

## Ring-shape Piezoceramic Stack Actuator



### Features

- High service life
- Microsecond response
- Sub-nanometer resolution
- Drive voltage -20 to +150V
- High Curie temperature of 230°C

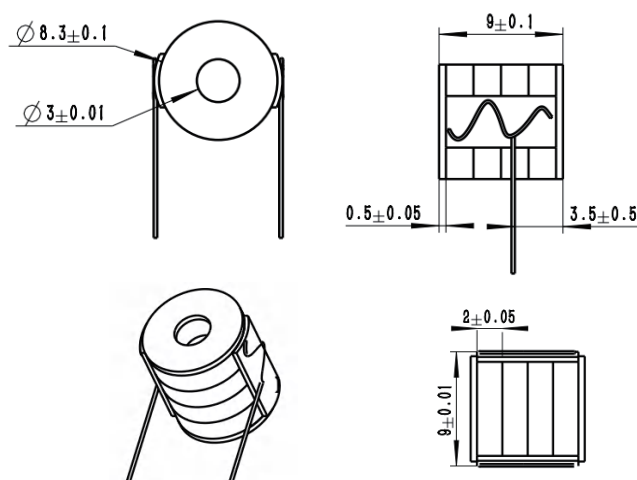
### Description

The annular single-piece and stack actuators are fabricated by co-firing piezoceramic layers and internal electrodes. They are characterized by low drive voltage, large displacement, high driving force, fast response time, and high displacement accuracy. Compared to conventional square single-piece or stack actuators, the annular stack has superior heat dissipation capabilities, and the central through-hole can accommodate various support structures.

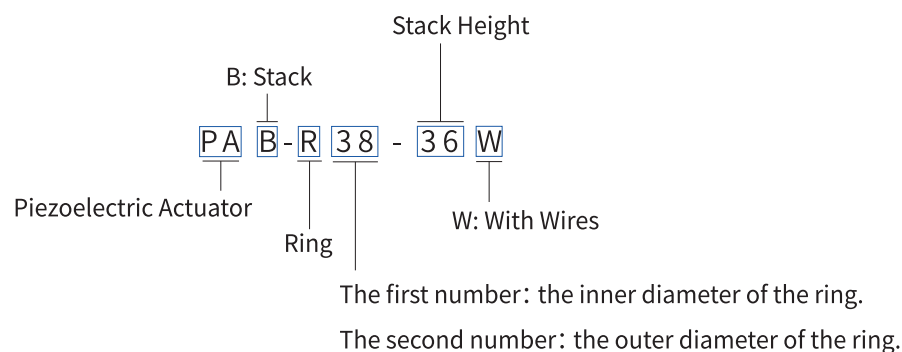
### Applications

- Scientific research
- Precision optical adjustment equipment
- Industrial automation
- Semiconductor equipment
- Precision motion control
- Precision inspection equipment

### Interface Definition



## Model Interpretation



## Technical Specifications

	PAB-R38-9W	PAB-R38-18W	PAB-R38-20W	PAB-R38-36W	PAB-R38-60W	Unit	Tolerance
Active axes	Z	Z	Z	Z	Z		
Max. displacement	10.8	21.0	25.0	44.0	75.0	μm	±15%
Displacement hysteresis	<15%	<15%	<15%	<15%	<15%		
Blocking force	1600	1600	1600	1600	1600	N	150V
Operating voltage	0~150	0~150	0~150	0~150	0~150	V	
Resonant frequency	130	100	70	38	22	kHz	Max. value
Resonant impedance	66	70	72	76	86	mΩ	
Anti-resonant frequency	160	120	82	44	26	kHz	Max. value
Dielectric loss	2.08	1.99	1.98	1.9	1.92		
Electrical capacitance	2.1	5	7	10	17	nF	±15%
Operating temperature range	-25~130	-25~130	-25~130	-25~130	-25~130	°C	
Curie temperature	230°C	230°C	230°C	230°C	230°C	°C	
Electrode	Silver	Silver	Silver	Silver	Silver		
Cable length	75	75	75	75	75	mm	±5 mm
<b>Dimensions</b>							
Φ	8.3	8.3	8.3	8.3	8.3	mm	±0.1 mm
Φ	3.0	3.0	3.0	3.0	3.0	mm	±0.1 mm
L	9	18	20	36	60	mm	±0.05 mm
MTTF	16	14	14	9	8	year	

## Customization Information

- **Drive Voltage:** YG can flexibly customize the maximum drive voltage of the device. The common available options for the maximum drive voltage we provide are 50V, 75V, 100V, 120V, and 150V. Other special maximum drive voltages can also be customized flexibly according to customer requirements.
- **Output Displacement:** The output displacement is primarily determined by the length of the device. YG offers a maximum displacement range of up to 200 $\mu$ m.
- **Operating Frequency:** The long-term operating frequency of the stack depends on factors such as the resonant frequency of the device and the drive voltage. YG can flexibly design according to customer requirements. The maximum drive frequency for the stack can reach up to 30kHz.
- **Dimensions:** The inner diameter, outer diameter, and height of the annular stack can be customized flexibly according to customer needs. For the outer diameter, the minimum available size is 3mm, and the maximum is 20mm. For the inner diameter, the minimum available size is 1 mm, and the maximum is 10mm. In terms of height, customization up to 90mm is supported.
- **Wiring Harness:** A wiring harness can be optionally equipped while meeting the AWG usage standards. The standard length of the harness is 7.5cm of tinned wire, and both the length and orientation of the harness can be customized flexibly according to customer requirements. To facilitate the connection of positive and negative electrode wires, the soldering point position can be selected within the allowable error range of performance variation.
- A closed-loop version is available.