

Precision Linear Stage

High Travel Accuracy and Inexpensive



M-406

- Travel ranges to 150 mm
- Crossed roller bearings
- DC servo motor drive
- Direction-sensing reference point switch

Precision-class linear stage

High travel accuracy and load capacity due to crossed roller guides. Precision leadscrew with 0.5 mm pitch, backlash-compensated, 50 N self-locking. Stress-relieved aluminum base for highest stability.

- PD variant: DC motor with integrated ActiveDrive amplifier for high velocity.
- DG variant: DC servo motor with gearhead in conjunction with precision rotary encoder for high resolution and repeatability

Noncontact limit switches. Noncontact reference point switch with direction sensing in the middle of the travel range.

Crossed roller guide

With crossed roller guides, the point contact of the balls in ball guides is replaced by line contact of the hardened rollers. Consequently, they are considerably stiffer and need less preload, which reduces friction and allows smoother running. Crossed roller guides are also distinguished by high guiding accuracy and load capacity. Force-guided rolling element cages prevent linear guide creeping.

Fields of application

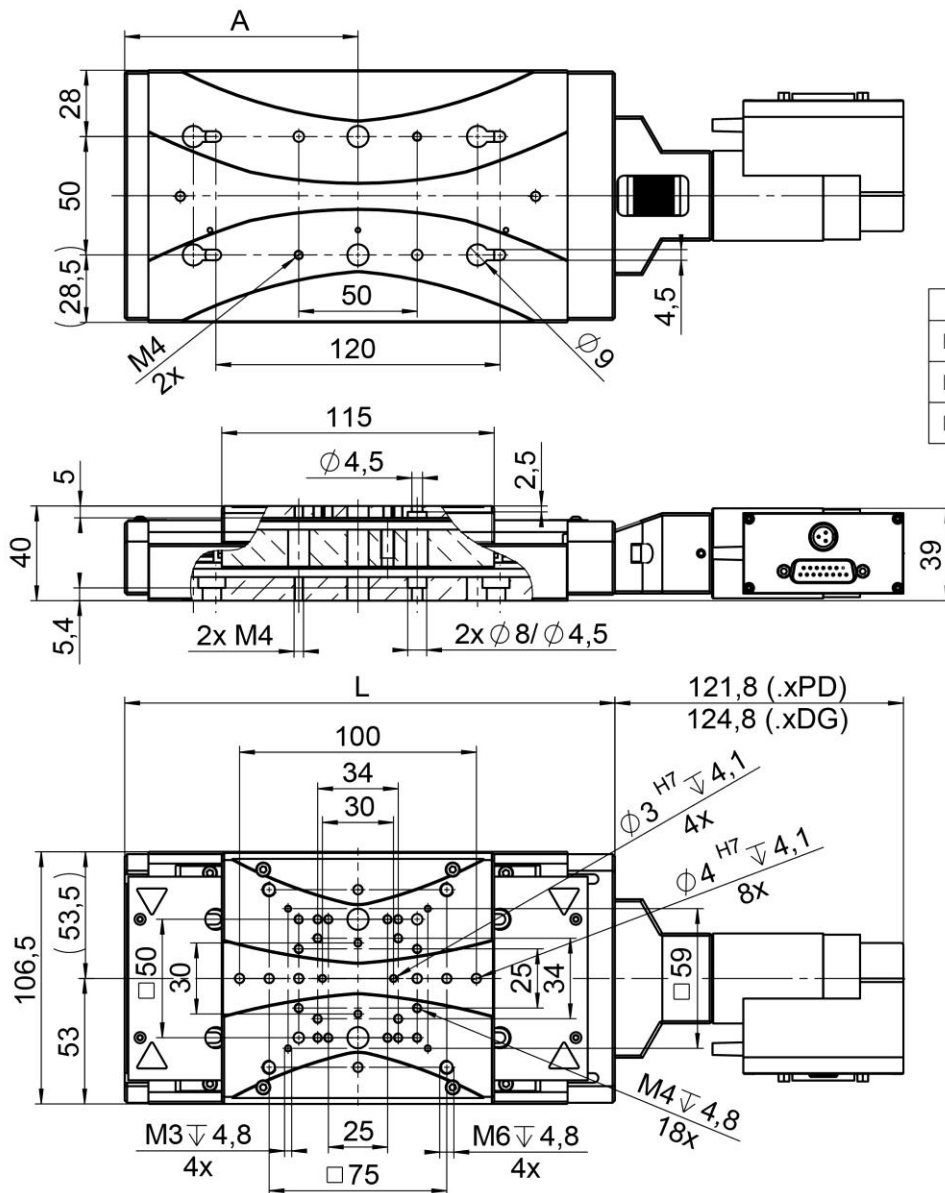
Precision positioning in laboratory environments, test equipment.

Specifications

| | M-406.2DG M-406.4DG M-406.6DG | M-406.2PD M-406.4PD M-406.6PD | Unit | Tolerance |
|-------------------------------|-------------------------------------|-------------------------------------|-----------|-----------|
| Motion and positioning | | | | |
| Travel range | 50 / 100 / 150 | 50 / 100 / 150 | mm | |
| Integrated sensor | Rotary encoder | Rotary encoder | | |
| Sensor resolution | 2000 | 4000 | Cts./rev. | |
| Design resolution | 0.0085 | 0.125 | μm | |
| Minimum incremental motion | 0.1 | 0.25 | μm | |
| Unidirectional repeatability | 0.2 | 0.2 | μm | |
| Backlash | 2 | 2 | μm | |
| Crosstalk, angular error | ±25 / ±50 / ±75 | ±25 / ±50 / ±75 | μrad | |
| Velocity | 1 | 15 | mm/s | max. |
| Mechanical properties | | | | |
| Drive screw pitch | 0.5 | 0.5 | mm | |
| Gear ratio | 29.6:1 | – | | |
| Load capacity | 200 | 200 | N | max. |
| Push/pull force | 50 / 50 | 50 / 50 | N | max. |
| Lateral force | 150 | 150 | N | max. |
| Drive properties | | | | |
| Motor type | DC gear motor | DC motor with PWM control | | |
| Operating voltage | 0 to ±12 | 24 | V | |
| Motor power | 3 | 30 | W | |
| Reference and limit switches | Hall effect | Hall effect | | |
| Miscellaneous | | | | |
| Operating temperature range | -20 to 65 | -20 to 65 | °C | |
| Material | Aluminum, steel | Aluminum, steel | | |
| Mass | 2.1 / 2.4 / 2.8 | 2.1 / 2.4 / 2.8 | kg | |
| Connector | Sub-D 15, incl. 3 m cable | Sub-D 15, incl. 3 m cable | | |
| Recommended controllers | C-863 C-884 | C-863 C-884 | | |

Ask about custom designs!

Drawings and Images



| | A | L |
|-----------|-------|-----|
| M-406.2xx | 98,5 | 207 |
| M-406.4xx | 123,5 | 257 |
| M-406.6xx | 148,5 | 307 |

M-406, dimensions in mm

Ordering Information

M-406.2DG

Precision microtranslation stage, 50 mm, DC gear motor

M-406.4DG

Precision microtranslation stage, 100 mm, DC gear motor

M-406.6DG

Precision microtranslation stage, 150 mm, DC gear motor

M-406.2PD

Precision microtranslation stage, 50 mm, ActiveDrive DC motor, incl. 24 V Power Supply

M-406.4PD

Precision microtranslation stage, 100 mm, ActiveDrive DC motor, incl. 24 V Power Supply

M-406.6PD

Precision microtranslation stage, 150 mm, ActiveDrive DC motor, incl. 24 V Power Supply