

Precision Positioning Stage | PPS-20SM

The PPS-20 Stepper Motor version is suitable for applications requiring high speed and high blocking force. Miniature crossed roller bearings assure high stiffness and guiding accuracy for loads up to 20 N (horizontal orientation). It utilizes a 2-phase stepper motor resulting in high speed (> 5 mm/s) and high blocking force (> 10 N). The PPS-20SM is available in open loop or with an external encoder. Resolutions of 100 nm are achievable. Versions capable of operation in vacuum (10^{-6} mbar) are available. The PPS-20SM is compatible with the MMC-200 controller.

KEY FEATURES

- Travel range of up to 51 mm
- 50 nm resolution
- Load capacity up to 20N
- Steel crossed roller bearing
- Low profile, 13 mm height
- Vacuum versions available

TECHNICAL DATA

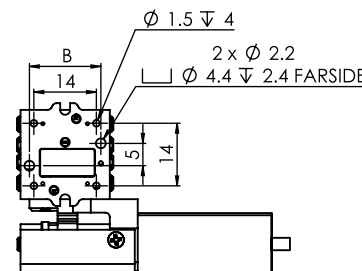
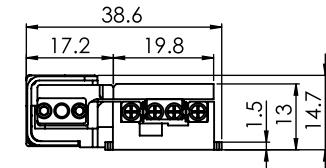
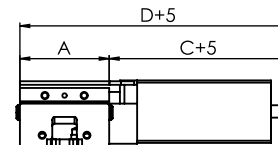
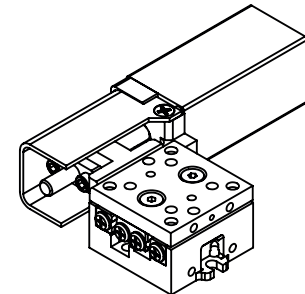
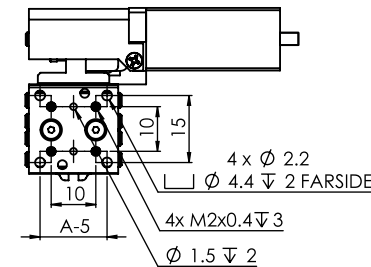
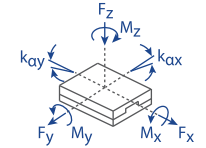
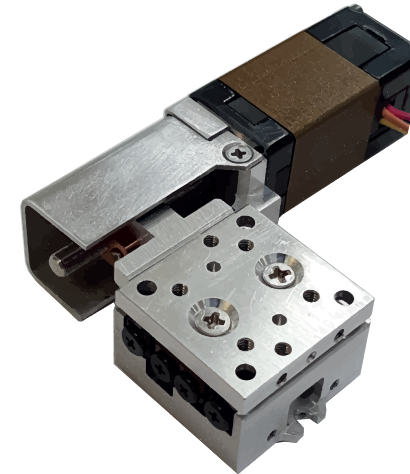
Travel range [mm]	12	18	26	51
Straightness / Flatness [μm]	± 1	± 1.5	± 1.5	± 2.5
Pitch [μrad]	± 60	± 80	± 80	± 100
Yaw [μrad]	± 70	± 90	± 90	± 100
Weight [g]	-	-	-	-
Motor option	2-Phase Stepper Motor			
Speed, max [mm/s]	5			
Encoder option	None (open loop)	Analog (1 V _{pp})	Digital (RS-422)	
Resolution, typical [μm]	0.1	0.05	0.05	
Repeatability, bi-directional [μm]	± 4	± 0.2	± 0.2	
Repeatability, uni-directional [μm]	0.5	0.2	0.2	
Accuracy [μm]	± 10	± 1	± 1	
Materials	aluminum body, steel bearing, stainless steel bracket, brass nut (other materials i.e. stainless steel, titanium, etc. available upon request)			

ORDERING INFORMATION

PPS-20- 2

DRIVE	Stepper Motor, SM-007	2				
TRAVEL	12 mm	1				
	18 mm	2				
	26 mm	3				
	51 mm	5				
ENCODER	None	0				
	Analog (1 V _{pp})	2				
	Digital (RS-422)	3				
LIMIT SWITCH	None	0				
	Magnetic	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-007	5	20	20	0.7	0.7	0.7	-	-



Travel	A	B	C	D
12	20	16	36.25	56.25
18	30	16	36.25	66.25
26	40	36	30.75	70.75
51	80	50	26.25	106.25

* 12 mm travel version shown
* all dimensions are in millimeters

Specifications are subject to change without notice.