

Precision Positioning Stage | PPS-50PM

The precision piezo stage PPS-50 allows nanopositioning of high loads. Anti-creep, crossed roller bearings assure high stiffness for loads up to 20N. The PPS-50 is fully integrated with our patented multi-phase piezo motor and optional high resolution encoder (up to 1nm resolution) or absolute encoder. PPS-50 can also be combined with our rotary and gonio stages for ultimate motion flexibility.

The PPS-50 is compatible with MMC-100, MMC-110 and NanoDrive controllers.

KEY FEATURES

- Optional internal digital encoder resolution to 1nm
- Optional internal absolute optical encoder resolution to 25nm
- Load capacity up to 2kg
- Crossed roller bearing (anti-creep)
- Low profile, 15mm height
- Vacuum, and non-magnetic versions available

TECHNICAL DATA

| Travel range [mm] | 26 | 50 | 75 | 100 |
|-------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------|--------------------------|-----|
| Straightness / Flatness [μm] | ±2 | ±3 | ±4 | ±5 |
| Pitch [μrad] | | | | |
| Yaw [μrad] | | | | |
| Weight [g], Open Loop | 110 | 185 | 245 | 305 |
| Weight [g], Closed Loop | 115 | 190 | 250 | 310 |
| Motor option | Piezo Motor | | | |
| Speed, max [mm/s] | 2 (MMC-100), 10 (NanoDrive and MMC-110) | | | |
| Encoder option | None (Open Loop) | Digital (RS-422) | Absolute (BiSS C) | |
| Resolution, typical [nm] | 1 | 1 | 25 | |
| Repeatability, bi-directional [nm] | n/a | ± 20 | ± 100 | |
| Repeatability, uni-directional [nm] | n/a | ± 20 | ± 100 | |
| Materials | aluminum, steel bearing (other materials i.e. stainless steel, titanium, etc. available upon request) | | | |

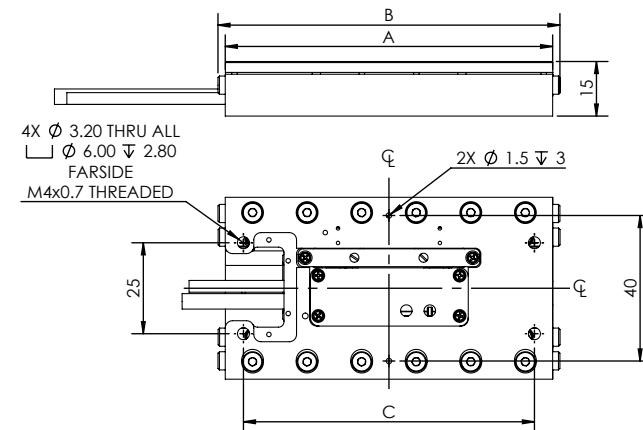
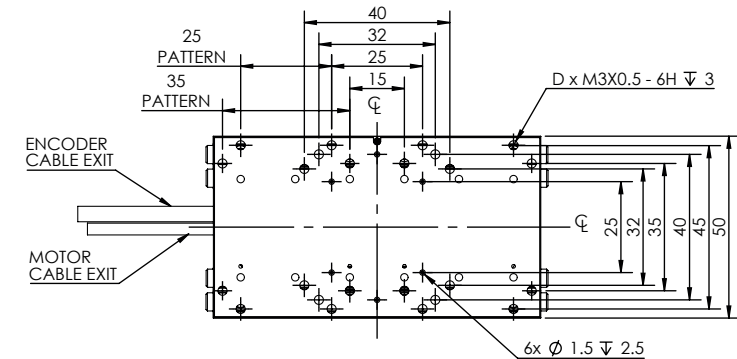
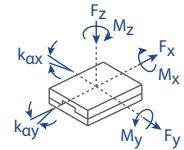
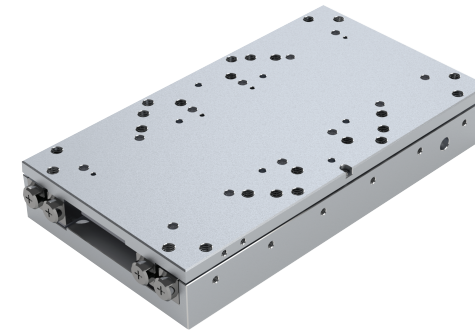
ORDERING INFORMATION

PPS-50-

| | | | | | | |
|---------------------|------------------------------------------------|---|--|--|--|--|
| DRIVE | Piezo Motor, PM-002 | 1 | | | | |
| | Piezo Motor, High Force* | 5 | | | | |
| TRAVEL | 26 mm** | 1 | | | | |
| | 50 mm | 2 | | | | |
| | 75 mm | 3 | | | | |
| | 100 mm | 4 | | | | |
| ENCODER | None | 0 | | | | |
| | Digital (RS-422) | 3 | | | | |
| | Absolute (BiSS C)*** | 5 | | | | |
| LIMIT SWITCH | None | 0 | | | | |
| | Magnetic**** | 1 | | | | |
| ENVIRONMENT | Atmospheric | 0 | | | | |
| | High Vacuum, 10 ⁻⁶ mbar..... | 6 | | | | |
| | Ultra High Vacuum, 10 ⁻⁹ mbar | 9 | | | | |
| | Non-Magnetic..... | M | | | | |

- * MMC-110 only
- ** Not available in High Force
- *** Not UHV compatible
- **** Limits on High Vacuum with Encoder available with Motor Option 1 only

| 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} [μrad/N-m] | k _{ay} [μrad/N-m] |
|---------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------------|----------------------------|
| PM-002 | 2 | 20 | 20 | 0.2 | 0.2 | 0.125 | - | - |
| PM-High Force | 5 | 20 | 20 | 0.2 | 0.2 | 0.125 | - | - |



| TRAVEL | A | B | C | D |
|--------|-----|-----|----|----|
| 26 | 50 | 50 | 45 | 16 |
| 50 | 90 | 94 | 80 | 24 |
| 75 | 120 | 124 | 60 | 24 |
| 100 | 150 | 154 | 80 | 48 |

- all dimensions are in millimeters
- 50 mm travel shown