

PiezoMike Linear Actuator

HIGH FORCES, STABLE POSITIONING, VACUUM-COMPATIBLE



N-470.V/N-470.U

- Holding force >100 N
- Step size 20 nm
- Travel range 7.4 mm to 26 mm
- Compact design
- Feed force 22 N
- Lifetime >1.000.000.000 steps
- Mounting thread or shank
- Versions for 10^{-6} hPa and 10^{-9} hPa

	N-470.11V; N-470.11U/ N-470.12V; N-470.12U	N-470.21V; N-470.21U/ N-470.22V; N-470.22U	N-470.41V; N-470.41U/ N-470.42V; N-470.42U	Unit
Active axes	X M10 × 1 mm mounting thread (N-470.11V/.11U) 9.5 mm shank (N-470.12V/.12U)	X M10 × 1 mm mounting thread (N-470.21V/.21U) 9.5 mm shank (N-470.22V/.22U)	X M10 × 1 mm mounting thread (N-470.41V/.41U) 9.5 mm shank (N-470.42V/.42U)	
Vacuum Range	10^{-6} hPa (N-470.11V/.12V) 10^{-9} hPa (N-470.11U/.12U)	10^{-6} hPa (N-470.21V/.22V) 10^{-9} hPa (N-470.21U/.22U)	10^{-6} hPa (N-470.41V/.42V) 10^{-9} hPa (N-470.41U / .42U)	
Motion and positioning				
Travel range	7.5	13	26	mm
Max. step size	30	30	30	nm
Typical step size	20	20	20	nm
Max. step frequency	2000	2000	2000	Hz
Max. velocity in full-step mode	3	3	3	mm/minute
Typical velocity in full-step mode	2	2	2	mm/minute
Mechanical properties				
Stiffness in motion direction	15.5	15.5	15.5	N/ μ m
Feed force (active)	22	22	22	N
Holding force (passive)	>100	>100	>100	N
Permissible lateral force	1	1	1	N
Drive properties				
Drive type	PIShift piezomotor	PIShift piezomotor	PIShift piezomotor	
Max. operating voltage	80	80	80	V
Max. power consumption	6.4	6.4	6.4	W
Miscellaneous				
Operating temperature range	10 to 40	10 to 40	10 to 40	°C
Material	Screw: Stainless steel, Case: Aluminum	Screw: Stainless steel, Case: Aluminum	Screw: Stainless steel, Case: Aluminum	
Dimensions	14 mm × 28 mm × 48 mm	14 mm × 28 mm × 54 mm	14 mm × 28 mm × 68.5 mm	
Mass	80	85	95	g
Cable length	2	2	2	m
Connector	Open leads, DIN 4-pin included	Open leads, DIN 4-pin included	Open leads, DIN 4-pin included	
Recommended driver	E-870 PIShift drive electronics	E-870 PIShift drive electronics	E-870 PIShift drive electronics	

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MINIMUM DIMENSIONS, HIGH FORCES, STABLE POSITIONING



N-470

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- Mounting thread or shank

Linear Actuator with PIShift Piezomotor

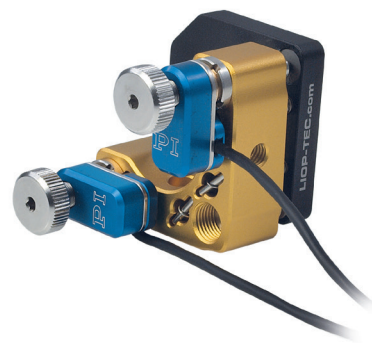
Linear screw-type actuator with PIShift piezo inertia drive for high-resolution and stable positioning. Open-loop operation

PIShift Piezomotors

Compact, cost-effective inertia drive (Stick-Slip). When at rest, the drive is self-locking and therefore requires no current and generates no heat. It holds the position with maximum force

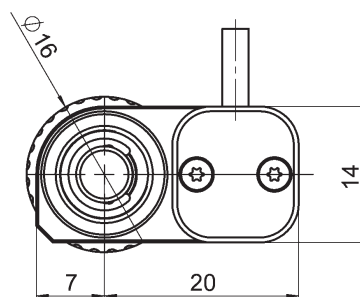
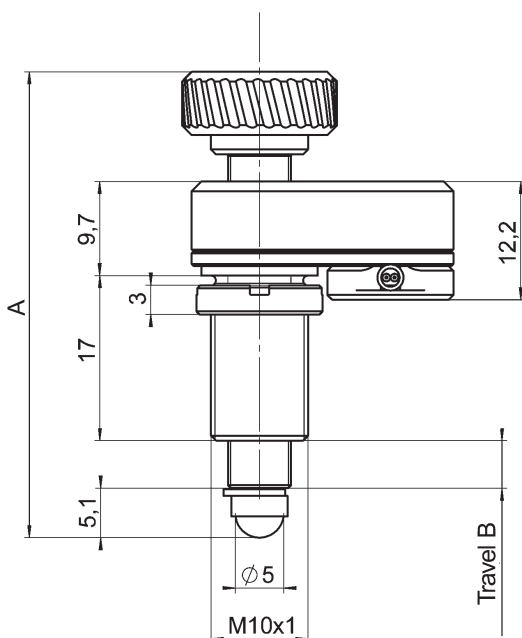
Alignment of Mechanical and Optical Components

Stable alignment of optical paths. Long-term positioning stability: High stability in target position, reliable start-up even after longer downtimes. High holding force and resolution by combining piezo actuators with mechanical thread translation. Vacuum-compatible to 10^{-9} hPa



PiezoMike linear actuators replace manual micrometer screws in tip/tilt mirror mechanics

	N-470.110/ N-470.120	N-470.210/ N-470.220	N-470.410/ N-470.420	Unit
Active axes	X M10 × 1 mm mounting thread (N-470.110) 9.5 mm shank (N-470.120)	X M10 × 1 mm mounting thread (N-470.210) 9.5 mm shank (N-470.220)	X M10 × 1 mm mounting thread (N-470.410) 9.5 mm shank (N-470.420)	
Motion and positioning				
Travel range	7.5	13	26	mm
Max. step size	30	30	30	nm
Typical step size	20	20	20	nm
Max. step frequency	2000	2000	2000	Hz
Max. velocity in full-step mode	3	3	3	mm/minute
Typical velocity in full-step mode	2	2	2	mm/minute
Mechanical properties				
Stiffness in motion direction	15.5	15.5	15.5	N/μm
Feed force (active)	22	22	22	N
Holding force (passive)	>100	>100	>100	N
Permissible lateral force	1	1	1	N
Drive properties				
Drive type	PIShift piezomotor	PIShift piezomotor	PIShift piezomotor	
Max. operating voltage	80	80	80	V
Max. power consumption	6.4	6.4	6.4	W
Miscellaneous				
Operating temperature range	10 to 40	10 to 40	10 to 40	°C
Material	Screw: Stainless steel, Case: Aluminum	Screw: Stainless steel, Case: Aluminum	Screw: Stainless steel, Case: Aluminum	
Dimensions	14 mm × 28 mm × 48 mm	14 mm × 28 mm × 54 mm	14 mm × 28 mm × 68.5 mm	
Mass	80	85	95	g
Cable length	2	2	2	m
Connector	DIN 4-pin	DIN 4-pin	DIN 4-pin	
Recommended driver	E-870 PIShift drive electronics	E-870 PIShift drive electronics	E-870 PIShift drive electronics	



	N-470.110/ N-470.120	N-470.210/ N-470.220	N-470.410/ N-470.420
A	48 mm	54 mm	68.5 mm
B	7.5 mm	13 mm	26 mm

N-470, dimensions in mm