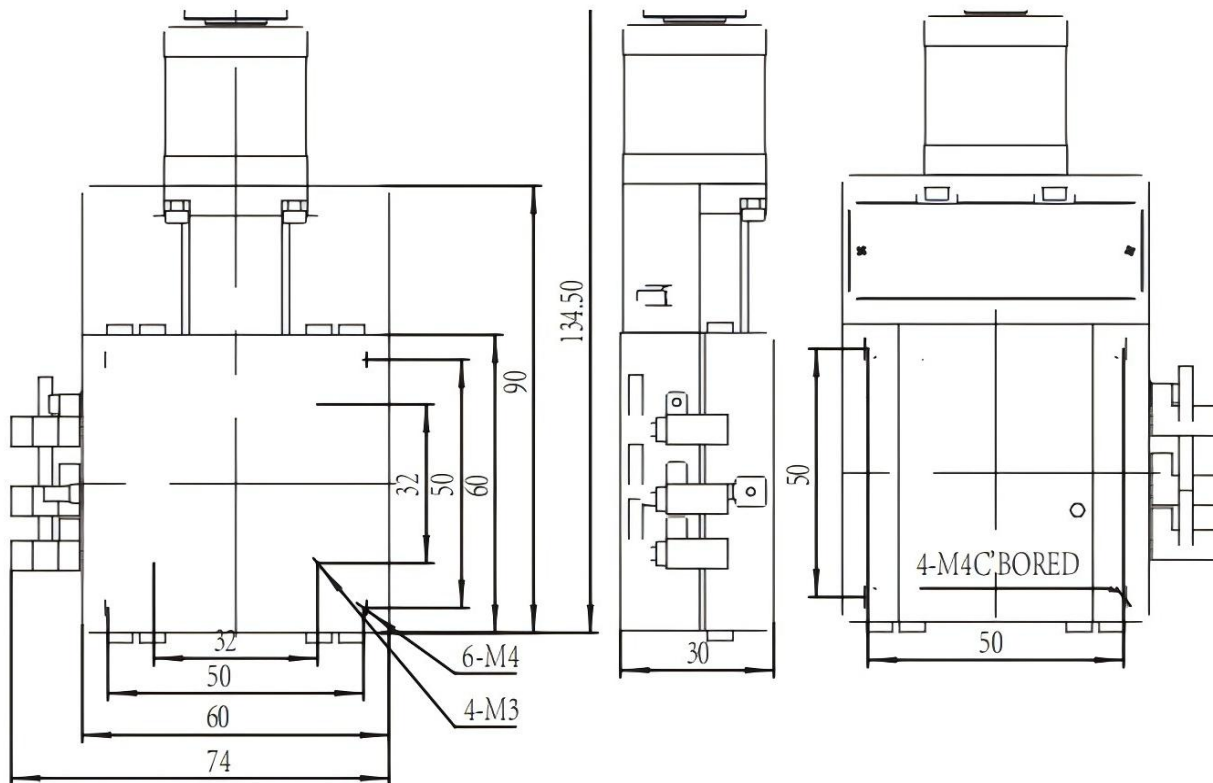
Feature: 60x60mm platform available in three precision grades (C/H/P).

**Series Name:** VL-S262-ECTA-20-6060



| Model No.             | Grade           | Screw Type        | Motor           | Resolution |
|-----------------------|-----------------|-------------------|-----------------|------------|
| VL-S262-ECTA-20C-6060 | Standard        | Ball Screw        | 2-Phase Stepper | 0.25μm     |
| VL-S262-ECTA-20H-6060 | Precision       | Ground Ball Screw | 2-Phase Stepper | 0.25μm     |
| VL-S262-ECTA-20P-6060 | Ultra-Precision | Ground Ball Screw | 5-Phase Stepper | 0.1μm      |

Dimensions



Applications

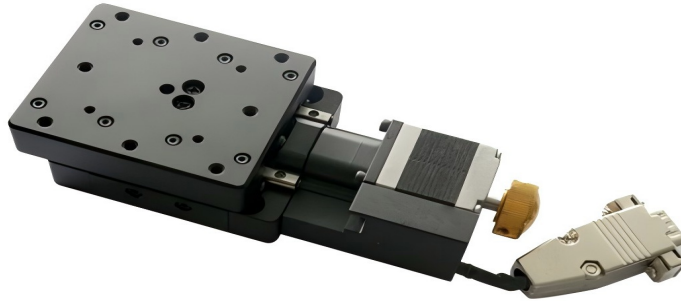
- **General Laboratory Use (C-Grade):** Standard educational or experimental positioning.
- **Precision Optics (H-Grade):** Laser path construction and adjustment.
- **Semiconductor Inspection (P-Grade):** High-precision wafer or chip inspection requiring sub-micron accuracy.

## Part 12:Rectangular Table Precision Stage (VL-262HPTA 6070

Series)Original Series: WN260TA30...6070

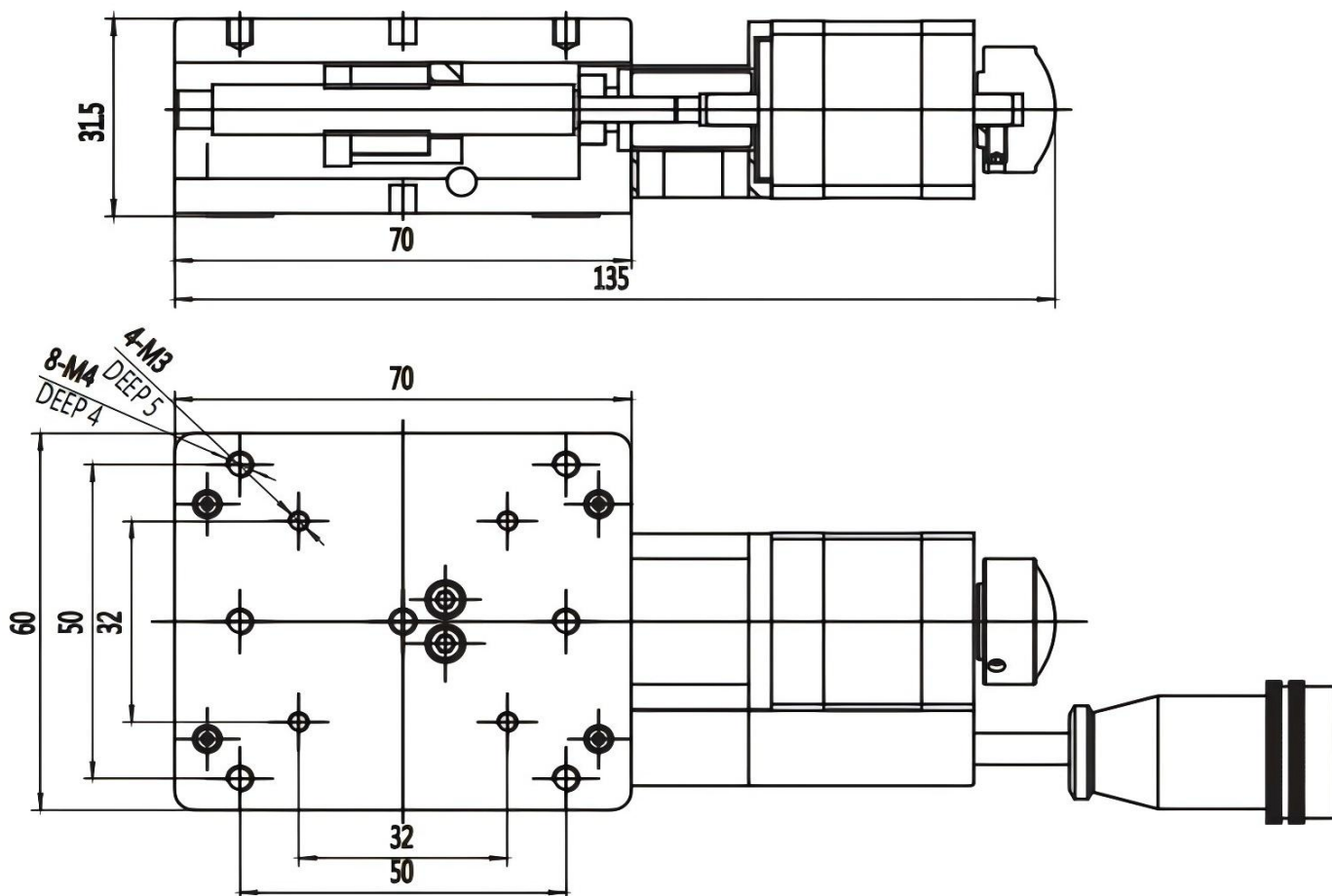
Feature: 60x70mm rectangular table, available in C/H/P precision grades.

**Series Name:** VL-262HPTA-30-6070(C/H/P)



| Model No.           | Grade   | Guide Class      | Screw Class     | Repeatability |
|---------------------|---------|------------------|-----------------|---------------|
| VL-262HPTA-30C-6070 | C-Grade | Cross Roller (C) | Ground Screw    | 5 $\mu$ m     |
| VL-262HPTA-30H-6070 | H-Grade | Cross Roller (H) | Ball Screw (C7) | 3 $\mu$ m     |
| VL-262HPTA-30P-6070 | P-Grade | Cross Roller (P) | Ball Screw (C5) | 1-2 $\mu$ m   |

### Dimensions



### Applications

- **Optical Slit Adjustment:** Adjusting light apertures or slits.
- **Sensor Calibration:** Moving sensors linearly for data collection.
- **Side-Mount Applications:** Suitable for mounting components that require a rectangular footprint.

## Part 13:Low Profile Precision Stage (VL-262HPTA 8080 Series)

Original Series: WN262TA...8080

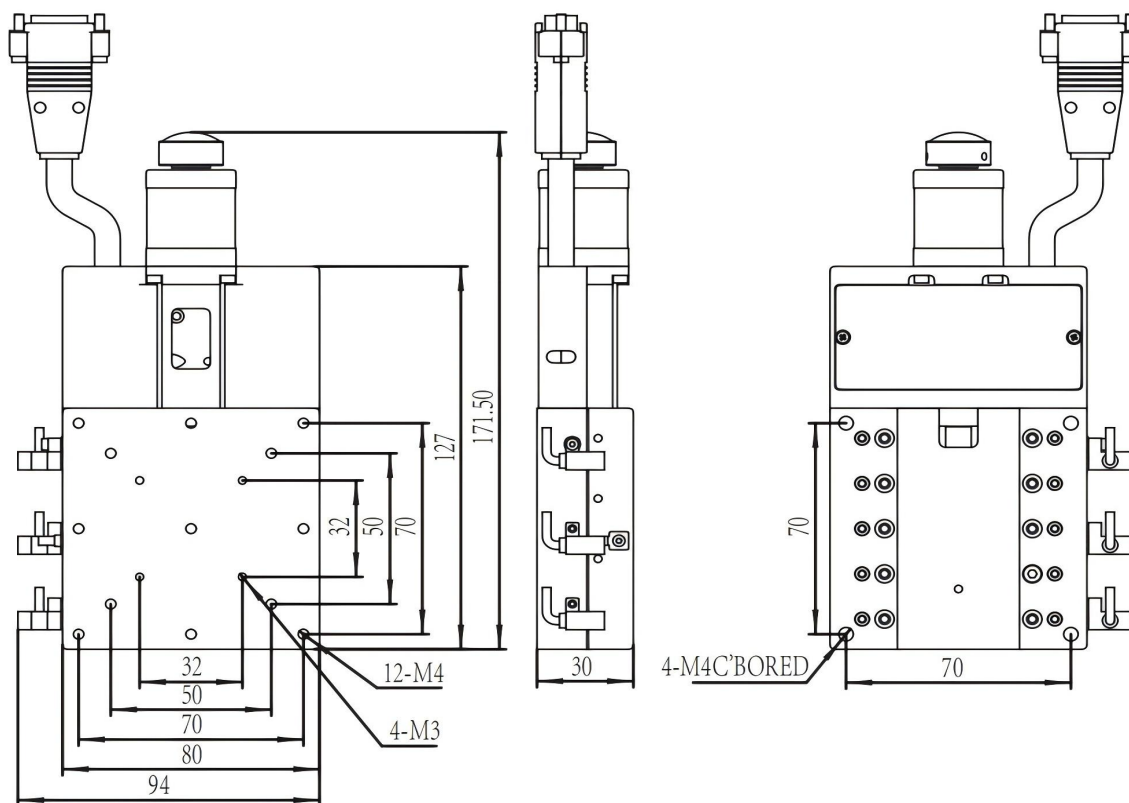
Feature: 80x80mm platform with a low-profile design using cross-roller guides.

**Series Name:** VL-262HPTA-(10-50)C-8080



| Model No.           | Travel Range | Table Size | Load Capacity | Weight |
|---------------------|--------------|------------|---------------|--------|
| VL-262HPTA-10C-8080 | 10 mm        | 80x80 mm   | 10 kg         | 0.7 kg |
| VL-262HPTA-20C-8080 | 20 mm        | 80x80 mm   | 10 kg         | 0.7 kg |
| VL-262HPTA-30C-8080 | 30 mm        | 80x80 mm   | 10 kg         | 0.7 kg |
| VL-262HPTA-50C-8080 | 50 mm        | 80x80 mm   | 10 kg         | 0.7 kg |

### Dimensions



### Applications

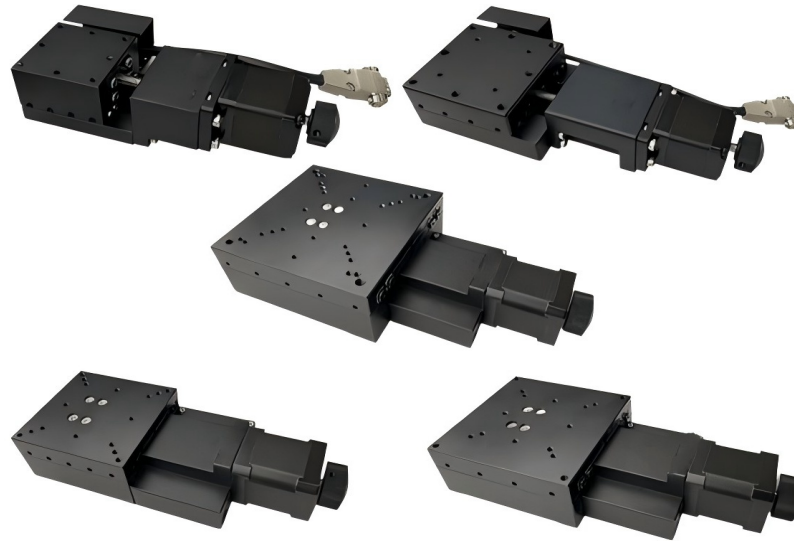
- **Multi-axis Stacking:** Ideal for building compact XY or XYZ systems due to its flat profile.
- **Height-Restricted Spaces:** Fits into machines where vertical clearance is very tight.
- **Stable Base Positioning:** Provides a wide, stable base for sensitive instruments.

## Part 14:Center Drive Motorized Stage (VL-265CDTA Series)

Original Series: WN265TA...

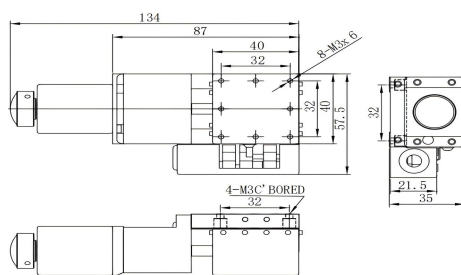
Feature: Symmetrical structure with a central drive mechanism. Multiple sizes available.

**Series Name:** VL-265CDTA

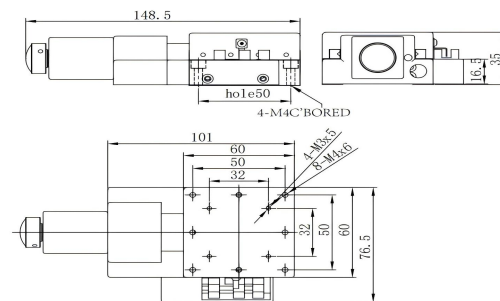


| Model No.             | Travel | Table Size | Load Capacity | Screw Lead |
|-----------------------|--------|------------|---------------|------------|
| VL-265CDTA-15H-4040   | 15 mm  | 40x40 mm   | 6 kgf         | 1 mm       |
| VL-265CDTA-20H-6060   | 20 mm  | 60x60 mm   | 6 kgf         | 1 mm       |
| VL-265CDTA-30H-8080   | 30 mm  | 80x80 mm   | 21 kgf        | 1 mm       |
| VL-265CDTA-40H-100100 | 40 mm  | 100x100 mm | 23 kgf        | 1 mm       |
| VL-265CDTA-70H-120120 | 70 mm  | 120x120 mm | 25 kgf        | 1 mm       |

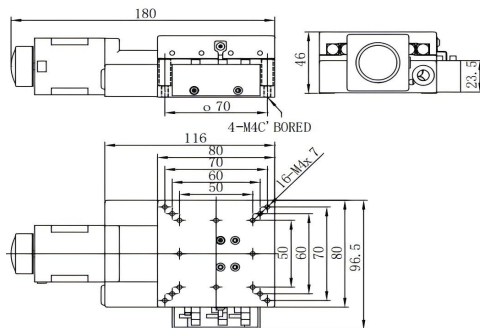
### Dimensions



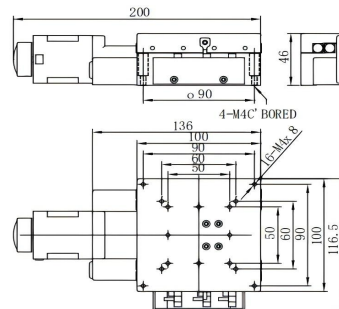
VL-265CDTA-15H-4040



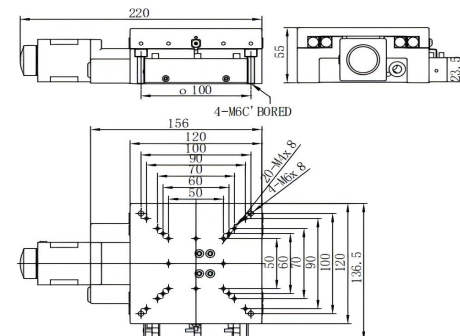
VL-265CDTA-20H-6060



VL-265CDTA-30H-80800120



VL-265CDTA-40H-100100



VL-265CDTA-70H-120120

### Applications

- **Vertical (Z-axis) Applications:** Symmetrical design is excellent for vertical lifting stability.
- **Symmetrical Load Positioning:** Balanced movement for center-mounted loads.
- **Compact System Integration:** Central motor placement saves side space.

Part 15:Side Drive Thin Stage (VL-266SDTA Series)

Original Series: WN266TA...

Feature: Ultra-thin design achieved by placing the motor and drive mechanism on the side.

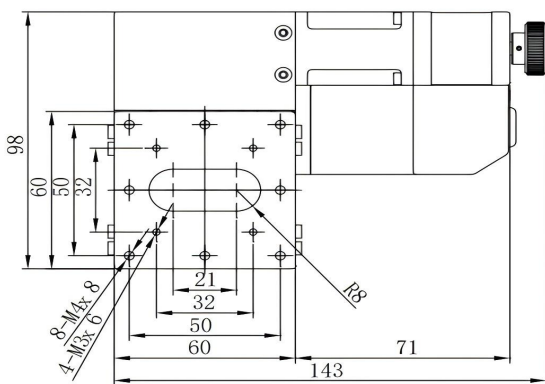
**Series Name:** VL-266SDTA



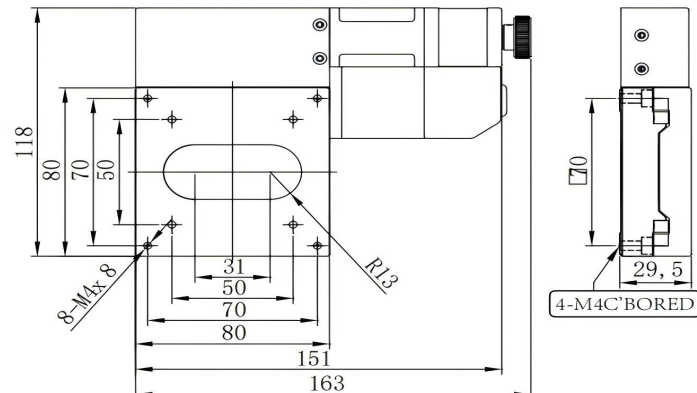
VL-266SDTA-20H-6060    VL-266SDTA-30H-8080    VL-266SDTA-40H-100100    VL-266SDTA-50H-120120

| Model No.             | Travel | Table Size | Load Capacity | Weight  |
|-----------------------|--------|------------|---------------|---------|
| VL-266SDTA-20H-6060   | 20 mm  | 60x60 mm   | 5 kgf         | 0.47 kg |
| VL-266SDTA-30H-8080   | 30 mm  | 80x80 mm   | 7 kgf         | 0.79 kg |
| VL-266SDTA-40H-100100 | 40 mm  | 100x100 mm | 10 kgf        | 0.98 kg |
| VL-266SDTA-50H-120120 | 50 mm  | 120x120 mm | 15 kgf        | 1.25 kg |

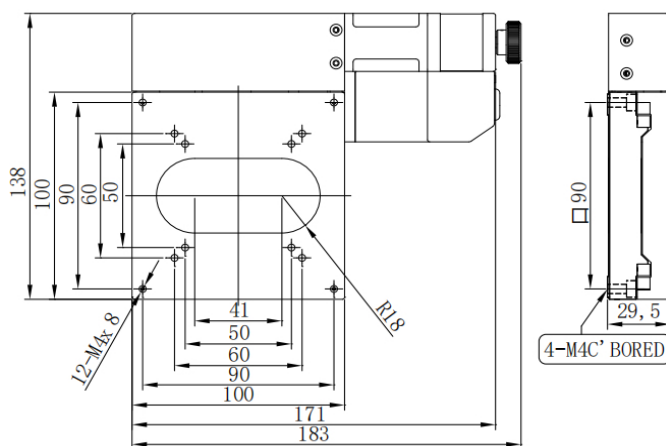
Dimensions



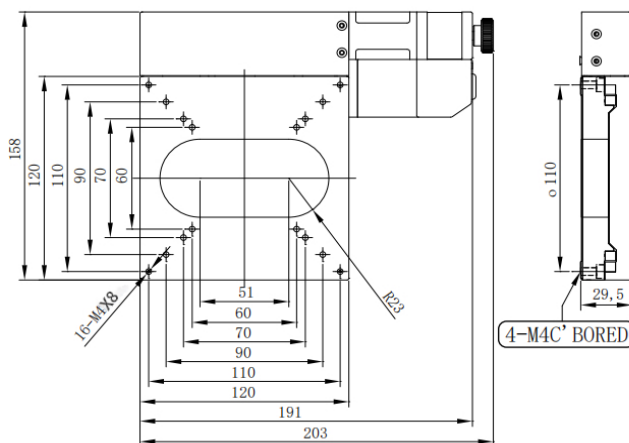
VL-266SDTA-20H-6060



VL-266SDTA-30H-8080



VL-266SDTA-40H-100100



VL-266SDTA-50H-120120

Applications

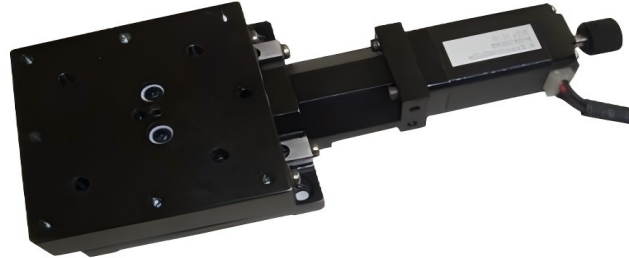
- **Embedded System Integration:** The side-motor design allows the stage to be incredibly thin.
- **Microscope Sub-stages:** Fits easily between a microscope base and the sample holder.
- **Flat Panel Inspection:** Scanning flat surfaces where low stage height is critical.

Part 16:Nano-Adjustment Stage (VL-MiniTA Series)

Original Series: WN267TA20H

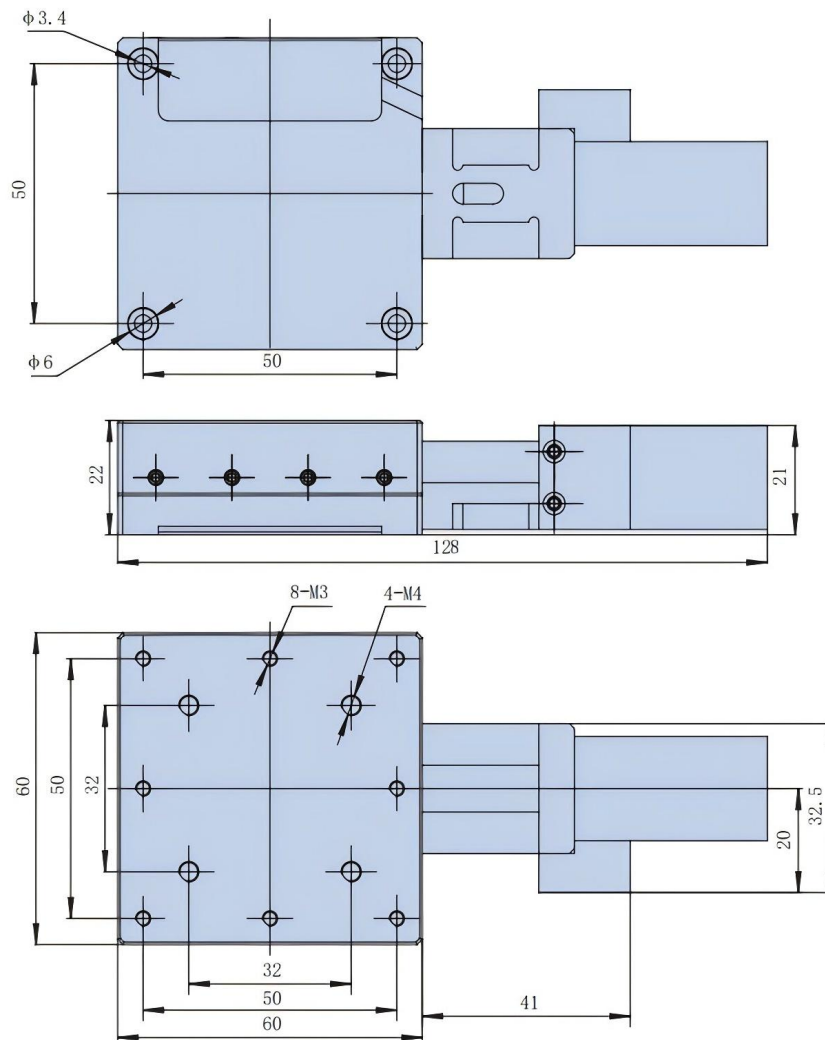
Feature: High-resolution stepper drive designed for nano-scale fine adjustments.

**Series Name:** VL-MiniTA Series




| Model No.         | Travel | Design Resolution | Repeatability | Load |
|-------------------|--------|-------------------|---------------|------|
| VL-MiniTA-267-20H | 20 mm  | 0.125 $\mu$ m     | < 1 $\mu$ m   | 1 kg |

Dimensions



Applications

- **Nano-scale Fine Tuning:** Ultra-high resolution for nanotechnology research.
- **Laser Interferometry:** Precise path length adjustment in interferometers.
- **Photonics Alignment:** Critical alignment of photonic integrated circuits.

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