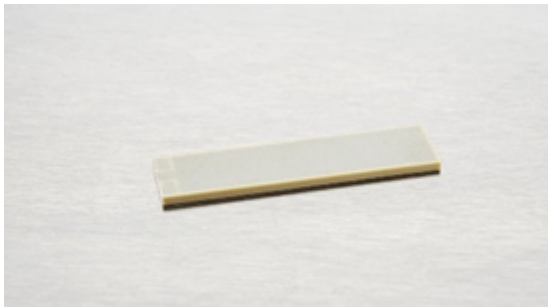


CMBP09



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. CMBP09 measures 50x7.8x1.8 mm. The plate bender provides a stroke of +/- 635 µm and a blocking force of 2.9 N.

SPECIFICATIONS

Attributes	Value	Tolerance
Length / outer diameter	50 mm	+/-1.00 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.	± 635 µm	+/- 15%
Blocking force, max.	2.9 N	+/-20%
Capacitance	2 x 750 nF	+/- 15%
Maximum operating temperature	150 °C	
Material	NCE57	
Unloaded resonance frequency	>265 Hz	
Electrodes	Screen-printed Ag	
Remarks	-	

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

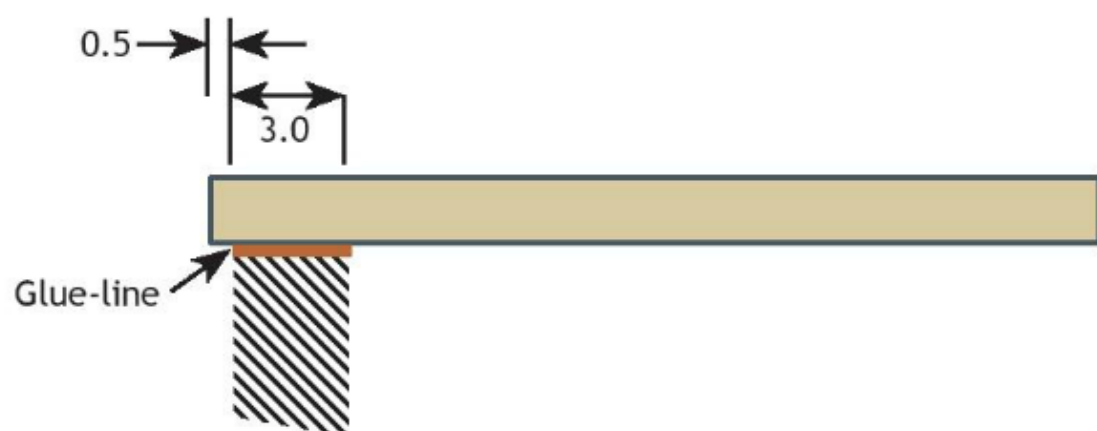
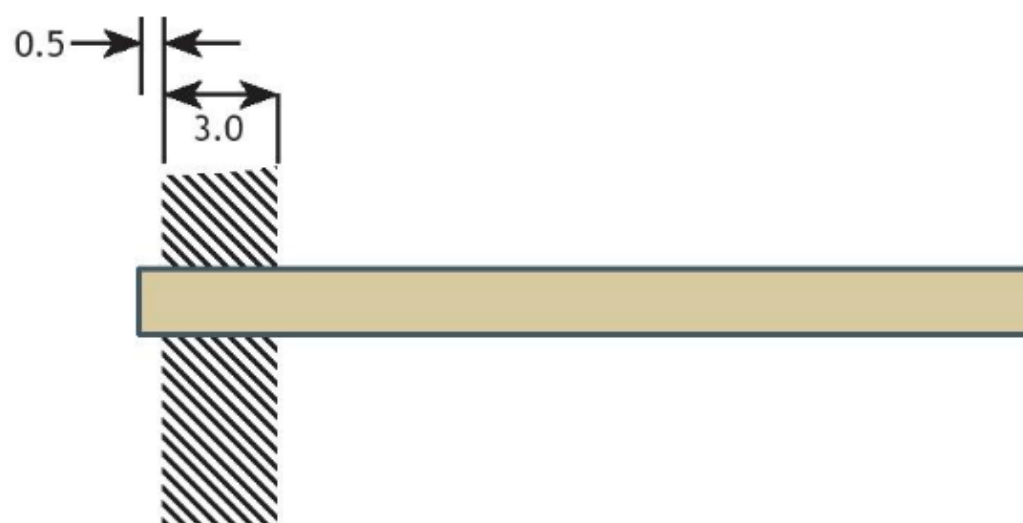
In this mode the bending can be controlled both upwards and downwards. Apply +100 V to the positive electrode (indicated by the black dot), -100 V to the negative electrode and a voltage V_{in} to the middle electrode such as $-100\text{ V} < V_{in} < 100\text{ V}$.

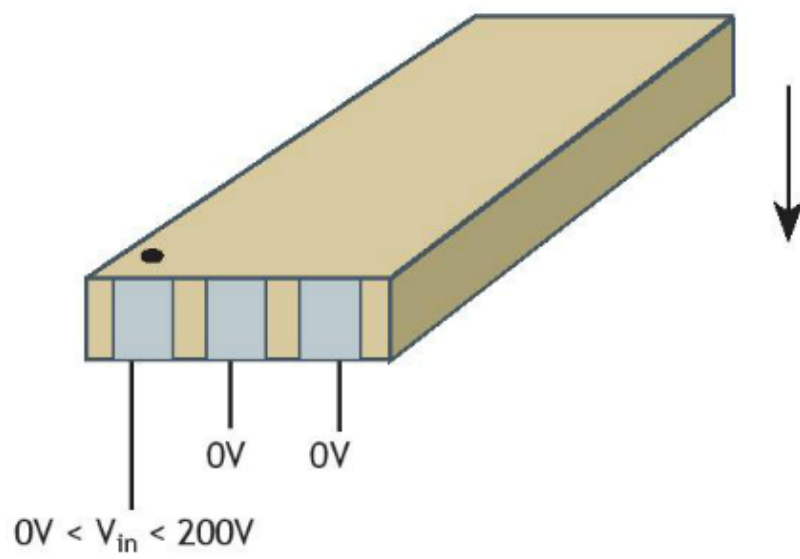
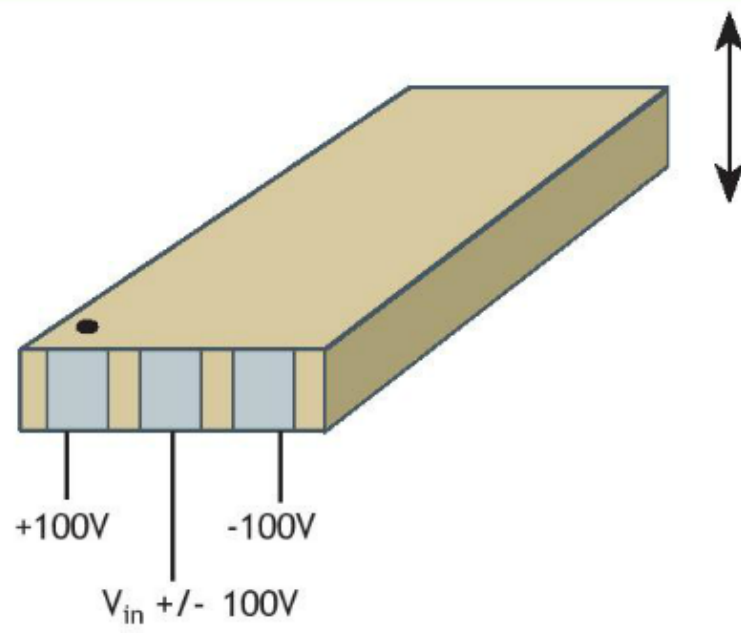
If $0\text{ V} < V_{in} < 100\text{ V}$, the plate will bend up with the black spot facing up.

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:

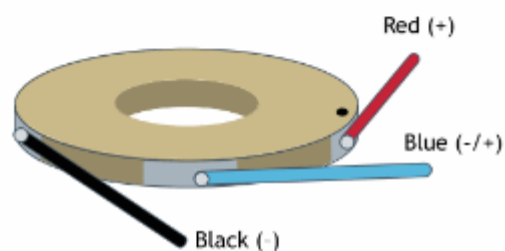
- 28 AWG MIL-W-16878/4, 7 strands wires to products with a thickness equal to or thicker than 1.2 mm.
- 32 AWG MIL-W-16878/6, 7 strands wire wrap to products thinner than 1.2 mm and thicker than 0.5 mm.

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 or 32AWG, see text		Custom
Length	200 +/-10mm		To be defined
Position	Middle of the actuator		To be defined
Direction	Perpendicular to the height	Toward bottom	To be defined

Option A01



Option A02

