

# Translation Stage | VT-50L

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The low cost VT-50 linear stage excels in applications with very limited space due to its compact design. The stage utilizes a 2-phase stepper motor and is equipped with two mechanical limit switches. A pre-loaded ball bearing (optional cross-roller bearing) creates high stiffness and superior performance. The VT-50 is available with an optional linear encoder with 50 nm resolution. VT-50 stages can be mounted XY without any adapters, and a Z-axis can be added with the use of a standard mounting bracket. For elevation travel ranges of 10 mm or less the VT-50 can be combined with the ES-50 elevation stage without the use of adapter plates. Versions capable of operation in vacuum ( $10^{-6}$  mbar) are available. The VT-50 is compatible with the MMC-200 controller.

## KEY FEATURES

- Travel range of 50 to 300 mm (longer travel available on request up to 500 mm)
- 50 nm closed loop encoder resolution
- Load capacity up to 20 kg
- Recirculating ball bearing
- Integrated mechanical limit switches
- Vacuum versions available

## TECHNICAL DATA

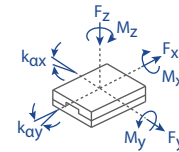
Travel range [mm]	50	100	200	300
Straightness / Flatness [ $\mu\text{m}$ ]	$\pm 5$	$\pm 7$	$\pm 10$	$\pm 12$
Pitch [ $\mu\text{rad}$ ]	$\pm 100$	$\pm 125$	$\pm 150$	$\pm 200$
Yaw [ $\mu\text{rad}$ ]	$\pm 100$	$\pm 125$	$\pm 150$	$\pm 200$
Weight [g]	-	-	-	-
Motor option	2-Phase Stepper Motor			
Speed, max [mm/s]	10			
Encoder option	None (open loop)	Analog (1 V <sub>pp</sub> )	Digital (RS-422)	Digital Low Cost (RS-422)
Resolution, typical [ $\mu\text{m}$ ]	0.1	0.05	0.05	0.5
Repeatability, bi-directional [ $\mu\text{m}$ ]	$\pm 10$	$\pm 0.2$	$\pm 0.2$	$\pm 1$
Repeatability, uni-directional [ $\mu\text{m}$ ]	10	0.2	0.2	1
Materials	aluminum body, steel bearing (other materials i.e. stainless steel, titanium, etc. available upon request)			

## ORDERING INFORMATION

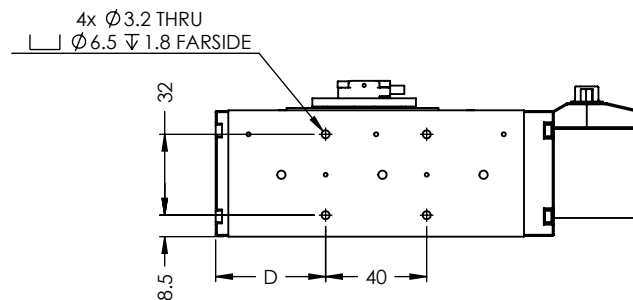
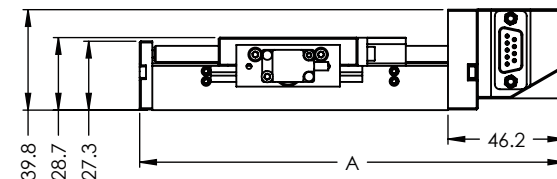
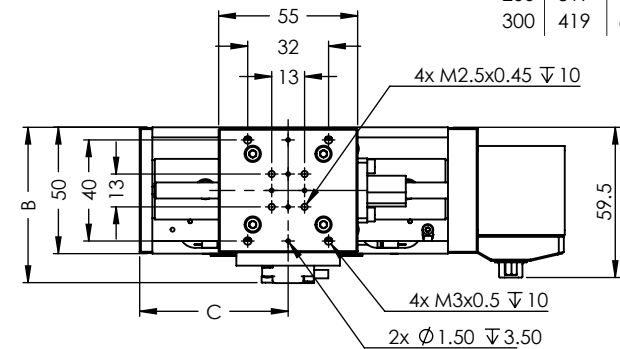
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DRIVE	Stepper Motor, SM-003 .....	1
TRAVEL	50 mm .....	1
	100 mm .....	2
	200 mm .....	3
	300 mm .....	4
ENCODER	None .....	0
	Analog (1 V <sub>pp</sub> ) .....	2
	Digital (RS-422) .....	3
	Digital Low Cost (RS-422) .....	4
LIMIT SWITCH	Mechanical .....	1
ENVIRONMENT	Atmospheric .....	0
	High Vacuum, $10^{-6}$ mbar .....	6

Load, max	$F_x$ [N]	$F_y$ [N]	$F_z$ [N]	$M_x$ [N·m]	$M_y$ [N·m]	$M_z$ [N·m]	$k_{ax}$ [ $\mu\text{rad}/\text{N·m}$ ]	$k_{ay}$ [ $\mu\text{rad}/\text{N·m}$ ]
SM-003	50	200	200	10	10	10	100	100



Travel	A	B	C	D
50	168	61.7	58.8	43.5
100	218	61.7	83.8	68.5
200	319	63.3	134.3	119
300	419	63.3	184.3	169



Specifications are subject to change without notice.