

# VenusLab-Translation Axis

The VL Series High-Precision Electric Translation Stage is engineered for precise positioning applications in scientific research and industrial automation. Featuring a high-strength aluminum alloy body with a black anodized finish, combined with high-precision ball screws and linear guide systems, this series delivers exceptional linear motion accuracy, load capacity, and durability. Whether for optical alignment, semiconductor inspection, or biomedical instrumentation, the VL Series provides stable and reliable motion solutions.

## 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)

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

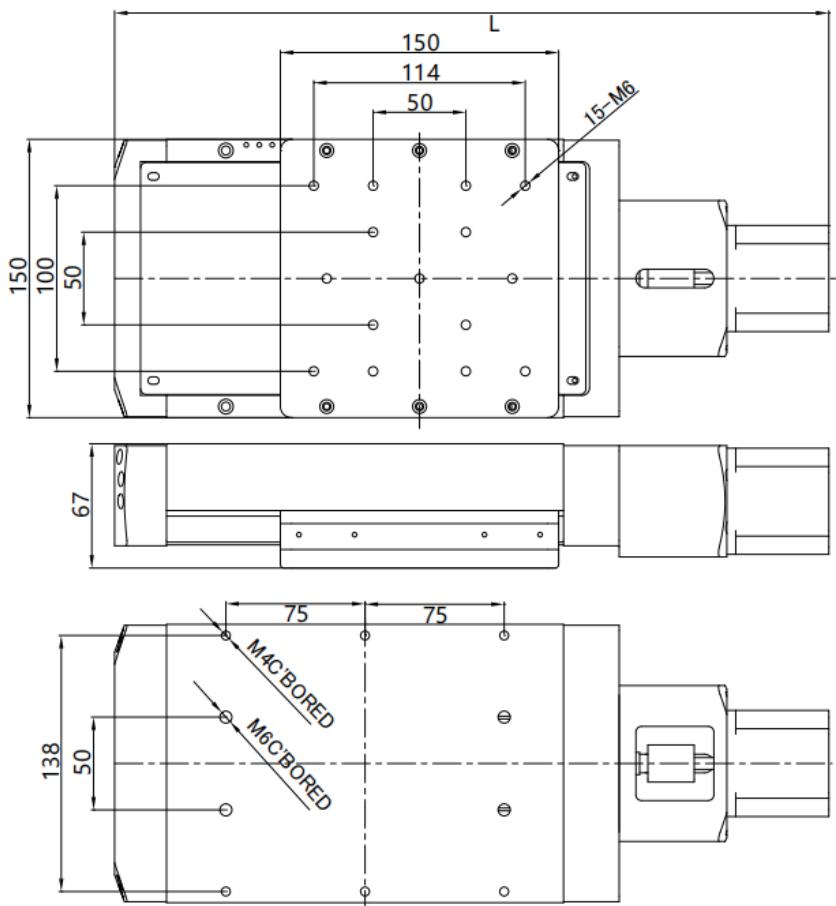
**Key Specifications:**

Drive Mechanism: High Precision Ball Screw (Lead: 4mm/5mm)

Resolution: 1µm (20 Micro-steps) / 20µm (Full Step)

Repeatability: 1µm (Travel < 400mm) / 2µm (Travel ≥ 400mm)

**Dimensions**



**Applications**

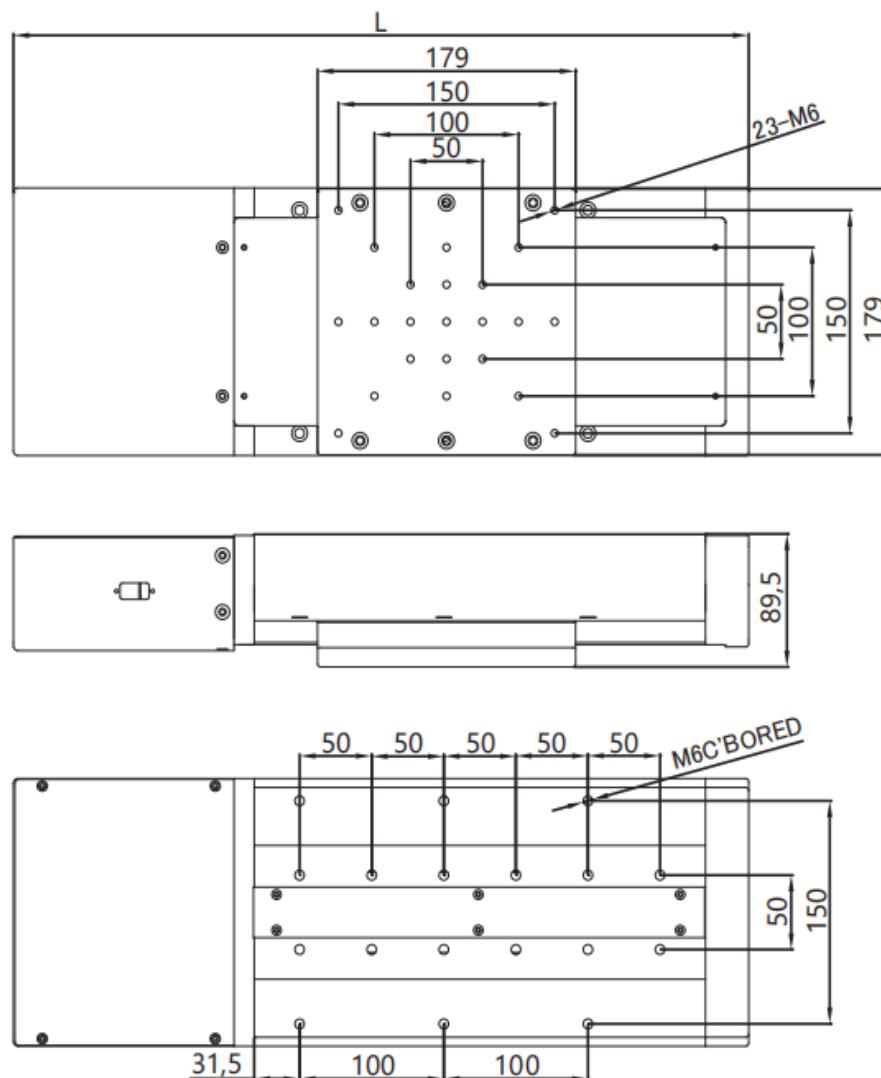
- Precision Optical Alignment
- Laser Interferometry Systems
- Laboratory Sample Positioning

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

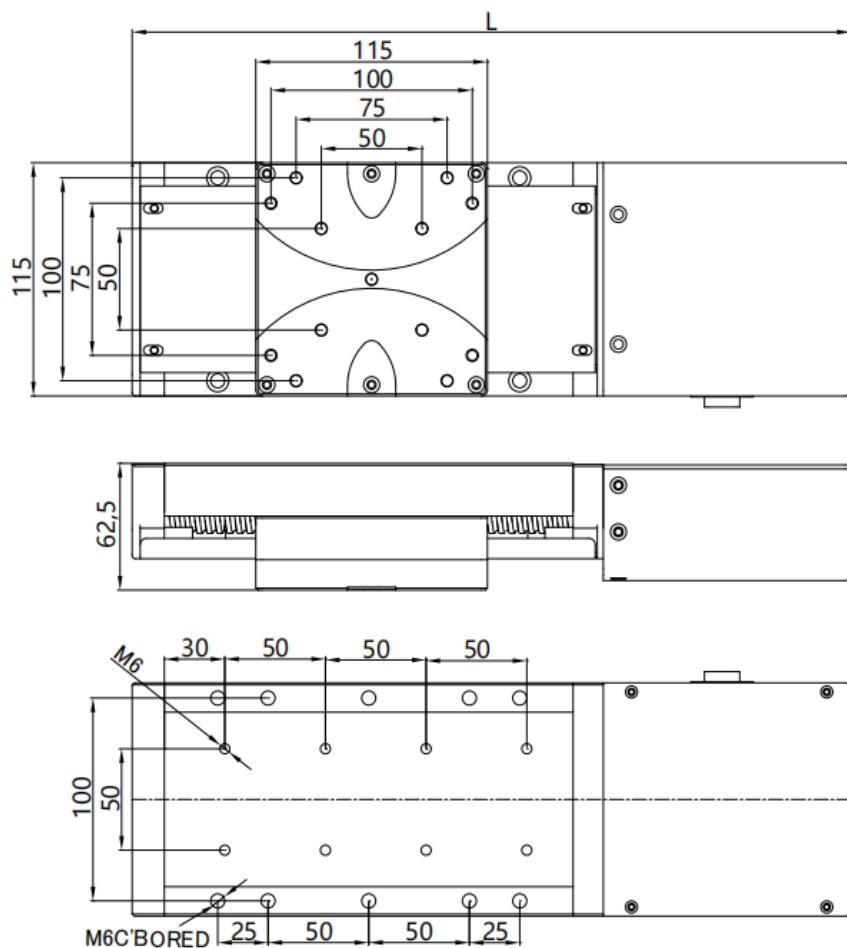
Part 3: Compact Motorized Linear Stage (VL-220UPTA Series)

Product Series: 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

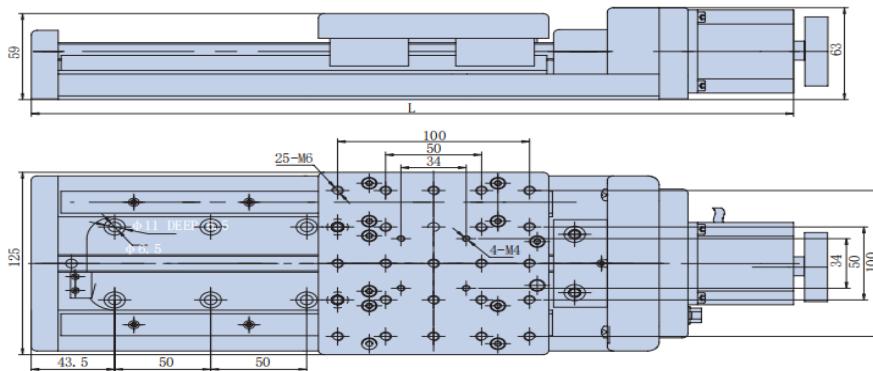


Model No.	Travel Range	Table Size	Load Capacity	Weight
VL-230HPTA-M50	50 mm	120x125 mm	20 kg	5μm
VL-230HPTA-M100	100 mm	120x125 mm	20 kg	5μm
VL-230HPTA-M150	150 mm	120x125 mm	30 kg	5μm
VL-230HPTA-M200	200 mm	120x125 mm	30 kg	5μm
VL-230HPTA-M300	300 mm	120x125 mm	30 kg	5μm
VL-230HPTA-M400	400 mm	160x160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

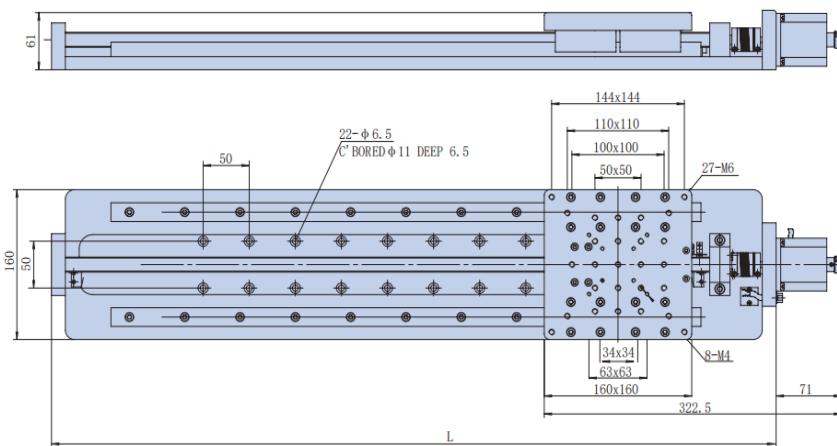
Applications

VL-230HPTA-(50-300)M



- 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)

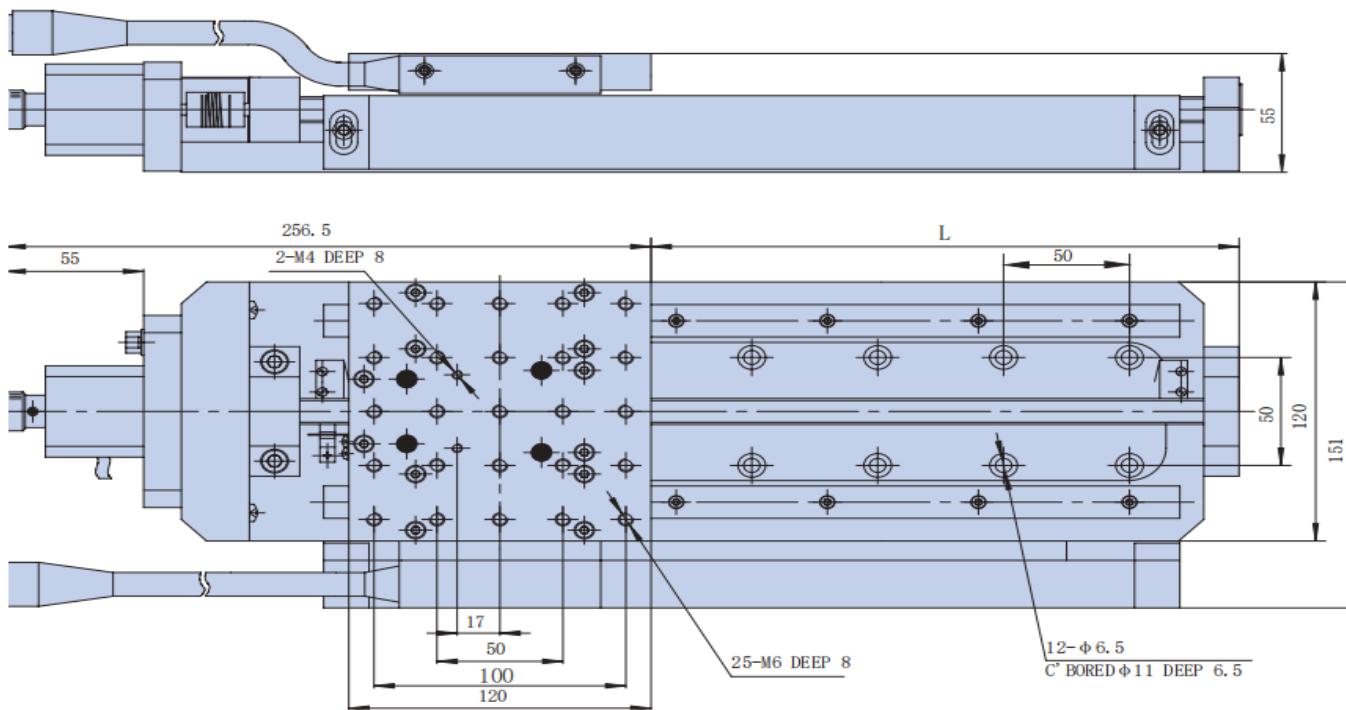
**Series Name:** VL-GSxxTA (50-500) M Series



**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**

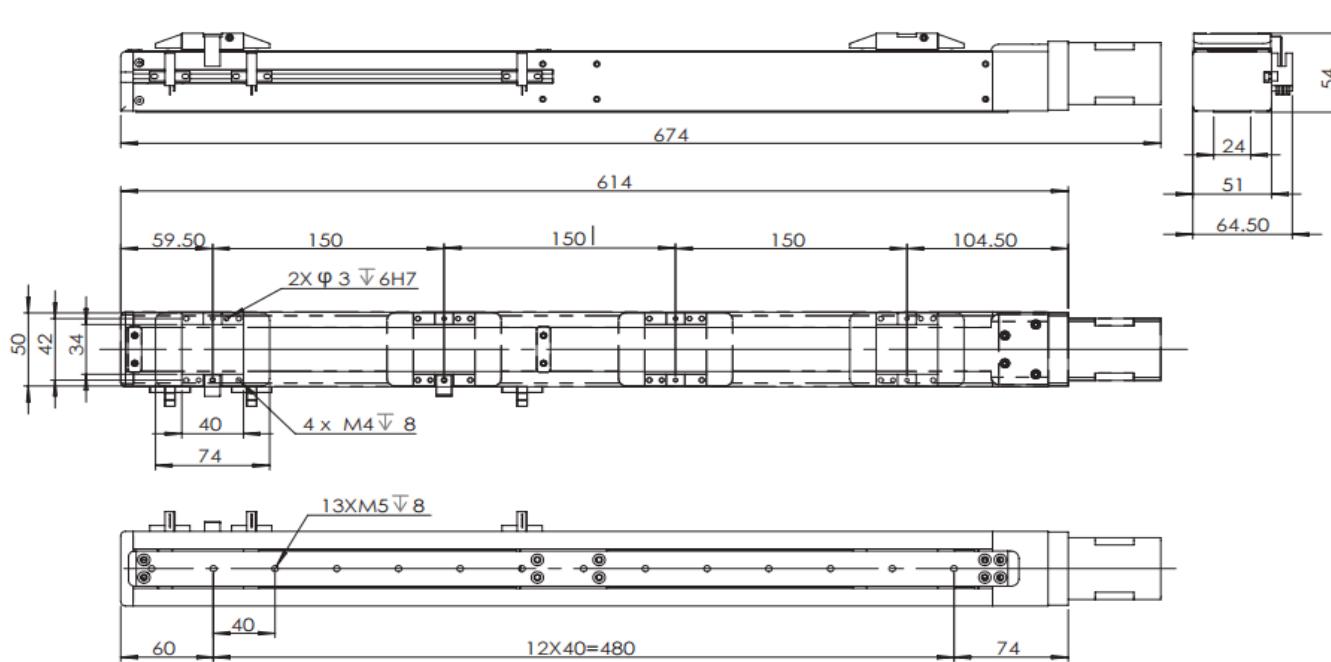
- Ultra-precision Metrology
- Lithography Process
- Closed-loop Feedback Control

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)**

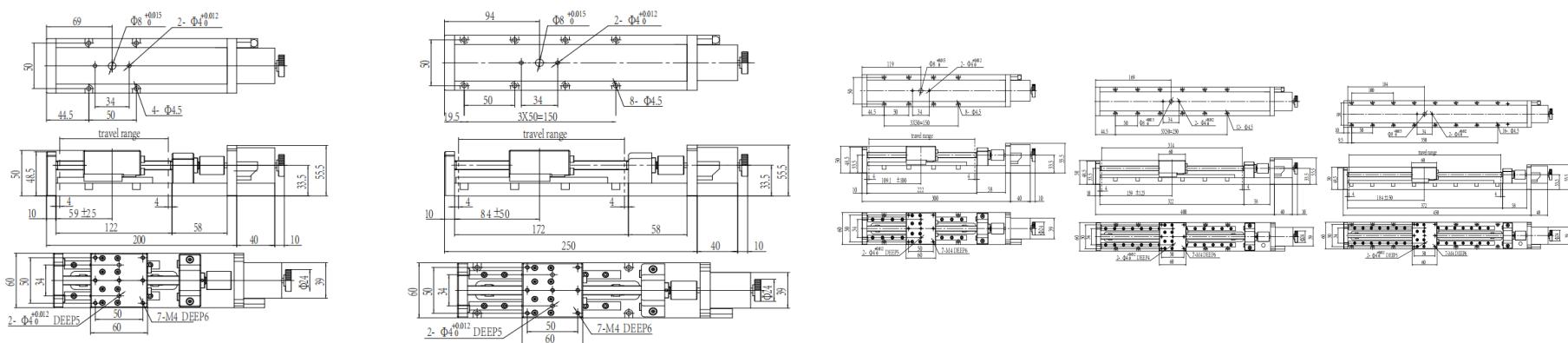


Model No.	Travel Range	Table Size	Load Capacity	Weight
VL160TA50H	50 mm	60x60 mm	8 kg	1.4 kg
VL160TA100H	100 mm	60x60 mm	8 kg	1.7 kg
VL160TA150H	150 mm	60x60 mm	5 kg	2.3 kg
VL160TA200H	200 mm	60x60 mm	5 kg	2.6 kg
VL160TA300H	300 mm	60x60 mm	3 kg	3.0 kg
VL160TA400H	400 mm	60x60 mm	3 kg	4.5 kg

### Key Specifications:

- Drive Mechanism:** Precision Ball Screw (Lead: 2mm)
- Resolution:** 10µm (Full step) / 0.5µm (1/20 Micro-step)
- Max Speed:** 10mm/sec
- Guide Type:** Precision Linear Guide

### Dimensions



VL160TA50H

VL160TA100H

VL160TA150H

VL160TA250H

VL160TAH

### 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.

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

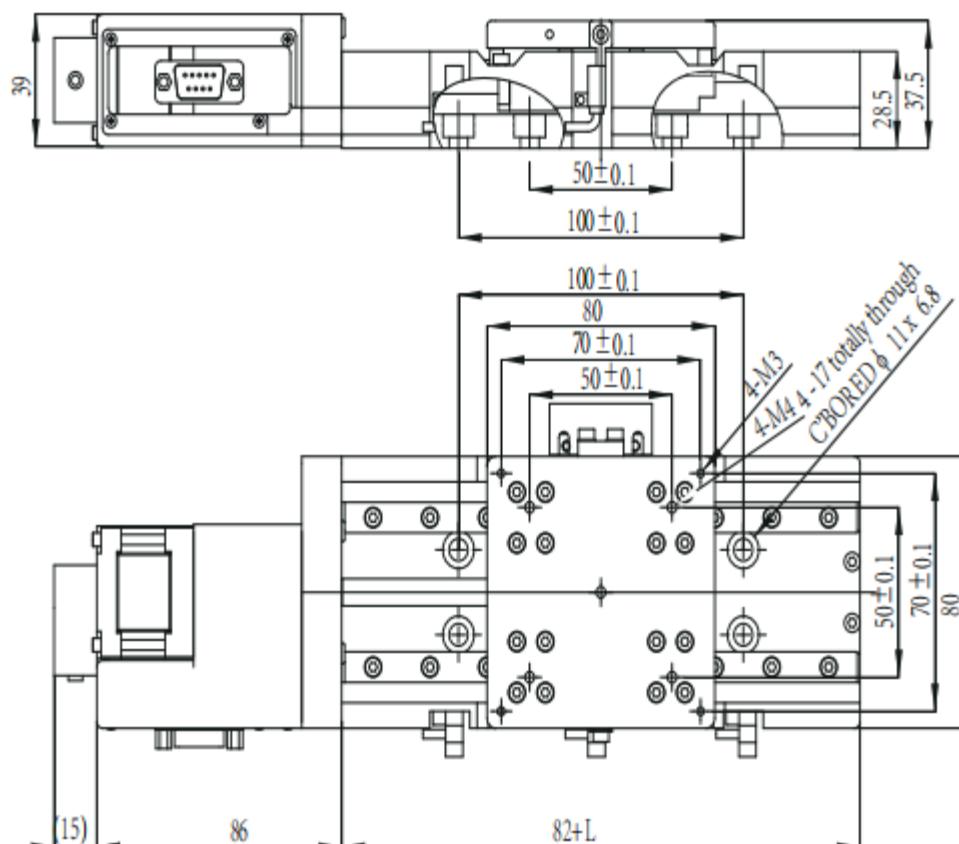
**Key Specifications:**

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

Repeatability: 1µm

Max Speed: 12mm/sec

**Dimensions**



**Applications**

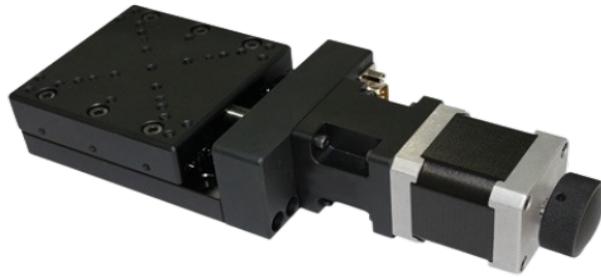
- **Reliable Automation:** Prevents step loss during long-duration automated tasks.
- **Feedback-Critical Positioning:** Used in processes where position verification is mandatory.
- **Vision Inspection Systems:** Ensures exact camera positioning without drift.

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

Original Series: WN260TA

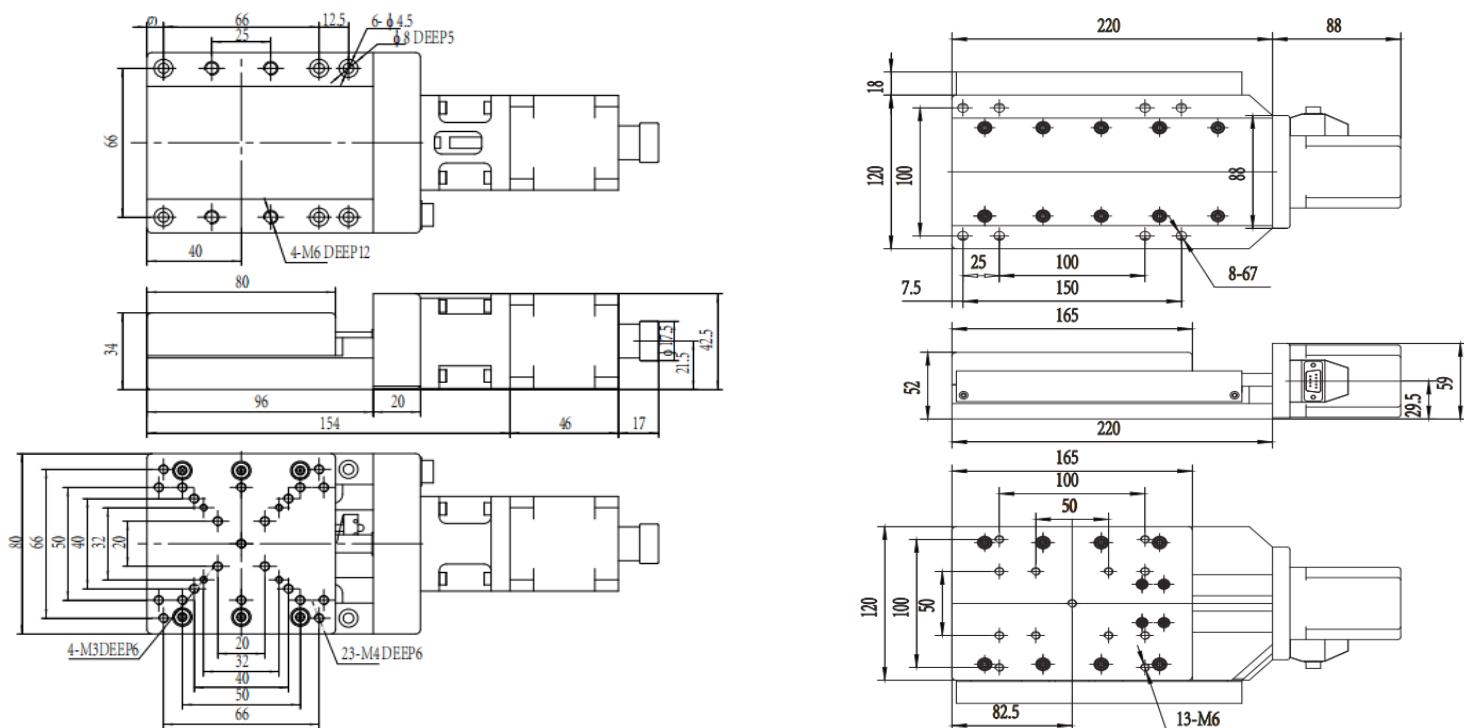
Feature: Uses high-precision cross-roller guides for superior load capacity and stability.

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 9:Product Series: VL261TH Series (Precision Compact)Original Series: VL261TA(15-75)H



Model No.	Travel Range	Table Size	Load Capacity	Screw Lead	Weight
VL261TH15H	15 mm	65 × 65 mm	10 kg	0.5 mm	1.2 kg
VL261TH30H	30 mm	90 × 90 mm	15 kg	1 mm	1.25 kg
VL261TH50H	50 mm	90 × 110 mm	15 kg	1 mm	1.4 kg
VL261TH75H	75 mm	90 × 110 mm	20 kg	1 mm	1.7 kg

### Key Specifications:

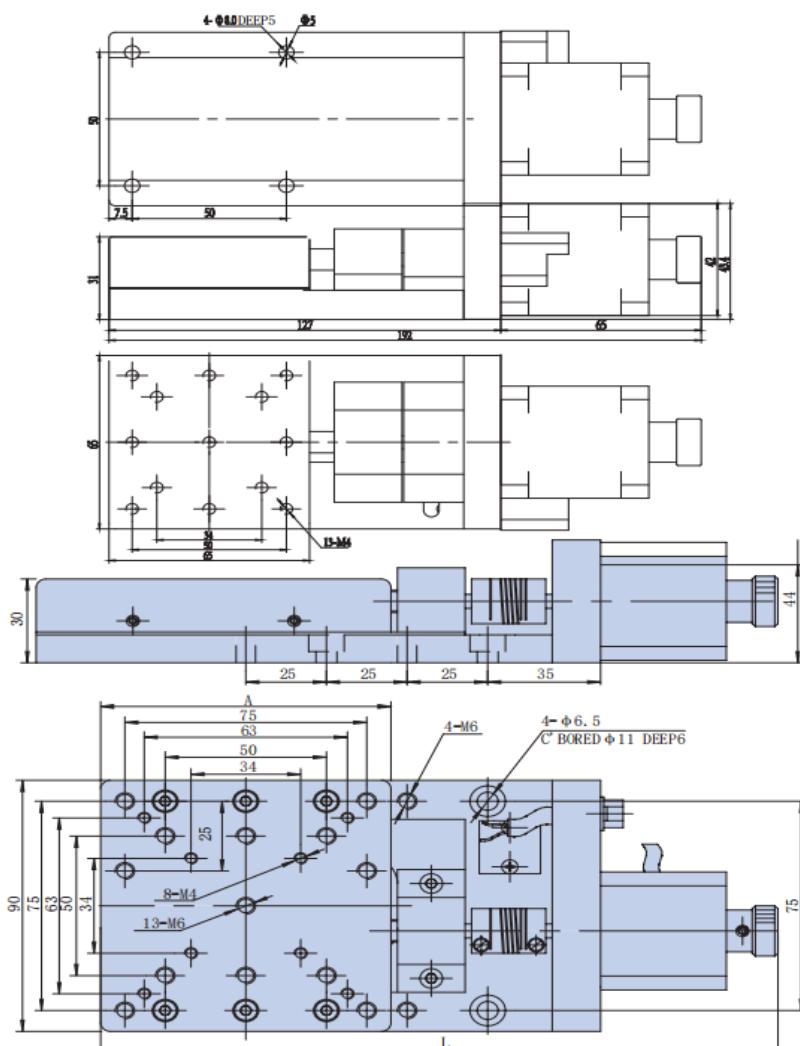
Guide Type: Precision Cross-Roller Guide

Drive Mechanism: Precision Ground Screw

Repeatability: 3µm (for 15mm model) / 5µm (for others)

Resolution (20 Micro-step): 0.125µm (for 15mm model) / 0.25µm (for others)

### Dimensions



### Applications

- **Precision Optical Alignment :**  
Ideal for fine-tuning lenses and mirrors requiring critical stability.
- **Micro-Assembly Operations :**  
Stable movement for assembling small mechanical or electronic components.
- **Space-Constrained Inspection :**  
High-accuracy positioning inside compact inspection instruments.

**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**



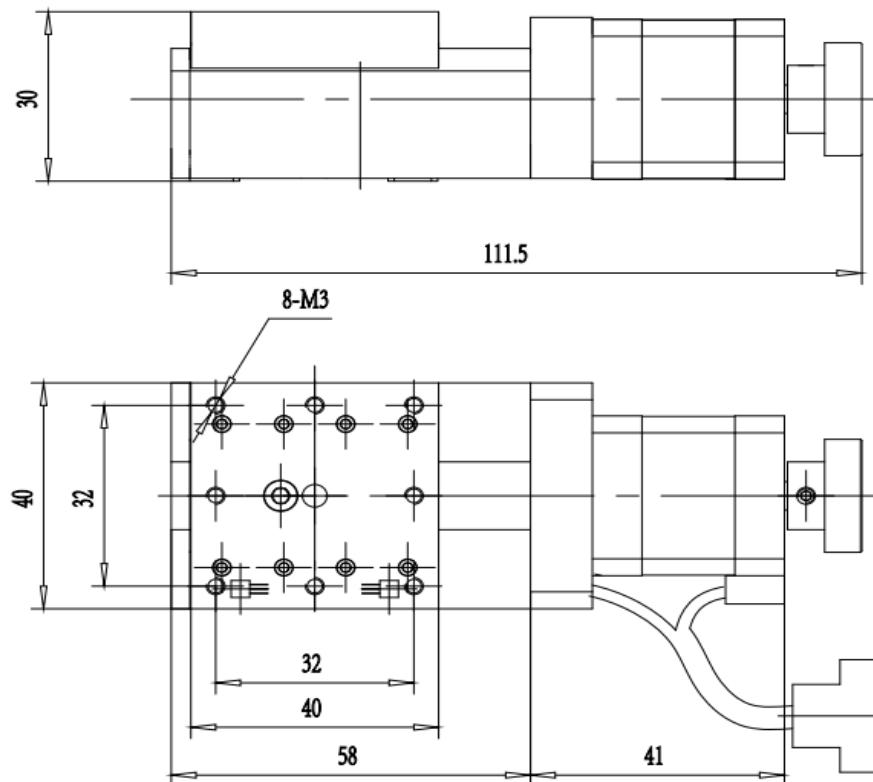
Model No.	Travel Range	Table Size	Load Capacity	Repeatability
VL-M262T15H4040	15 mm	40x40 mm	3 kg	1 μm

**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

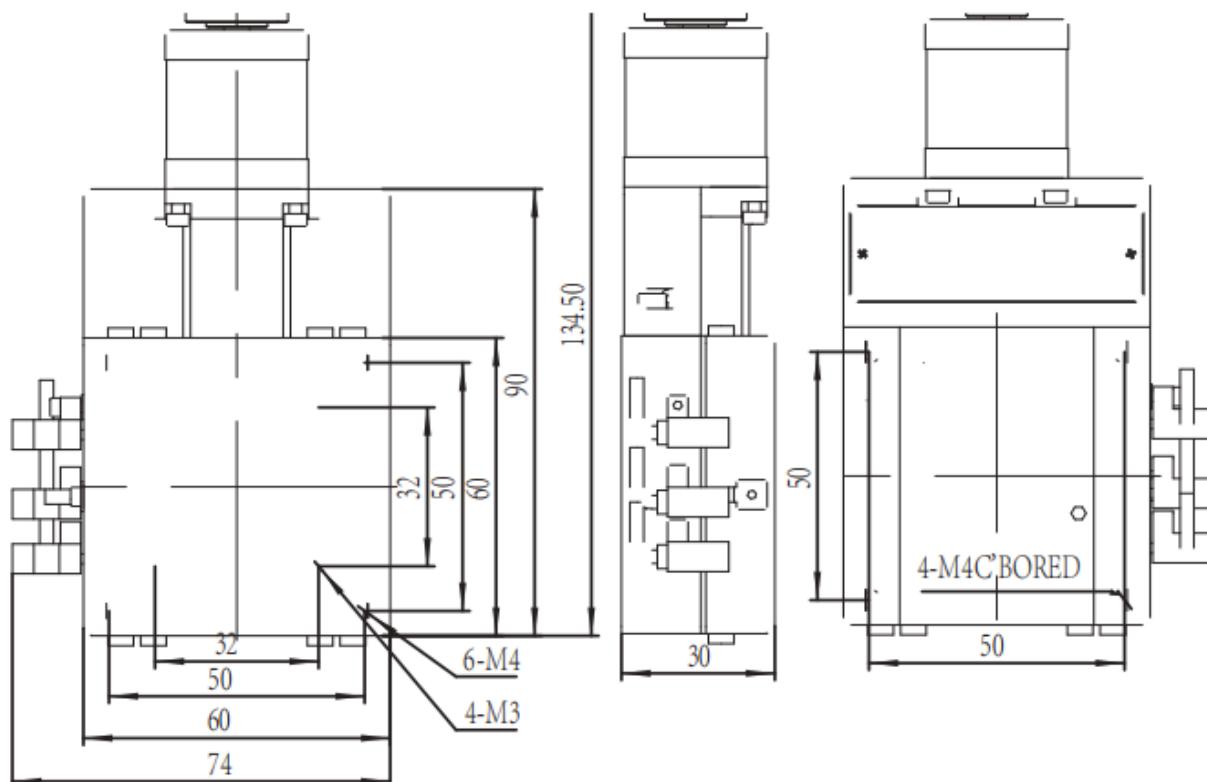
Feature: 60x60mm platform available in three precision grades (C/H/P).

**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

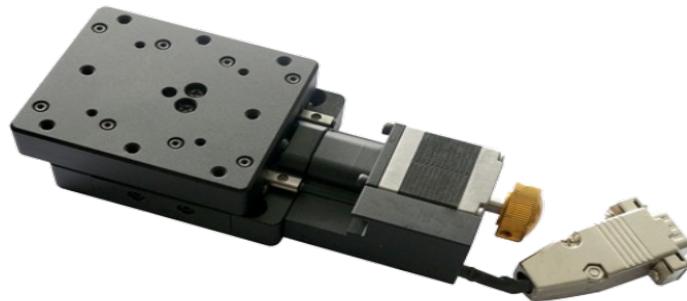
Dimensions



Applications

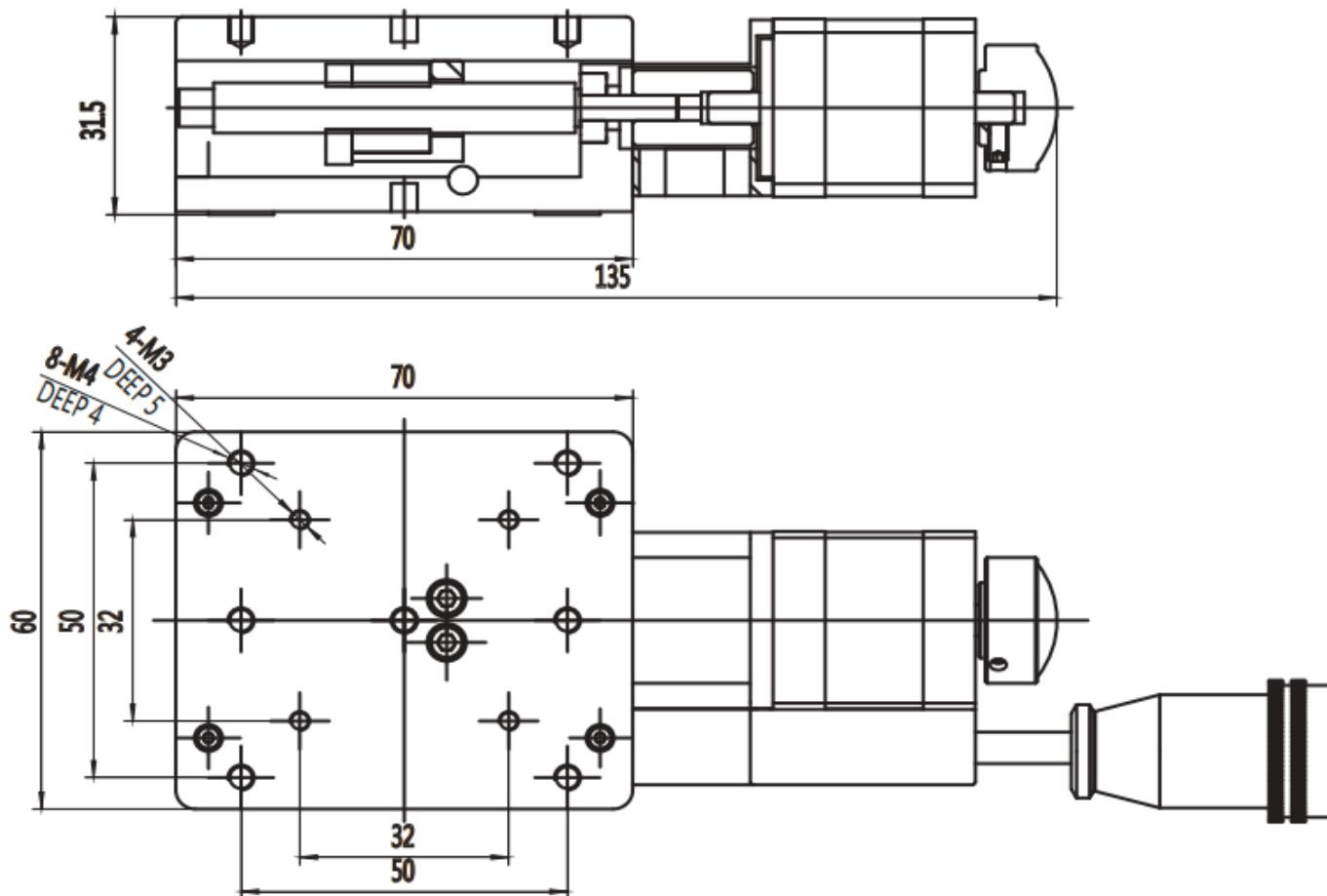
- **General Laboratory Use (C-Grade):** Standard educational or experimental positioning.
- **Precision Optics (H-Grade):** Laser path construction and adjustment.
- **Semiconductor Inspection (P-Grade):** High-precision wafer or chip inspection requiring sub-micron accuracy.

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	5μm
VL-262HPTA-30H-6070	H-Grade	Cross Roller (H)	Ball Screw (C7)	3μm
VL-262HPTA-30P-6070	P-Grade	Cross Roller (P)	Ball Screw (C5)	1-2μm

### Dimensions



### Applications

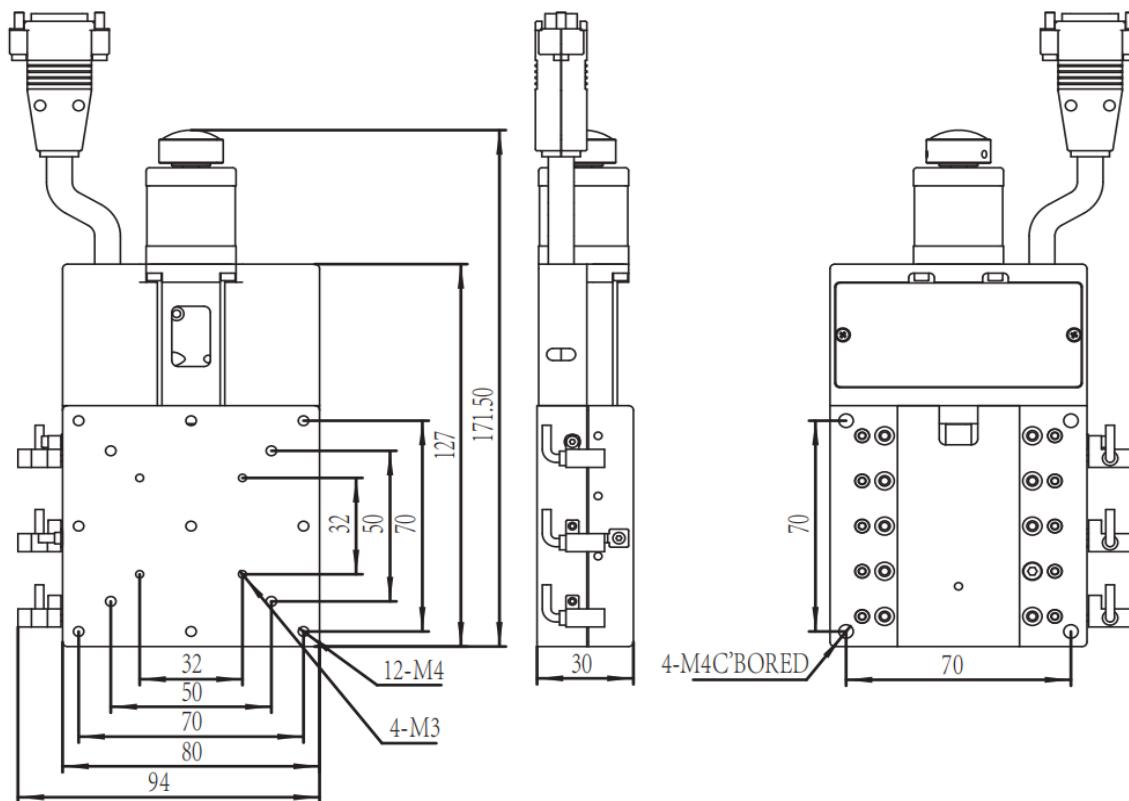
- **Optical Slit Adjustment:** Adjusting light apertures or slits.
- **Sensor Calibration:** Moving sensors linearly for data collection.
- **Side-Mount Applications:** Suitable for mounting components that require a rectangular footprint.

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

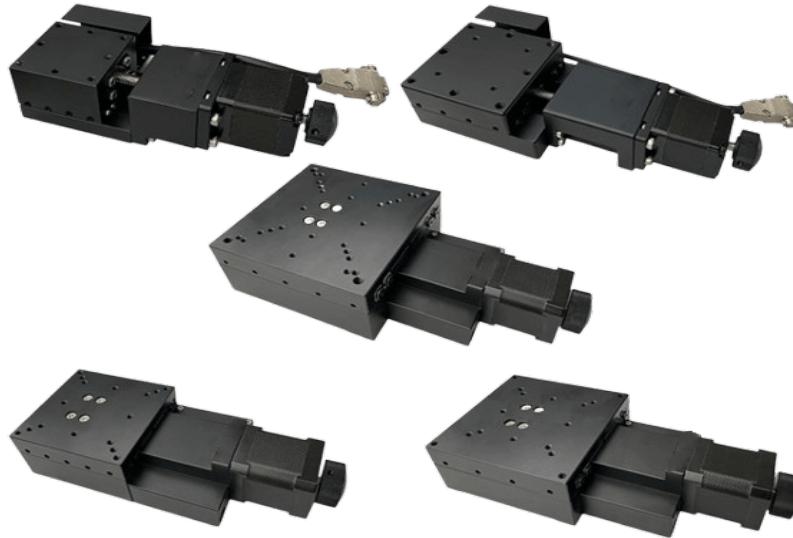
- **Multi-axis Stacking:** Ideal for building compact XY or XYZ systems due to its flat profile.
- **Height-Restricted Spaces:** Fits into machines where vertical clearance is very tight.
- **Stable Base Positioning:** Provides a wide, stable base for sensitive instruments.

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

Original Series: WN265TA...

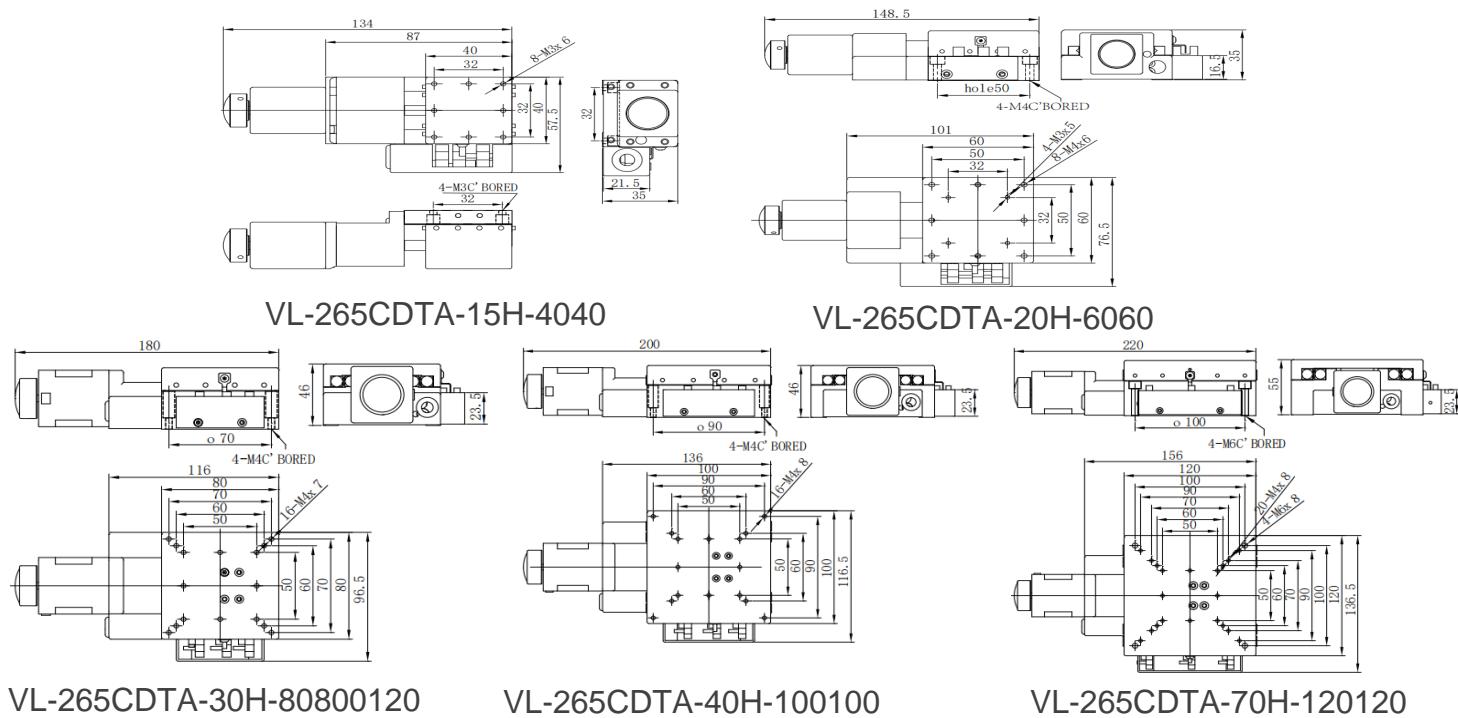
Feature: Symmetrical structure with a central drive mechanism. Multiple sizes available.

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



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

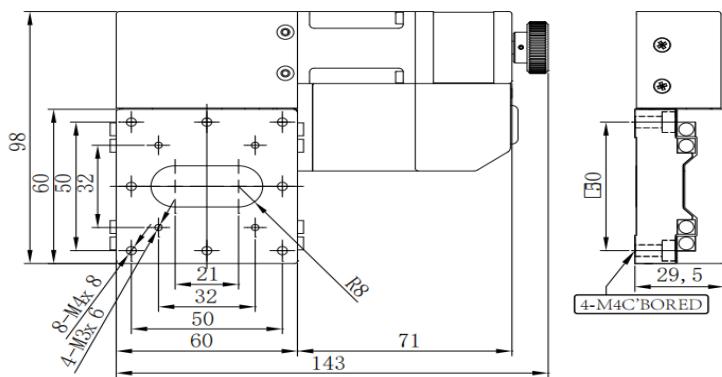
VL-266SDTA-30H-8080

VL-266SDTA-40H-100100

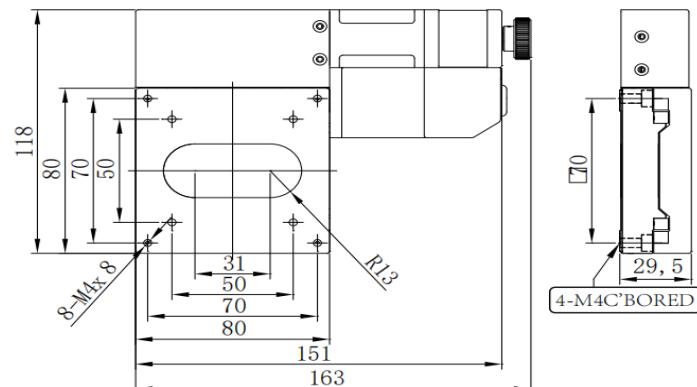
VL-266SDTA-50H-120120

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

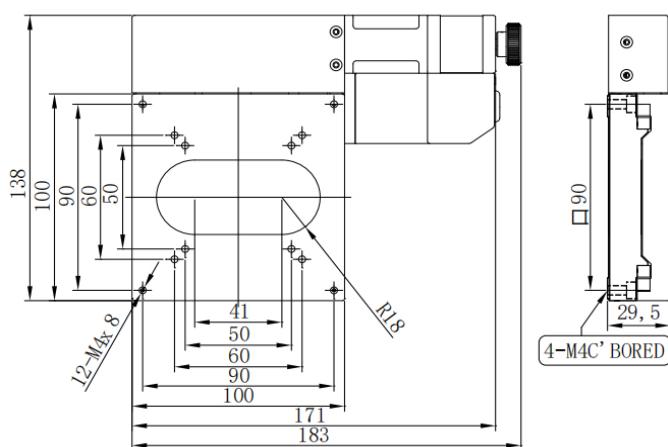
Dimensions



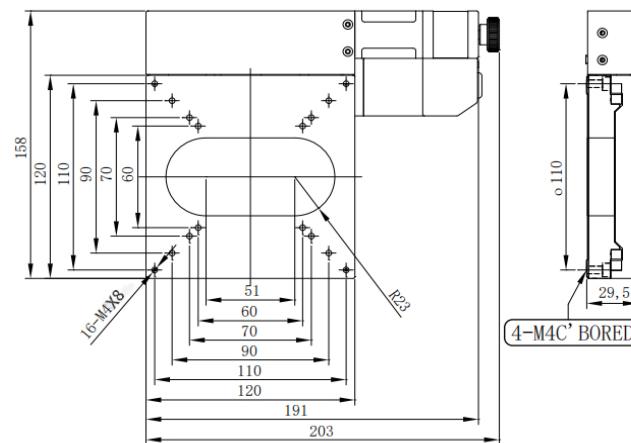
VL-266SDTA-20H-6060



VL-266SDTA-30H-8080



VL-266SDTA-40H-100100



VL-266SDTA-50H-120120

Applications

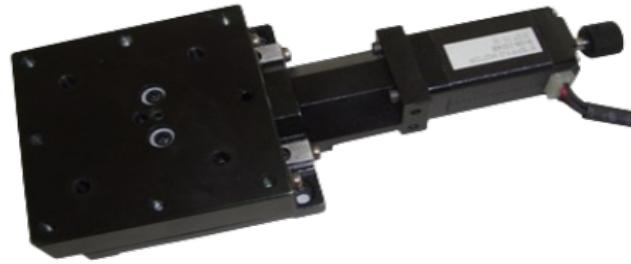
- **Embedded System Integration:** The side-motor design allows the stage to be incredibly thin.
- **Microscope Sub-stages:** Fits easily between a microscope base and the sample holder.
- **Flat Panel Inspection:** Scanning flat surfaces where low stage height is critical.

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

Original Series: WN267TA20H

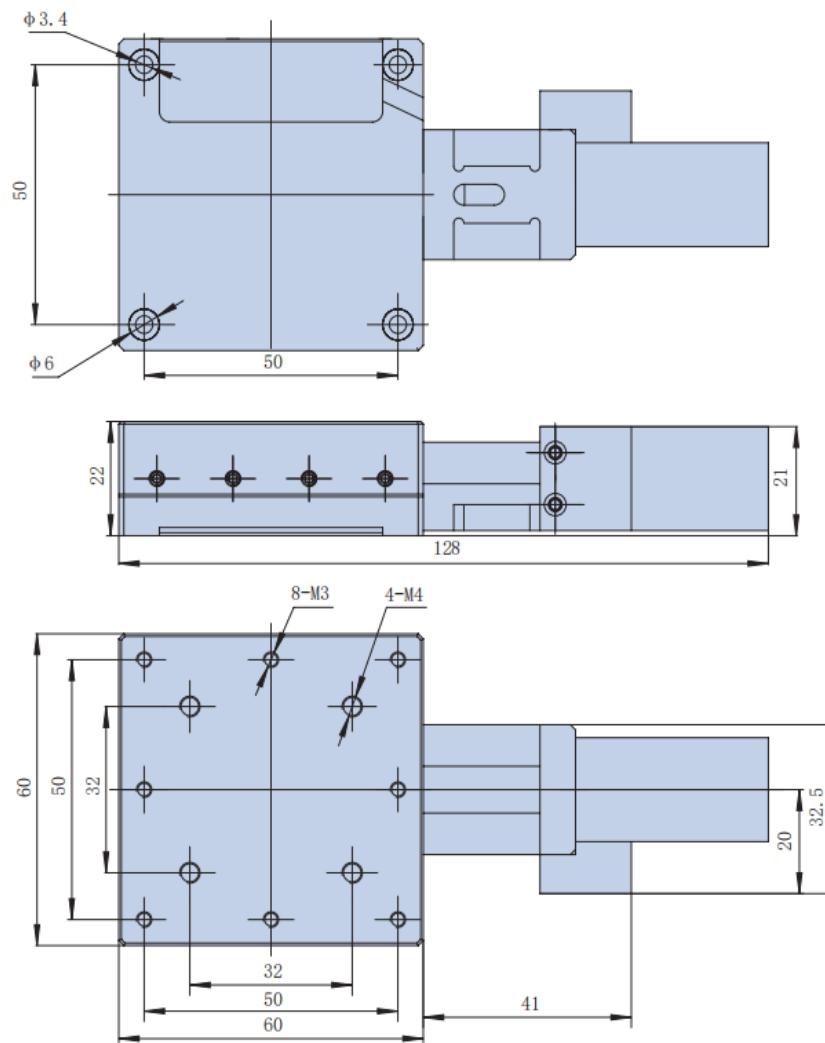
Feature: High-resolution stepper drive designed for nano-scale fine adjustments.

Series Name: VL-MiniTA Series



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

 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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