PiezoMike Linear Actuator
Minimum Dimensions, High Forces, Stable Positioning

Linear actuator with piezo motors
Linear screw-type actuator with piezo inertia drive for high-resolution and stable positioning.

Piezo motors
Compact, inexpensive inertia drive principle (stick-slip). The drive is self-locking at rest, requires no current, and does not generate any heat. It holds the position with maximum force.

Alignment of mechanical and optomechanical components

N-470
- Holding force 100 N, feed force 22 N
- Step size 20 nm
- Travel range 7 mm to 26 mm
- Compact design
- Lifetime >1,000,000,000 steps
- Self-locking, no heat generation at rest
## Specifications

### Motion and positioning

<table>
<thead>
<tr>
<th>Active axis</th>
<th>N-470</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel range</td>
<td>N-470.1xx: 7, N-470.2xx: 13, N-470.4xx: 26</td>
<td>mm</td>
</tr>
<tr>
<td>Max. step size in step mode</td>
<td>50</td>
<td>nm</td>
</tr>
<tr>
<td>Typ. step size</td>
<td>20</td>
<td>nm</td>
</tr>
<tr>
<td>Max. step frequency</td>
<td>2000*</td>
<td>Hz</td>
</tr>
<tr>
<td>Typ. step frequency</td>
<td>400</td>
<td>Hz</td>
</tr>
<tr>
<td>Max. velocity in full-step mode</td>
<td>2.4*</td>
<td>mm/min</td>
</tr>
<tr>
<td>Typ. velocity in full-step mode</td>
<td>0.5</td>
<td>mm/min</td>
</tr>
</tbody>
</table>

### Mechanical properties

<table>
<thead>
<tr>
<th>Mechanical interface</th>
<th>N-470.x1x: M10×1 mounting thread, N-470.x2x: 9.5 mm clamping shank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stiffness in motion direction</td>
<td>15</td>
</tr>
<tr>
<td>Feed force (active)</td>
<td>22</td>
</tr>
<tr>
<td>Holding force (passive)</td>
<td>100</td>
</tr>
<tr>
<td>Permissible lateral force</td>
<td>1</td>
</tr>
</tbody>
</table>

### Drive properties

<table>
<thead>
<tr>
<th>Drive type</th>
<th>Piezo motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating voltage</td>
<td>80</td>
</tr>
<tr>
<td>Max. power consumption</td>
<td>5</td>
</tr>
</tbody>
</table>

### Miscellaneous

| Operating temperature range | 10 to 40 | °C |
| Material                  | Screw: Stainless steel, Housing: Aluminum (anodized), Nut: Bronze |
| Dimensions                | N-470.1xx: 14 × 28 × 48, N-470.2xx: 14 × 28 × 53.5, N-470.4xx: 14 × 28 × 68.5 | mm |
| Mass                      | 80 | g |
| Cable length              | 2 | m |
| Cable exit                | N-470.xxx: Standard, N-470.xxxY: Turned cable exit |
| Connector                 | LEMO, 3-pin |
| Recommended electronics   | E-872.401 |

*Not suitable for continuous operation (refer to the user manual).
Ask about customized versions.
PiezoMike linear actuators replace manual micrometer screws in tip/tilt mirror mechanics

N-470 with mounting thread, dimensions in mm. Note that the decimal places are separated by a comma in the drawings.
N-470 with clamping shank, dimensions in mm. Note that the decimal places are separated by a comma in the drawings.
Ordering Information

**PiezoMike linear actuators, 7 mm travel range**

**N-470.110**
PiezoMike linear actuator, 7 mm, M10×1 thread

**N-470.110Y**
PiezoMike linear actuator, 7 mm, M10×1 thread, turned cable exit

**N-470.120**
PiezoMike linear actuator, 7 mm, 9.5 mm (0.375") clamping shank

**N-470.120Y**
PiezoMike linear actuator, 7 mm, 9.5 mm (0.375") clamping shank, turned cable exit

**PiezoMike linear actuators, 13 mm travel range**

**N-470.210**
PiezoMike linear actuator, 13 mm, M10×1 thread

**N-470.210Y**
PiezoMike linear actuator, 13 mm, M10×1 thread, turned cable exit

**N-470.220**
PiezoMike linear actuator, 13 mm, 9.5 mm (0.375") clamping shank

**N-470.220Y**
PiezoMike linear actuator, 13 mm, 9.5 mm (0.375") clamping shank, turned cable exit

**PiezoMike linear actuators, 26 mm travel range**

**N-470.410**
PiezoMike linear actuator, 26 mm, M10×1 thread

**N-470.410Y**
PiezoMike linear actuator, 26 mm, M10×1 thread, turned cable exit

**N-470.420**
PiezoMike linear actuator, 26 mm, 9.5 mm (0.375") clamping shank

**N-470.420Y**
PiezoMike linear actuator, 26 mm, 9.5 mm (0.375") clamping shank, turned cable exit

**Accessories**

**N-400.A02**
Extension cable, LEMO connector 3-pin to LEMO connector 3-pin, 2 m

**N-400.A05**
Extension cable, LEMO connector 3-pin to LEMO connector 3-pin, 5 m

**N-400.A08**
Extension cable, LEMO connector 3-pin to LEMO connector 3-pin, 8 m

**N-400.A12**
Extension cable, LEMO connector 3-pin to LEMO connector 3-pin, 12 m

**N-400.ALM**
Adapter, LEMO 3-pin to Mini DIN

**N-400.AML**
Adapter, Mini DIN to LEMO 3-pin