

NAC2400

Multi-axis piezoelectric shear actuator stacks

Purpose

Noliac provides a wide range of multi-axis piezoelectric shear actuator stacks, which can be used in a line of standard powerful solutions dedicated to applications such as nanopositioning, precision mechanics, active vibration cancellation, switches, semiconductor manufacturing and testing.

We also provide many other possibilities for shear actuator stacks with custom solutions to meet every specification of our customers' desires.

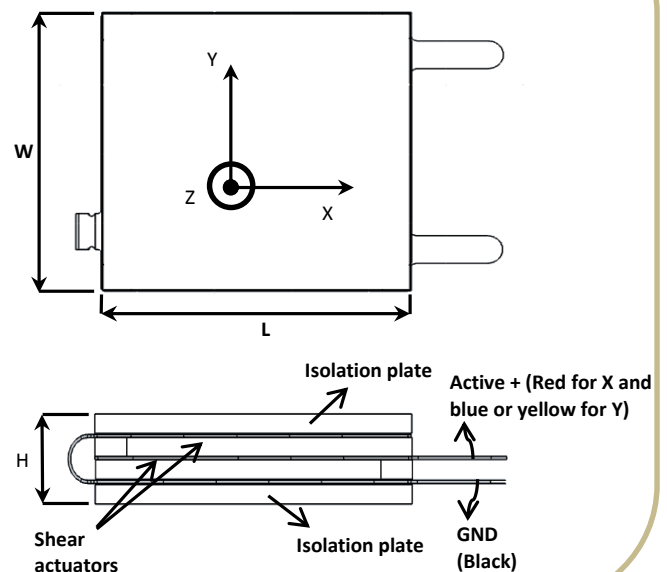
We guarantee every product by providing complete performance certificates for all actuators.

Multi-axis piezoelectric shear actuator stacks

Standard features

- X and X/Y motions
- Smart design
- -320 V to +320 V maximum operating voltage for all motions
- Ideal for all stick and slip and nanopositioning applications
- Top and bottom isolations included
- Non-magnetic ultra-thin electrodes

The informative here opposite drawing is for a 2 shear plate configuration of X-motion. See the table below for other standard offers.



1 Customized products

We can translate your applications' specific set of features into the best and optimal multi-axis actuator solution, which offers the performances you demand - based on optimized components and at the lowest possible cost.

2 Options available on demand

- Cryogenic capable
- UHV capable
- Custom shaped isolation endplates
- Internal Diameter (central hole)
- Custom colours and types of wires
- Custom electrodes (materials, thicknesses)
- Custom piezoelectric material

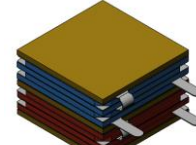
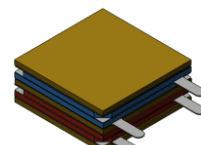
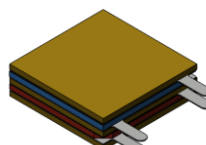
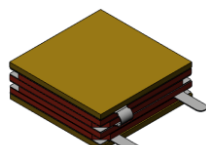
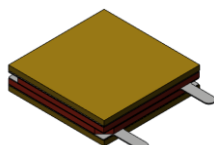
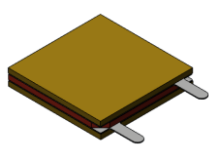
3 Specifications

Model number	Shear motion axes	Length (L)	Width (W)	Height (H)	Free stroke from -Vmax to +Vmax	Capacitance*	Unloaded resonance frequency	Material
Units	-	mm ± 0.20 mm	mm ± 0.20 mm	mm ± 0.05 mm	[µm] ± 20%	[nF] ± 20%	[kHz] ± 20%	-
NAC2402-H1.7	X	5	5	1.7	1.5	0.8	940**	NCE51
NAC2402-H2.3	X	5	5	2.3	3	1.7	700	NCE51
NAC2402-H3.4	X	5	5	3.4	6	3.3	1st Minor: 296** 2nd Major: 480**	NCE51
NAC2403-H1.7	X	10	10	1.7	1.5	3.3	470	NCE51
NAC2403-H2.3	X	10	10	2.3	3	6.6	350	NCE51
NAC2403-H3.4	X	10	10	3.4	6	13.3	1st Minor: 148 2nd Major: 240	NCE51
NAC2902-H2.8	X / Y	5	5	2.8	1.5 / 1.5	0.8 / 0.8	255 / 255	NCE51
NAC2902-H4	X / Y	5	5	4	3 / 3	1.7 / 1.7	1st Minor: 296 / 296** 2nd Major: 480 / 480**	NCE51
NAC2902-H6.4	X / Y	5	5	6.4	6 / 6	3.3 / 3.3	100 / 100**	NCE51
NAC2903-H2.8	X / Y	10	10	2.8	1.5 / 1.5	3.3 / 3.3	350 / 350**	NCE51
NAC2903-H4	X / Y	10	10	4	3 / 3	6.6 / 6.6	1st Minor: 148 / 148 2nd Major: 240 / 240	NCE51
NAC2903-H6.4	X / Y	10	10	6.4	6 / 6	13.3 / 13.3	50 / 50**	NCE51

** Preliminary data

Constructions

Shear motion X			Shear motion X / Y		
NAC240X-H1.7	NAC240X-H2.3	NAC240X-H3.4	NAC290X-H2.8	NAC290X-H4	NAC290X-H6.4



Colour code:

Isolation plate: yellow
 Shear plate actuators X-motion: red
 Shear plate actuators Y-motion: blue
 Electrodes: Grey

*Capacitance at 1Vpp, 1kHz

Piezoceramics type CSAPO2 (5x5) and CSAPO3 (10x10) from Noliac

Standard wires : 28 AWG PTFE INSULATED WIRES (red for X-motion and blue or yellow for Y-motion)

Operating Voltage from -Vmax = -320 V to +Vmax = +320 V for X and Y motions

Free strokes have been measured at room temperature

Standard version operating temperatures goes from -25 °C to 150 °C

Cryogenic operating temperatures go from -269 °C to 150 °C

Standard Stacks are enclosed with 2 isolation Endplates made from non-polarized piezoelectric material

Standard electrodes are Stainless Steel 1.4304

UHV capability option of the stack is ensured by the use of UHV compatible epoxy resin and electrode materials