

Compact Linear Positioning Stage

FAST LINEAR MOTOR, LINEAR ENCODER



M-663

- Max. velocity 250 mm/s
- Travel range 18 mm
- Excellent start/stop dynamics
- Direct-metrology linear encoder
- XY combinations without adapter plate possible
- Self-locking, no heat generation at rest, no servo jitter
- Vacuum-compatible versions available

Precision-class micropositioning stage

Integrated piezoceramic direct drive. Vacuum-compatible versions to 10^{-6} hPa are available

PILine® piezo ultrasonic drive

Self-locking, no heat generation at rest. Excellent start/stop dynamics. Centered ball bearings. Non-contact reference point switch

Direct-measuring principle

Non-contact, direct-measuring, optical linear encoder

Valid patents

US patent no. 6,765,335B2

European patent no. 1267425B1

Fields of application

Research and industry. For micromanipulation, automation, biotechnology

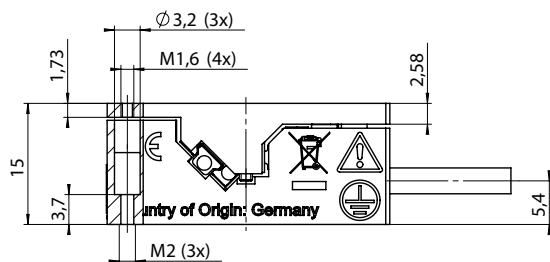
| | M-663.4U M-663.4UY | M-663.5U M-663.5UY | Unit | Tolerance |
|-------------------------------|-------------------------------------|-------------------------------------|------|-----------|
| Active axes | X | X | | |
| Motion and positioning | | | | |
| Travel range | 18 | 18 | mm | |
| Integrated sensor | Linear encoder | Linear encoder | | |
| Sensor resolution | 0.1 | 0.6 | μm | |
| Min. incremental motion | 0.3 | 2 | μm | typ. |
| Unidirectional repeatability | 0.2 | 0.4 | μm | typ. |
| Bidirectional repeatability | ±0.5 | ±2 | μm | typ. |
| Pitch / yaw | ±200 | ±200 | μrad | typ. |
| Velocity | 250 | 250 | mm/s | max. |
| Mechanical properties | | | | |
| Load capacity | 5 | 5 | N | max. |
| Push / pull force | 2 | 2 | N | max. |
| Holding force | 2 | 2 | N | max. |
| Drive properties | | | | |
| Motor type | U-161 PILine® ultrasonic piezomotor | U-161 PILine® ultrasonic piezomotor | | |
| Reference point switch | Optical | Optical | | |
| Miscellaneous | | | | |
| Operating temperature range | -20 to 50 | -20 to 50 | °C | |
| Material | Al (black anodized) | Al (black anodized) | | |
| Dimensions | 35 mm × 35 mm × 15 mm | 35 mm × 35 mm × 15 mm | | |
| Mass, including cabling | 85 | 85 | g | ±5% |
| Cable length | 1.5 | 1.5 | m | ±10 mm |
| Connector | MDR, 14-pin | MDR, 14-pin | | |
| Recommended controller | C-867 PILine® Motion Controller | C-867 PILine® Motion Controller | | |

Ask about custom designs!

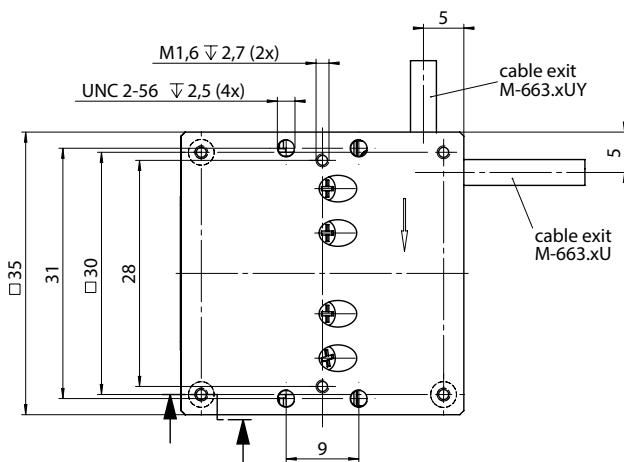
M-663.4U / M-663.5U: Cable exit orthogonal to direction of motion.

M-663.4U / M-663.5UY: Cable exit in direction of motion.

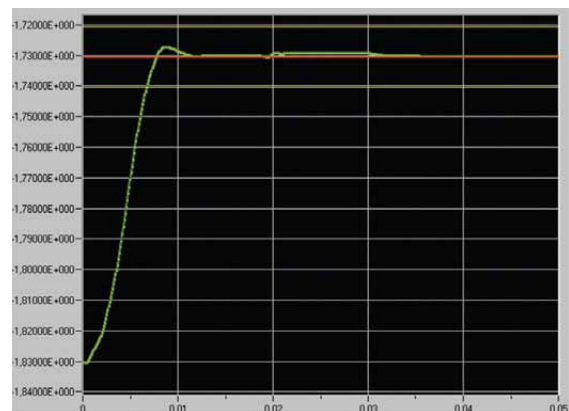
Vacuum-compatible versions to 10⁻⁶ hPa available.



XY combination of two M-663s



M-663, dimensions in mm



An M-663 with 100 g load settles to 0.1 μm accuracy in 10 ms after a 100 μm step, measured with C-867 controller/driver