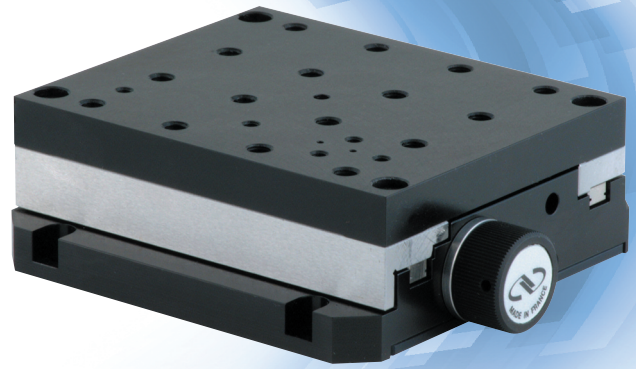


Precision Compact Linear Stages

VP - 25 X



The VP-25X Series linear stage provides high-precision positioning performance in an ultra-compact form factor. A low friction ball screw drive provides robust, reliable performance with excellent thrust and minimal heat induced position drift. Combined with excellent minimum incremental motion of 10 nm and travel of 25 mm, the VP-25X is ideal for applications requiring fine manipulation of small parts. Featuring a manual adjustment knob, VP-25X stages are versatile enough to handle automated and non-automated tasks alike. Typical applications include fiber alignment, microassembly, and micro-machining. Available in VP-25XA and the finer MIM, VP-25XL models.

- 25 mm travel in ultra-compact profile
- High sensitivity with 10 nm Minimum Incremental Motion
- Integrated linear encoder for highly repeatable, precision motion
- Innovative, fixed reading-head design avoids any moving cables
- 20,000 hours MTBF with low friction ballscrew

DESIGN DETAILS

Bearings	Recirculating ball bearings
Drive Mechanism	Backlash-free ball screw
Drive Screw Pitch	1 mm
Feedback	Linear steel scale, 20 mm signal period. VP-25XA: RS422 output; VP-25XL: 1 V _{pp} analog sine-cos output
Limit Switches	Optical
Origin	Optical, at center of travel, including mechanical zero signal
Motor	DC Servo
Cable Length	1.5 m (included)

SPECIFICATIONS

	VP-25XA	VP-25XL
Travel Range (mm)		25
Minimum Incremental Motion (μm)	0.1	0.01
Uni-directional Repeatability (μm)	0.15	0.07
Bi-directional Repeatability ⁽¹⁾ (μm)	0.2 or ±0.1	0.14 or ±0.07
On-Axis Accuracy ⁽¹⁾ (μm)		2.0 or ±1.0
Maximum Speed (mm/s)		25
Pitch ⁽¹⁾⁽²⁾ (μrad)		100 or ±50
Yaw ⁽¹⁾⁽²⁾ (μrad)		100 or ±50
MTBF (h)		20,000
Weight (kg)		1.5

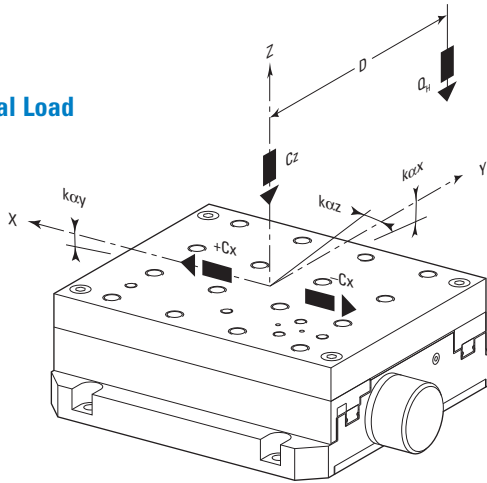
¹⁾ Shown are peak to peak, guaranteed specifications or ±half the value as sometimes shown. For the definition of typical specifications which are about 2X better than the guaranteed values, visit www.newport.com for the Motion Control Metrology Primer.

²⁾ To obtain arcsec units, divide μrad value by 4.8.

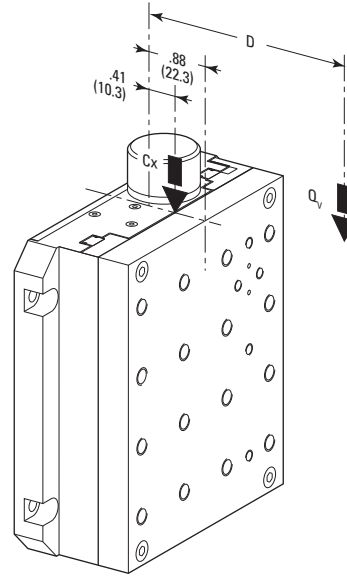
LOAD CHARACTERISTICS

Cz, Normal centered load capacity	60 N
+Cx, -Cx, Axial load capacity	40 N
k _{xx} , Compliance in roll	20 μrad/Nm
k _{xy} , Compliance in pitch	20 μrad/Nm
k _{yz} , Compliance in yaw	30 μrad/Nm
Q, Off-center load	$Q_H, Q_V \leq C_z \div (1 + D/30)$
where D = Cantilever distance in mm between the center of the mass of the load and the bearings center	
Distance between top surface and bearings center	22.3 mm

Normal Load



Axial Load

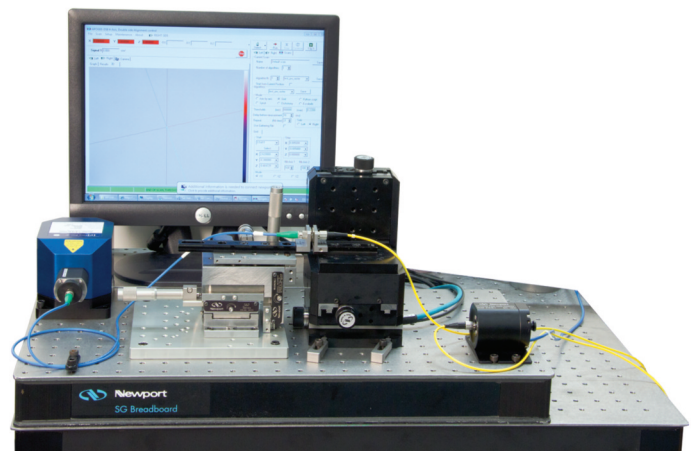


RECOMMENDED CONTROLLERS/DRIVERS

VP-25XA & VP-25XL	XPS	Universal High-Performance Motion Controller/Driver
Only VP-25XA	ESP301	3-Axis Motion Controller/Driver
Only VP-25XA	SMC100	Single-Axis DC or Stepper Motion Controller



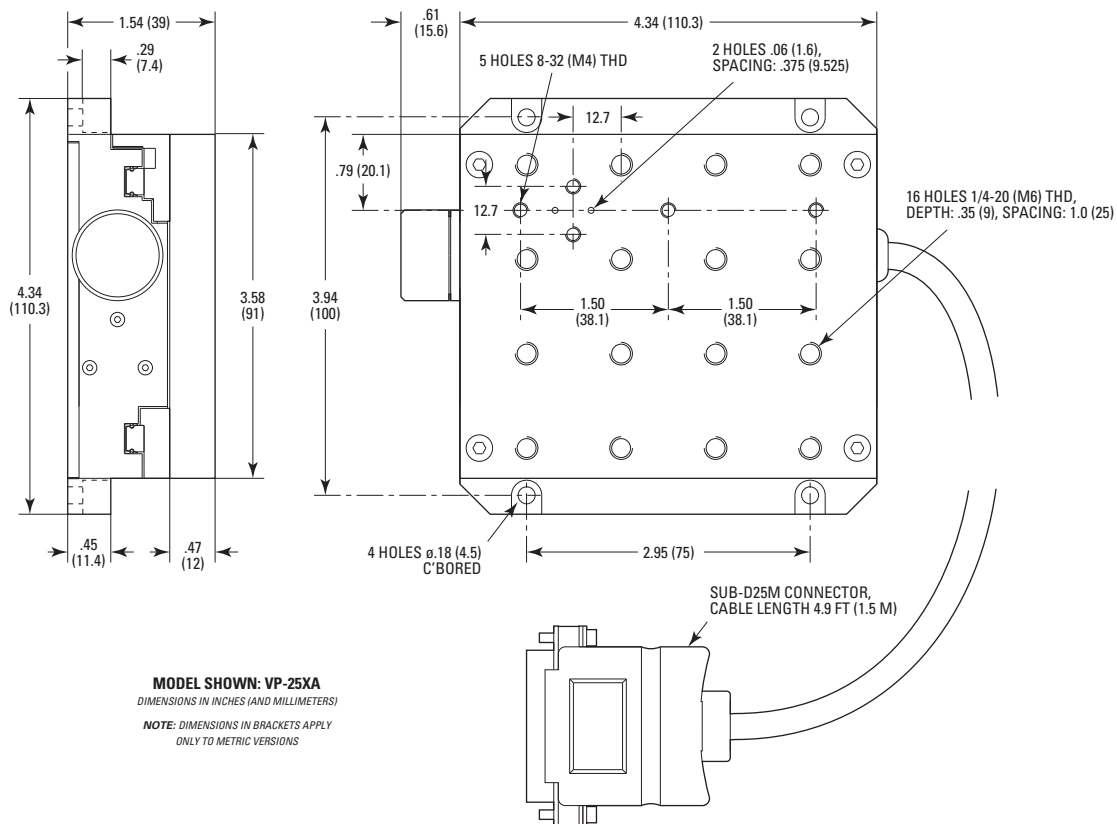
VP-25X stages can easily be assembled into an XYZ configuration with optional VP-BK bracket. Shown here is a left-handed stack, VP-25X-XYZL.



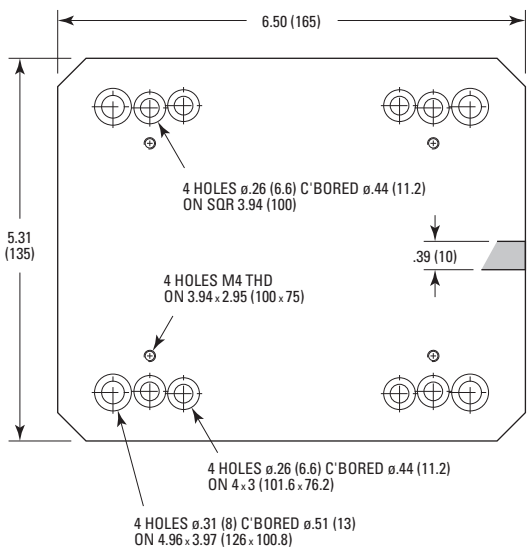
VP25XL-XYZR single-mode fiber alignment setup.

DIMENSIONS

VP-25X Stage

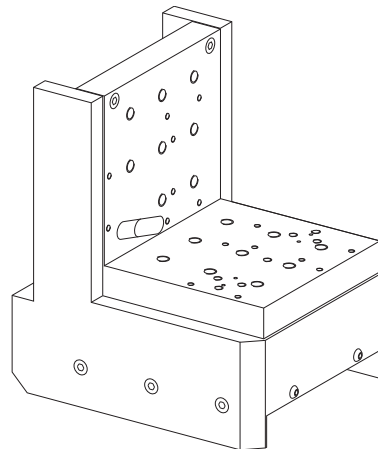


VP-BP Base Plate



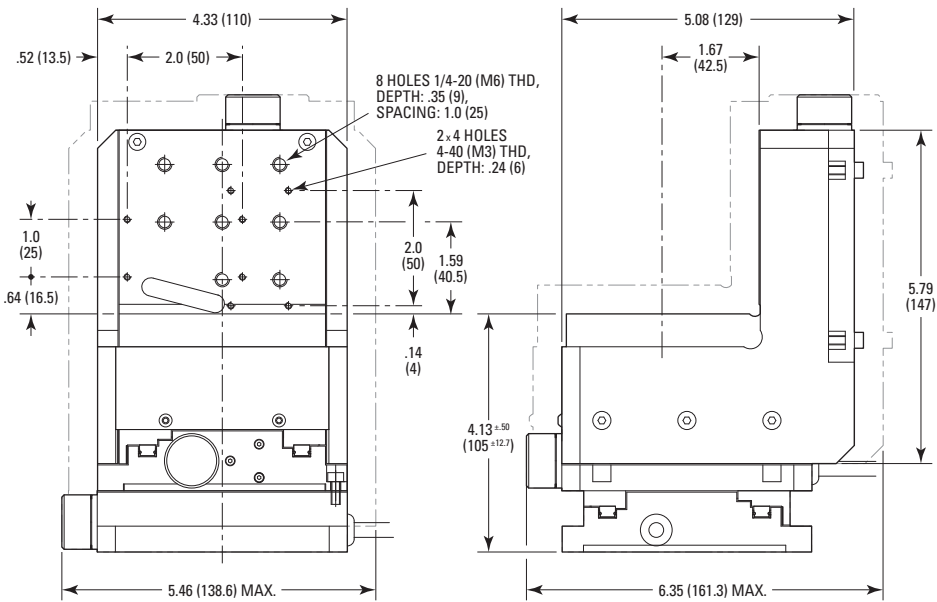
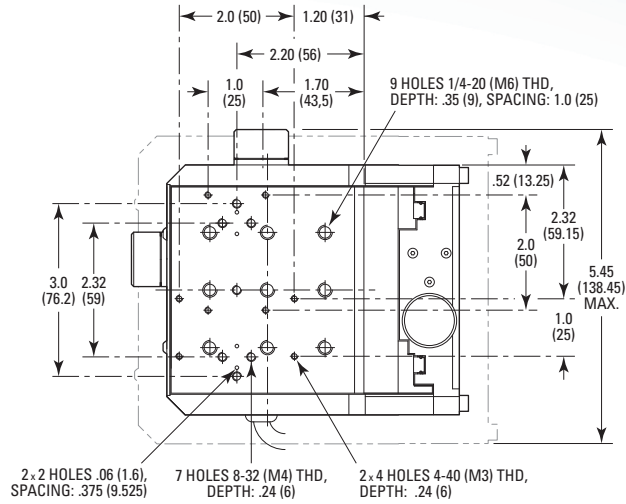
VP-BK Bracket

(see dimensions on next page)



XYZ Stage Stack

MODEL SHOWN: (M-)VP-25XA-XYZL
 DIMENSIONS IN INCHES (AND MILLIMETERS)
 NOTE: DIMENSIONS IN BRACKETS APPLY ONLY TO METRIC VERSIONS



ORDERING INFORMATION

Model (Metric)	Description
VP-25XA (M-VP-25XA)	Precision Compact Linear Stage, 25 mm, 0.1 mm, DC servo motor with Tachometer
VP-25XL (M-VP-25XL)	Precision Compact Linear Stage, 25 mm, 0.005 mm, DC servo motor with Tachometer
VP-25XA-XYZL (M-VP-25XA-XYZL)	Compact XYZ Stage Stack, Left-handed, (M-)VP-25XA Stages with (M-)VP-BK Bracket
VP-25XA-XYZR (M-VP-25XA-XYZR)	Compact XYZ Stage Stack, Right-handed, (M-)VP-25XA Stages with (M-)VP-BK Bracket
VP-25XL-XYZL (M-VP-25XL-XYZL)	Compact XYZ Stage Stack, Left-handed, (M-)VP-25XL Stages with (M-)VP-BK Bracket

Model (Metric)	Description
VP-25XL-XYZR (M-VP-25XL-XYZR)	Compact XYZ Stage Stack, Right-handed, (M-)VP-25XL Stages with (M-)VP-BK Bracket
VP-BK (M-VP-BK)	Multi-Axis Bracket for (M-)VP-25X Linear Stages
VP-BP	Universal Base Plate
VP-BC	Base Clamp Set, VP Series Stages, Set of Four
Dovetail rail for ULTRAlign™ positioning system:	
562-RAIL-3.7	Length: 3.7 in. (94 mm)
561-RAIL-1	Length: 1 in. (25.4 mm)

Note: XYZ stacks are assembled with ±50 µrad XY orthogonality; ±100 µrad XZ and YZ orthogonality.



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