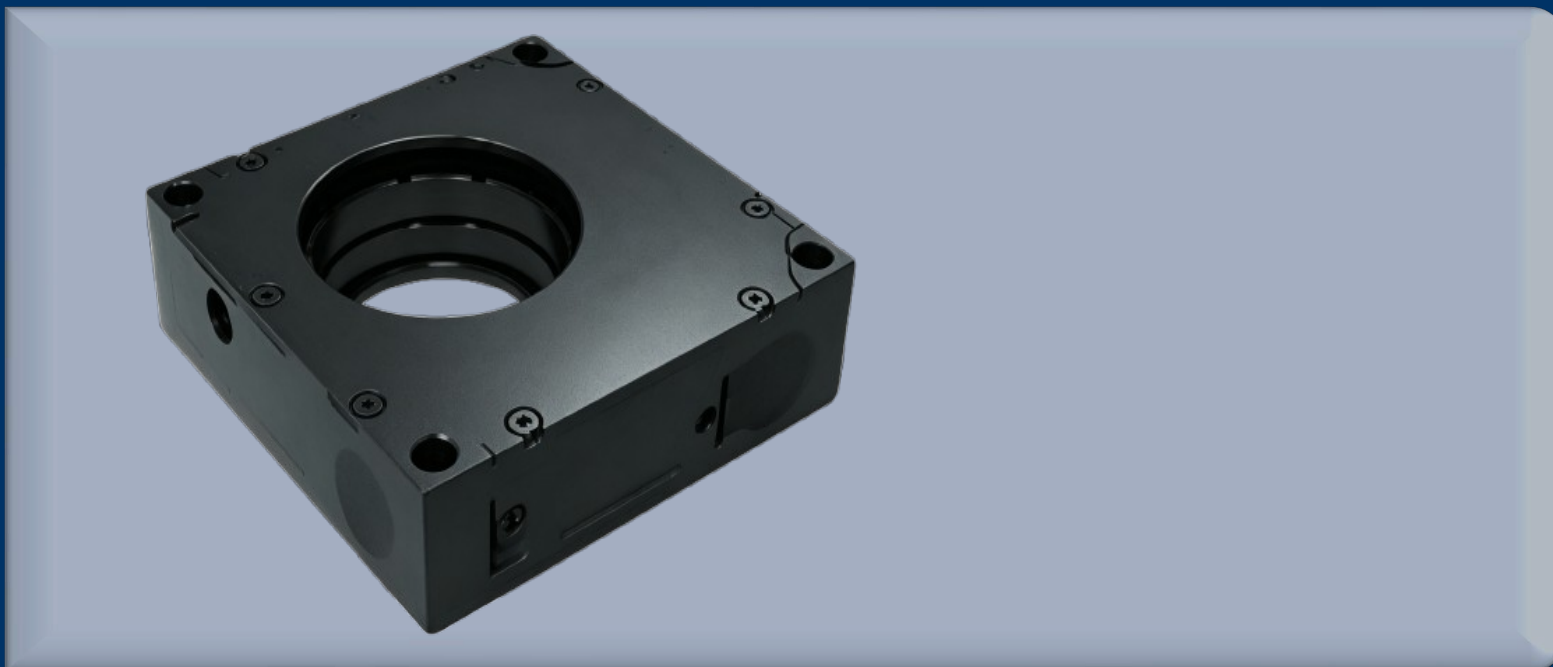


# Piezo Stages

## VenusLab Nano & Motorized Series

### Full-Scenario Ultra-Precision Motion Control Solutions

- Sub-nanometer piezo resolution + linear/inertial motor large stroke – no micro-macro barrier.
- Fingernail-sized inertial to rigid 6-DOF hexapods – flexible spatial posture definition.



## One Platform Many Possibilities

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## Overview

### Nano Precision, Macro Reach

The VL-N/M series represents VenusLab's highest standard in the field of precision engineering. This series integrates cutting-edge technologies such as piezoelectric ceramics, stick-slip inertial drives, voice coil motors, and non-contact linear motors. Whether it is atomic-level microscopic imaging requiring 0.1nm steps, high-speed and high-throughput wafer scanning, or six-dimensional automatic coupling of complex optical paths, VL-N/M can provide turnkey solutions from core components to complete systems.

### Applications

- Nanoscale Z-axis focusing of the objective lens and XY fine scanning of the stage.
- Automated alignment of fiber arrays and waveguides using a six-axis parallel mechanism.
- High-speed linear motor scanning in wafer defect detection.
- Piezoelectric tilting mirrors for atmospheric turbulence correction and rapid beam stabilization.

## Mechanical Dimensions

### Technical Specifications Table

Model	Axis	Travel / Range	Technology	Primary Application
Piezo Nanopositioning Stages				
VL-Nano-X1000	X	1000 $\mu\text{m}$	Piezo Flexure	Long Range Scanning
VL-Nano-XYZ5-Micro	XYZ	5/5/5 $\mu\text{m}$	Piezo Flexure	Micro Precision Adjustment
VL-Nano-XY15	XY	15 $\mu\text{m}$	Piezo Flexure	Microscopy Imaging
VL-Nano-XY40	XY	40 $\mu\text{m}$	Piezo Flexure	Microscopy Imaging
VL-Nano-XYZ50-10	XYZ	50/50/10 $\mu\text{m}$	Piezo Flexure	3D Scanning
VL-Nano-XYZ100-15	XYZ	100/100/15 $\mu\text{m}$	Piezo Flexure	Confocal Microscopy
VL-Nano-XYZ100-20	XYZ	100/100/20 $\mu\text{m}$	Piezo Flexure	Confocal Microscopy
VL-Nano-XYZ100-15H	XYZ	100/100/15 $\mu\text{m}$	Piezo (Heavy Load)	High Load Scanning
VL-Nano-XYZ100-100H	XYZ	100 $\mu\text{m}$ (All Axes)	Piezo (Heavy Load)	Full Range Scanning
VL-Nano-XYZ200-15H	XYZ	200/200/15 $\mu\text{m}$	Piezo (Heavy Load)	Large Range Scanning
VL-Nano-XYZ200-100H	XYZ	200/200/100 $\mu\text{m}$	Piezo (Heavy Load)	Large Range Scanning
VL-Nano-Z5-Micro	Z	5 $\mu\text{m}$	Piezo Flexure	Micro Z-Axis
VL-Nano-Z20-Shift	Z	20 $\mu\text{m}$	Piezo Phase Shift	Interferometric Phase Shifting
VL-Nano-Z-HighRes	Z	Custom	Piezo Phase Shift	High-Res Phase Shifting
VL-Nano-Z100-Obj	Z	100 $\mu\text{m}$	Piezo (Objective)	Objective Focusing
VL-Nano-Z100-Obj2	Z	100 $\mu\text{m}$	Piezo (Objective)	Objective Focusing
VL-Nano-Z100-Ap	Z	100 $\mu\text{m}$ (Lg. Aperture)	Piezo (Aperture)	Laser Processing
VL-Nano-Z500-Ap	Z	500 $\mu\text{m}$	Piezo (Aperture)	Large Range Focusing
VL-Nano-Z150H	Z	150 $\mu\text{m}$	Piezo (Heavy Load)	Heavy Load Focusing
VL-Nano-Z250	Z	250 $\mu\text{m}$	Piezo Flexure	Z-Axis Stage
VL-Nano-Z1000	Z	1000 $\mu\text{m}$	Piezo Flexure	Ultra-Long Travel Z
VL-Nano-X20	X	20 $\mu\text{m}$	Piezo Flexure	Standard 1D
VL-Nano-Z8-Micro	Z	8 $\mu\text{m}$	Piezo Flexure	Micro 1D
VL-Nano-Z25-Pillar	Z	25 $\mu\text{m}$	Piezo Flexure	Pillar Integrated
VL-Nano-Z25	Z	25 $\mu\text{m}$	Piezo Flexure	Standard Z-Axis
VL-Nano-XY100-C	XY	100 $\mu\text{m}$	Piezo Flexure	Compact Type
VL-Nano-XY25	XY	25 $\mu\text{m}$	Piezo Flexure	Standard 2D
VL-Nano-XY100	XY	100 $\mu\text{m}$	Piezo Flexure	Standard 2D
VL-Nano-XY200	XY	200 $\mu\text{m}$	Piezo Flexure	Standard 2D
VL-Nano-XY100-Vac	XY	100 $\mu\text{m}$	Piezo (Vacuum)	Vacuum Chucking
VL-Nano-XY400-L	XY	400 $\mu\text{m}$	Piezo Flexure	Ultra-Large Travel
VL-Nano-XY100H	XY	100 $\mu\text{m}$	Piezo (Heavy Load)	Heavy Load
VL-Nano-XY200H	XY	200 $\mu\text{m}$	Piezo (Heavy Load)	Heavy Load
VL-Nano-AFM-20	XYZ	20/20/5 $\mu\text{m}$	Piezo Flexure	AFM Scanning
VL-Nano-XYZ-HighFreq	XYZ	25/25/20 $\mu\text{m}$	Piezo Flexure	High Freq Scanning
VL-Nano-XYZ100-20S	XYZ	100/100/20 $\mu\text{m}$	Piezo Flexure	Standard Microscopy
VL-Nano-XYZ200-20S	XYZ	200/200/20 $\mu\text{m}$	Piezo Flexure	Standard Microscopy
VL-Nano-XYZ400-100	XYZ	400/400/100 $\mu\text{m}$	Piezo Flexure	Ultra-Large 3D

Piezo Tip/Tilt Platforms				
VL-TT-0.5	x y	0.5 mrad	Piezo Stack	Ultra-High Freq Steering
VL-TT-0.8	x y	0.8 mrad	Piezo Stack	High Freq Steering
VL-TT-2	x y	2 mrad	Piezo Stack	Beam Stabilization
VL-TT-4	x y	4 mrad	Piezo Stack	Laser Communication
VL-TT-2-V2	x y	2 mrad	Piezo Stack	Enhanced Version
VL-TT-4-V2	x y	4 mrad	Piezo Stack	Enhanced Version
VL-TT-4-V3	x y	4 mrad	Piezo Stack	Variant Version
VL-TT-8	x y	8 mrad	Piezo Stack	Large Angle Steering
VL-TT-X4Y6	x y	X:4 / Y:6 mrad	Piezo Stack	Asymmetric Steering
VL-VC-Mirror-10	x y	10 mrad	Voice Coil	Large Angle Low Freq
Motorized Stages				
VL-Mot-X50	X	50 mm	Single Motor	Precision Positioning
VL-Mot-X100	X	100 mm	Single Motor	Precision Positioning
VL-Mot-X150	X	150 mm	Single Motor	Precision Positioning
VL-PiezoRot-80	z	360°	Piezo Rotation	Precision Rotation
VL-PiezoRot-200	z	360°	Piezo Rotation	Precision Rotation
VL-Mot-X50-D	X	50 mm	Dual Motor	High Speed/Thrust
VL-Mot-X100-D	X	100 mm	Dual Motor	High Speed/Thrust
VL-Mot-X150-D	X	150 mm	Dual Motor	High Speed/Thrust
VL-Mot-XY50	XY	50 mm	Motorized Combination	2D Scanning
VL-Mot-XY100	XY	100 mm	Motorized Combination	2D Scanning
VL-Mot-XY150	XY	150 mm	Motorized Combination	2D Scanning
VL-MS-XY8060-Mot	XY	80x60 mm	Motorized	Microscope Stage
VL-MS-XY8060-Hyb	XY	80x60 mm	Motor + Handwheel	Hybrid Microscopy
VL-MS-XY8060-Pzo	XY	80x60 mm	Piezo Ceramic	Nano-Scale Microscopy
VL-MS-XY100-Lin	XY	100x100 mm	Linear Motor	High Speed Automation
Inertial Motor Stages				
VL-IM-X17-12...60	X	12 - 60 mm	Inertial (Stick-Slip)	Compact / Self-Locking
VL-IM-XY50-25	XY	25x25 mm	Inertial (Stick-Slip)	Compact 2D
VL-IM-Rot50	z	360°	Inertial (Stick-Slip)	Infinite Rotation
VL-IM-Lift50	Z	20 mm	Inertial (Stick-Slip)	Compact Lift
VL-IM-Gonio50		±10°	Inertial (Stick-Slip)	Compact Goniometer
VL-IM-6Axis-Sys	6-DOF	Combination	Inertial (Stick-Slip)	6-Axis Combination
Piezo Inserts & Hexapods				
VL-Pzo-Insert-78	Z	100-300 µm	Piezo Amplified	Microscope Stage Z-Axis
VL-Pzo-Insert-79	Z	100-200 µm	Piezo Amplified	Microscope Stage Z-Axis
VL-Mot-XY-Int	XY	75-110 mm	Integrated Motorized	General Microscopy
VL-Mot-Lin-Gen	X	15-90 mm	Motorized Lead Screw	General Translation
VL-Mot-Gonio/Rot		Multiple Specs	Motorized Worm Gear	General Rotation/Gonio
VL-Hex-90-S/K	6-DOF	±12mm/±10°	Hexapod (Parallel)	Spatial 6-DOF

## Service & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

### 1. Warranty Policy

#### Quality First, Worry-Free Operation

**Warranty Period:** We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

**Coverage:** We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

**Rapid Response:** Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

### 2. Technical Support

#### Expert Team, Full-Process Guidance

**Technical Consultation:** Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

**Scheduled Maintenance:** We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

**Training Services:** We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

### 3. Logistics & Delivery

#### Precision Packaging, Global Reach

**Professional Packaging:** Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

**Logistics Partners:** We partner with top-tier global logistics providers (**DHL / FedEx / UPS / SF Express**) to offer reliable

shipping with real-time tracking.

**Shipping Insurance:** All shipments are fully insured to eliminate logistics risks.

### 4. Compliance & Certification


#### Strict Standards, Total Compliance

**Quality Certification:** Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE** and **RoHS**.

**Export Compliance:** "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH** standards, ensuring safety and global compliance."

## Explore Series

Model	Travel Range	Axis Configuration	Resolution	Max Speed
VL-Nano-X1000	1 mm	1 Axis (X)	2 nm	Millisecond-Level Response
VL-Hex-90-S	±12mm / ±10°	6 Axes (6-DOF)	0.1 μm	10 mm/s
VL-IM-X17-20	20 mm	1 Axis (X)	1 nm	2 mm/s
VL-MS-XY100-Lin	100 × 100 mm	2 Axes (XY)	10 nm	500 mm/s

 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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