

CRYO LINEAR ACTUATOR (CLA)



Features

- Nanometer step size
- Driving forces up to 50N
- 20 mK to 375K, vacuum compatible
- Full ceramic screw and nut, uncoated
- Extreme stability due to self locking nature
- No power dissipation when "off"
- Robust design for easy handling
- High drive stiffness
- Cryo Optical Encoder option "COE"

Description / Applications

The Cryo Linear Actuator is developed for nanometer level positioning in a cryo-vacuum environment and can be seen as an actuated set screw. Piezo ceramics in the disc-shaped head generate torque pulses which cause the connected screw to rotate in the stationary nut yielding linear motion. Both screw and nut are ceramic and run without coatings which could be worn off due to extensive use. Being self-locking by nature stability in the sub-nanometer range is obtained. The result is an actuator suited for set and forget applications with nanometric step size and high driving forces.

Specifications

Min. step size @ 4K nm 1 3 Max. velocity @ ambient μm/s 25 75 Max. velocity @ 4K μm/s 15 45 Axial stiffness N/m 8e7 Min. required preload N 3 3 Max. driving force @4K N 20 30 50 Operating frequency Hz 1-600 0 Operating voltage V -20 +130 0 Operating temperature K 0.02-375 0 Main construction material - Stainless steel 316L, ceramic, aluminium (COE) Mass grams 29 34 43 48 39 Screw pitch mm/turn 0,25 0,25 Dissipation @ ambient mJ/step 0,055 0,3 Encoder resolution * PPR N/A 710 N/A 850 N/A	uni	nit CLA2201	CLA2201-COE	CLA2601	CLA ₂ 601-COE	CLA2603	CLA ₂ 60 ₃ -COE	
Type of motion -	OR SPECIFICATIONS	•			•		•	
Range mm 12 6 12 6 12 Min. step size @ ambient nm 5 15 Min. step size @ 4K nm 1 3 Max. velocity @ ambient μm/s 25 75 Max. velocity @ 4K μm/s 15 45 Axial stiffness N/m 8e7 Min. required preload N 3 30 Max. driving force @4K N 20 30 50 Operating frequency Hz 1-600 1-600 1-600 Operating frequency Hz 1-600 1-70 1-10 1-	es -		1					
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Min. required preload N 3 Max. driving force @4K N 20 30 50 Operating frequency Hz 1-600 </td <td>city @ 4K µm</td> <td>n/s</td> <td colspan="4">15</td> <td colspan="2">45</td>	city @ 4K µm	n/s	15				45	
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DRIVE ELECTRONICS	n @ 4KmJ/	J/step	0,055				0,14	
	esolution * PPF	'R N/A	710	N/A	850	N/A	850	
Controller/driver - CAB-230(115), CADM2	ECTRONICS						•	
5.7 3//	/driver -		CAB-230(115), CADM2					
Encoder readout - N/A OEM2 N/A OEM2 N/A	eadout -	N/A	OEM ₂	N/A	OEM ₂	N/A	OEM2	