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<sup>-9</sup> 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

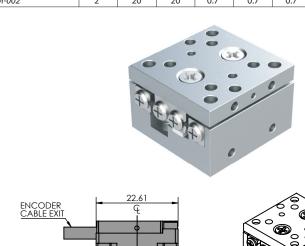
- Travel range of up to 51 mm
- 2 nm closed loop encoder resolution
- Load capacity up to 2 kg
- Crossed roller bearing
- Low profile, 13 mm height
- Vacuum, cryo, and non-magnetic versions available

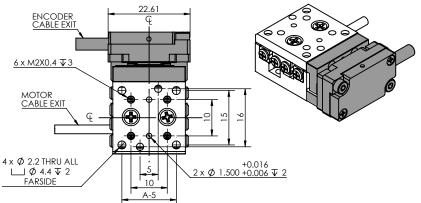
## TECHNICAL DATA

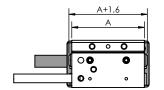
Travel range [mm]	12	1	8	26		51
Straightness / Flatness [µm]	± 1	±	1.5	± 1.5		± 2.5
Pitch [µrad]	± 60	±	80	± 80		± 100
Yaw [µrad]	± 70	±	90	± 90		± 100
Weight [g], Open Loop	22	2	8	36		70
Weight [g], Closed Loop	25	3	5	42		78
Motor option	Piezo Motor					
Speed, max [mm/s]	2 (MMC-100), 10 (MMC-110)					
Encoder option	None (open lo	oop) Analog (1 V <sub>pp</sub> )		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)					

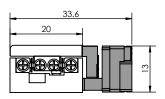
ORDERING INFORMAT	TION PPS-20- 1
DRIVE	Piezo Motor, PM-002 1 _
TRAVEL	12 mm 1 —
	18 mm 2
	26 mm 3
	51 mm 5
ENCODER	None 0
	Analog (1 V <sub>pp</sub> ) 2
	Digital (RS-422) 3
	Absolute (BiSS-C) 5
LIMIT SWITCH	None 0
	Magnetic <sup>†</sup> 1
ENVIRONMENT	Atmospheric 0
	High Vacuum, 10 <sup>-6</sup> mbar <b>6</b>
	Ultra High Vacuum, 10 <sup>-9</sup> mbar 9
	Cryo 4 K C
	Nón-Magnetic

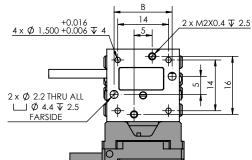
Load, max	F <sub>X</sub> [N]	F <sub>y</sub> [N]	F <sub>Z</sub> [N]	M <sub>X</sub> [N·m]	M <sub>y</sub> [N·m]	<i>M</i> <sub>Z</sub> [N·m]	k <sub>αχ</sub> [μrad/N·m]	k <sub>αy</sub> [μrad/N·m]
PM-002	2	20	20	0.7	0.7	0.7	-	-











Travel	Α	В
12	20	16
18	30	16
26	40	36
51	80	50

- \* 12 mm travel version shown
- \* all dimensions are in millimeters
- \* grey parts for closed loop version only

