

Precision Positioning Stage | PPS-28SM

The PPS-28 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 50 N (horizontal orientation). It utilizes a 2-phase stepper motor resulting in high speed (> 5 mm/s) and high blocking force (> 5 N). The PPS-28SM is available in open loop or with an external encoder. Open loop resolutions of 100 nm are achievable. Versions capable of operation in vacuum (10^{-6} mbar) are available. The PPS-28SM is compatible with the MMC-200 controller.

KEY FEATURES

- Travel range of up to 102 mm
- Stepper Motor - Leadscrew drive (Optional Ball Screw)
- 50 nm encoder resolution
- Load capacity up to 5 kg
- Crossed roller bearing
- Low profile, 15 mm height
- Vacuum versions available

TECHNICAL DATA

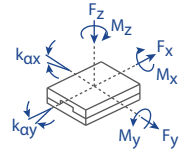
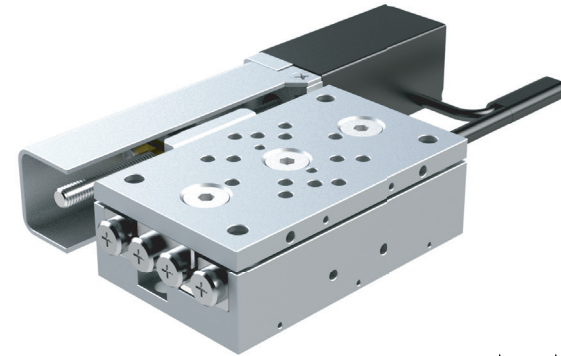
| Travel range [mm] | 26 | 51 | 76 | 102 |
|--|--|----------------------------------|-------------------------|-----------|
| Straightness / Flatness [μm] | ± 1.5 | ± 2.5 | ± 3 | ± 3.5 |
| Pitch [μrad] | ± 50 | ± 70 | ± 80 | ± 100 |
| Yaw [μrad] | ± 60 | ± 75 | ± 90 | ± 100 |
| Weight [g], Open Loop | 110 | 180 | 240 | 290 |
| Weight [g], Closed Loop | 120 | 190 | 250 | 300 |
| 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 | |
| Materials | aluminum body, steel bearing, brass nut (other materials i.e. stainless steel, titanium, etc. available upon request) | | | |

ORDERING INFORMATION

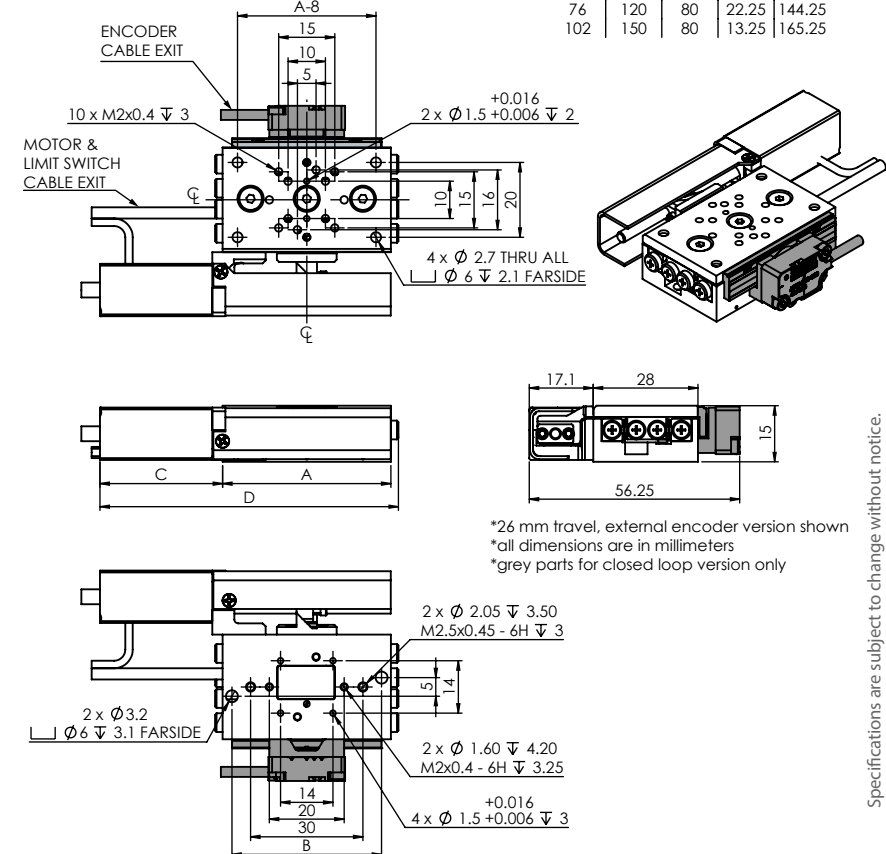
PPS-28- **2** | | | **1**

| | | |
|---------------------|-----------------------------------|---|
| DRIVE | Stepper Motor, SM-007 | 2 |
| TRAVEL | 26 mm | 1 |
| | 51 mm | 3 |
| | 76 mm | 4 |
| | 102 mm | 5 |
| ENCODER | None | 0 |
| | Analog (1 V _{pp}) | 2 |
| | Digital (RS-422) | 3 |
| LIMIT SWITCH | 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} [$\mu\text{rad/N-m}$] | k_{ay} [$\mu\text{rad/N-m}$] |
|-----------|-----------|-----------|-----------|-------------|-------------|-------------|----------------------------------|----------------------------------|
| SM-007 | 3 | 50 | 50 | 1 | 1 | 1 | - | - |



| Travel | A | B | C | D |
|--------|-----|----|-------|--------|
| 26 | 45 | 40 | 32.75 | 79.75 |
| 51 | 90 | 50 | 19.25 | 111.25 |
| 76 | 120 | 80 | 22.25 | 144.25 |
| 102 | 150 | 80 | 13.25 | 165.25 |



*26 mm travel, external encoder version shown
*all dimensions are in millimeters
*grey parts for closed loop version only

Specifications are subject to change without notice.