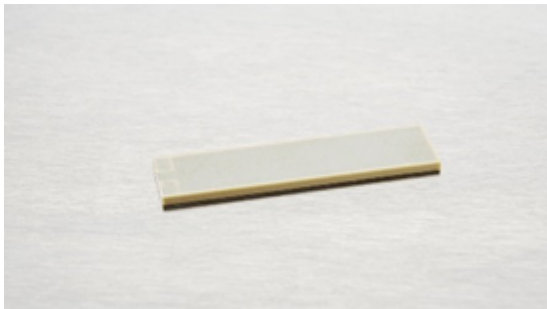


## CMBP03

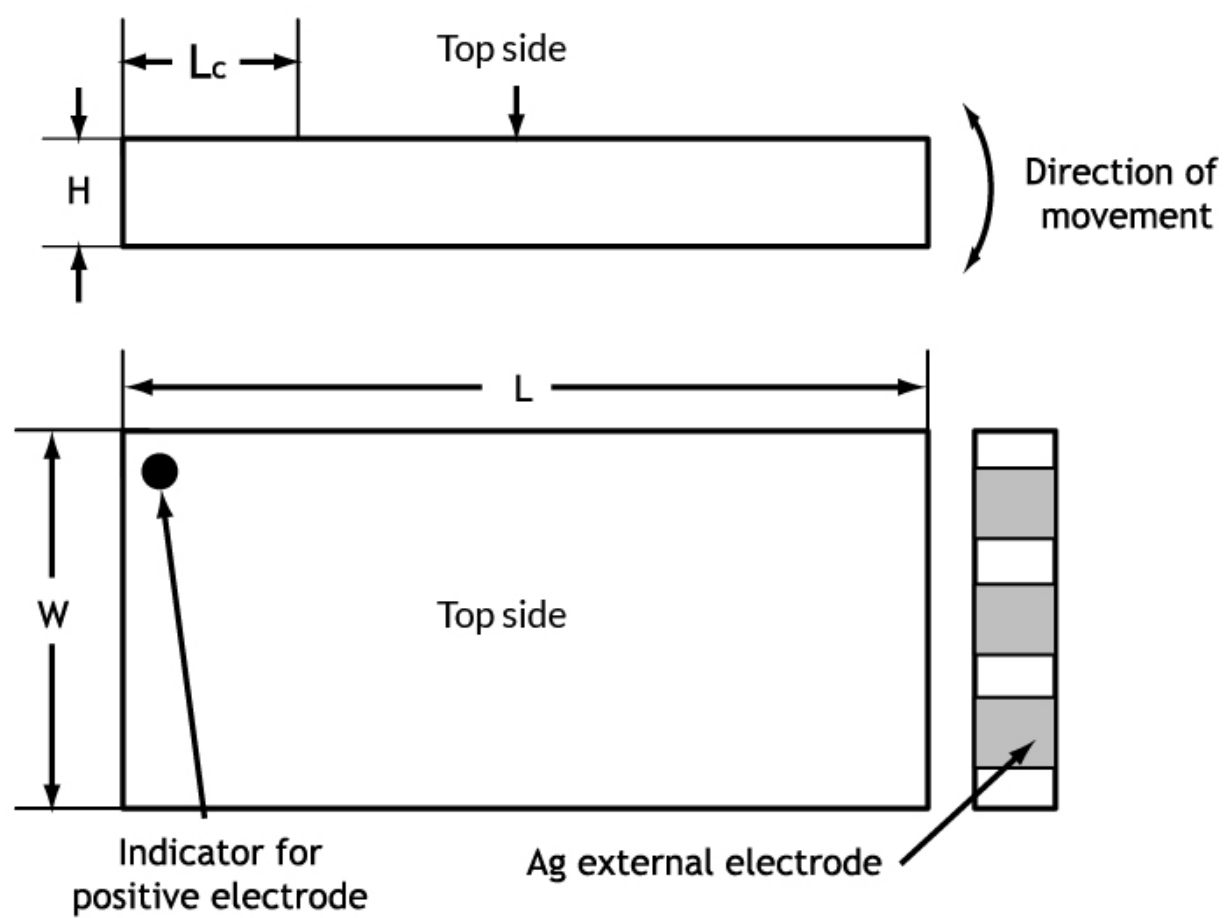


Noliac plate benders are manufactured with ceramic layer thickness down to 67µm as standard to facilitate very low operating voltage for full performance of the piezo material. CMBP03 measures 21x7.8x1.8 mm. The plate bender provides stroke of +/- 85 µm and a blocking force of 5.5 N.

### SPECIFICATIONS

Attributes	Value	Tolerance
Length / outer diameter	21 mm	+/-0.45 mm
Width / inner diameter	7.8 mm	+/-0.15 mm
Height	1.8 mm	+/-0.10 mm
Operating voltage, max.	200 V	
Free stroke, max.	± 85 µm	+/- 15%
Blocking force, max.	5.5 N	+/-20%
Capacitance	2 x 330 nF	+/- 15%
Stiffness	0.06 N/µm	+/-20%
Maximum operating temperature	150 °C	
Material	NCE57	
Unloaded resonance frequency	>1880 Hz	
Electrodes	0,00	

## DRAWINGS



### Mounting

Bending plate actuators may be mounted either by mechanical clamping or gluing. Bending plate actuators are not machined on top and bottom surfaces and as such may have small variations in the surface. For this reason a mechanical clamping should be done with moderate force, approximately 5 times the specified blocking force.

If mounted with glue it should be emphasized that the gluing contact surface is restricted to cover only the inactive part of the bender in order not to reduce the stroke of the bender.

Epoxy glues are well suited for gluing piezoceramics and several alternatives exist.

### Control instructions

Bending actuator plates can be controlled by:

Differential voltage control

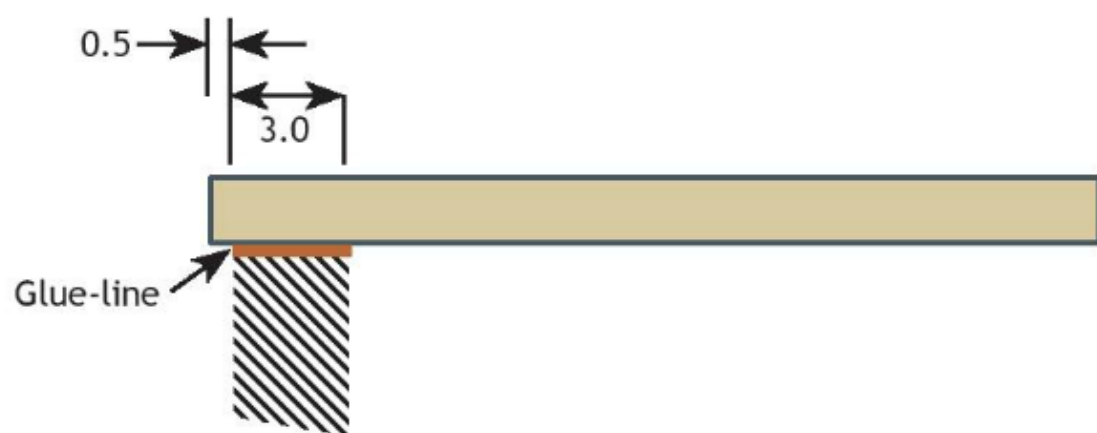
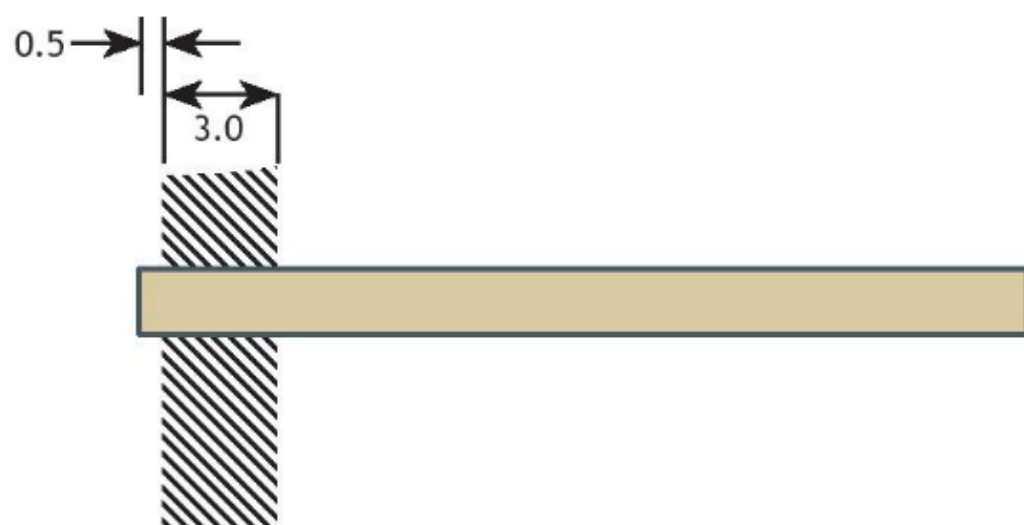
In this mode the bending can be controlled both upwards and downwards. Apply +100 V to the positive electrode (indicated by the black dot), -100 V to the negative electrode and a voltage  $V_{in}$  to the middle electrode such as  $-100\text{ V} < V_{in} < 100\text{ V}$ .

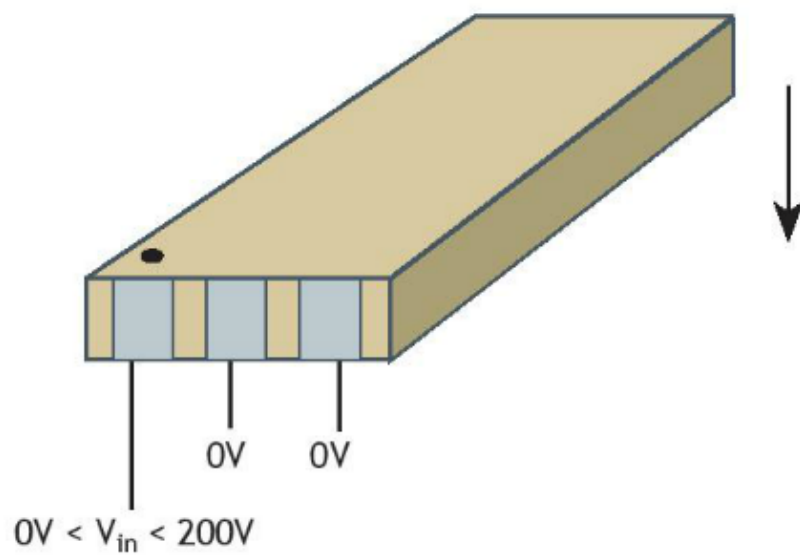
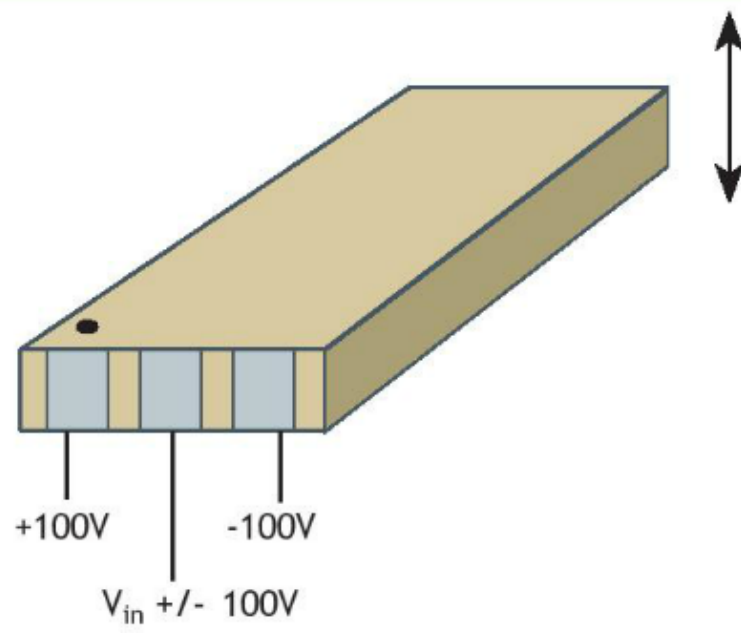
If  $0\text{ V} < V_{in} < 100\text{ V}$ , the plate will bend up with the black spot facing up.

If  $-100\text{ V} < V_{in} < 0\text{ V}$ , the plate will bend down with the black spot facing up.

Single side voltage control

In this mode, the bending can be controlled for one side only, i.e. bending down with the black dot facing up. Apply 0 V to the negative and middle electrode, and up to 200 V to the positive electrode.





## WIRES

Noliac attaches these wires as standard to our plate and ring benders:

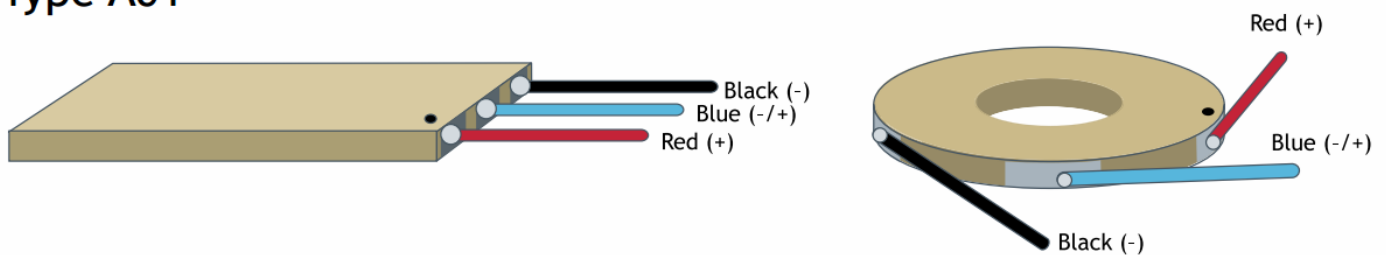
- 28 AWG Teflon wires to products with a thickness equal to or thicker than 1.2 mm.
- 30 AWG Teflon Wire Wrap to products thinner than 1.2 mm and thicker than 0.5 mm.

On products thinner than 0.5 mm we recommend the customer to glue the wire onto the terminals using conductive glue e.g. EPO-TEK®H27D.

We solder red wires to the positive electrode, black to the negative and blue to the control terminal on benders.

	Option A01	Option A02	Option C
Type	28/30 AWG Teflon	28 AWG Teflon	Custom
Length	200 +/- 10mm	200 +/- 10mm	To be defined
Position	Middle of the component	Middle of the component	To be defined
Direction	Perpendicular to the height	Toward bottom	To be defined

### Type A01



### Type A02

