

Precision Piezo Stage | PPS-20

The PPS-20 is a high-precision, long travel linear piezo stage. Miniature crossed roller bearings assure high stiffness and guiding accuracy for loads up to 20 N (horizontal orientation). It utilizes our patented multi-phase piezo motor resulting in high speed (> 10 mm/s) and high blocking force (> 2 N). The PPS-20 is available in open loop or with an external encoder. Closed loop encoder resolution of 2 nm is achievable. Versions capable of operation in vacuum (10^{-9} mbar), cryo (4 Kelvin) and non-magnetic materials are available. The PPS-20 is compatible with the MMC-100 and MMC-110 controllers.

KEY FEATURES

- Travel range of up to 51 mm
- 2 nm closed loop encoder resolution
- Load capacity up to 2 kg
- Crossed roller bearing
- Low profile, 13 mm height
- Vacuum, cryo, and non-magnetic versions available

TECHNICAL DATA

Travel range [mm]	12	18	26	51
Straightness / Flatness [μm]	± 1	± 1.5	± 1.5	± 2.5
Pitch [μrad]	± 60	± 80	± 80	± 100
Yaw [μrad]	± 70	± 90	± 90	± 100
Weight [g], Open Loop	22	28	36	70
Weight [g], Closed Loop	25	35	42	78
Motor option	Piezo Motor			
Speed, max [mm/s]	2 (MMC-100), 10 (MMC-110)			
Encoder option	None (open loop)	Analog (1 V_{pp})	Digital (RS-422)	
Resolution, typical [nm]	1	10	2	
Repeatability, bi-directional [nm]	n/a	± 50	± 50	
Repeatability, uni-directional [nm]	n/a	50	50	
Materials	aluminum body, steel bearing (other materials i.e. stainless steel, titanium, etc. available upon request)			

ORDERING INFORMATION

	PPS-20-	1				
DRIVE TRAVEL	Piezo Motor, PM-002	1				
	12 mm	1				
	18 mm	2				
	26 mm	3				
ENCODER	51 mm	5				
	None	0				
	Analog (1 V_{pp})	2				
	Digital (RS-422)	3				
LIMIT SWITCH	Absolute (BiSS-C)	5				
	None	0				
ENVIRONMENT	Magnetic [†]	1				
	Atmospheric	0				
	High Vacuum, 10^{-6} mbar	6				
	Ultra High Vacuum, 10^{-9} mbar	9				
	Cryo 4 K	C				
	Non-Magnetic	M				

[†]not needed with encoder

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} [$\mu\text{rad/N-m}$]	k_{ay} [$\mu\text{rad/N-m}$]
PM-002	2	20	20	0.7	0.7	0.7	-	-

