

Description

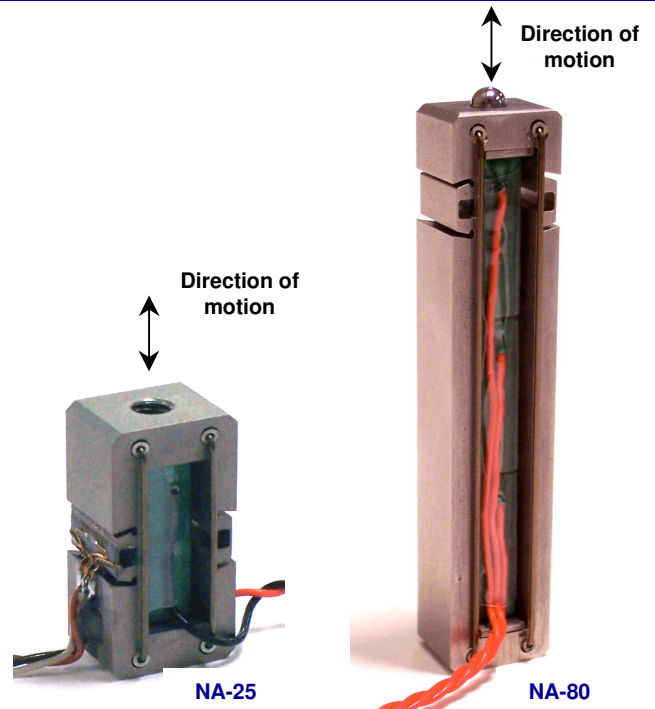
DSM's NA series actuators are direct-drive piezoelectric actuators integrated into a protective metallic frame. The frame is typically a monolithic piece of stainless steel or titanium alloy with a flexure-based expansion component. The flexure minimizes the resistance that the frame might impart to the piezoelectric actuation. In addition, the frame can include threaded receiver holes at the top and bottom or can be modified to provide a flat or hemispherical contact surface.

The frame also includes a mechanical preload that maintains compression on the piezoelectric ceramic under high tensile forces and ensures successful bi-directional operation under dynamic operating conditions. The design thus provides increased resilience to mechanical loads when compared to non-preloaded actuators.

The NA Series designs are well-suited to many applications where high force and high frequency response are required.

Models

The actuators are generally manufactured with low voltage (150V) piezo material, but other piezo materials and voltages are available by request. NA actuator models are available that can accommodate a 500-1500 N tensile force on the output of the actuator. Higher forces and strokes can also be accommodated by increasing the geometry of the piezoelectric material.

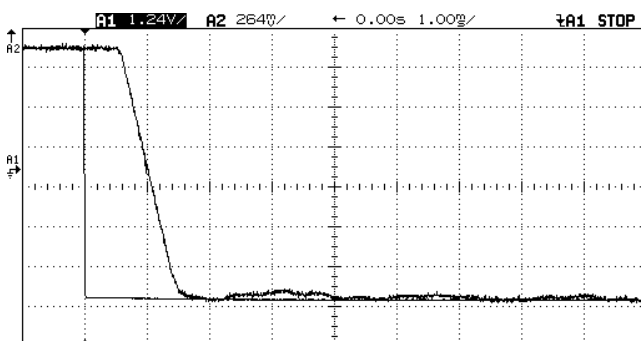


Specifications

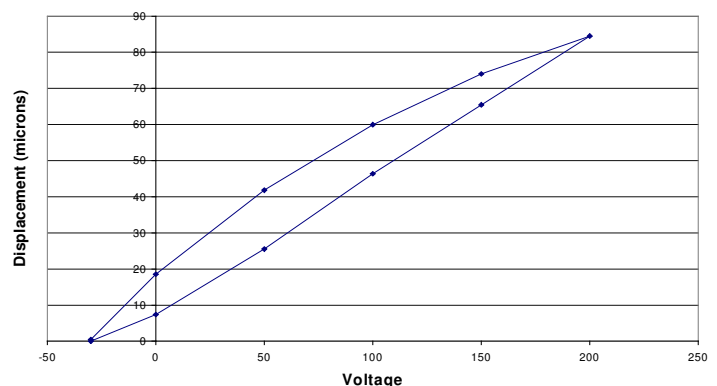
Property	NA-25	NA-80
• Stroke (μm) $\pm 10\%$:	25	80
• Stiffness (N/ μm) $\pm 10\%$	60	18
• Unloaded Fixed Free Resonant Frequency (kHz):	>8	>4.5
• Blocked Force Estimate (N):	1800	1400
• Tension Preload Options:	500 to 1500 N	
• NA-25 Dimensions:	0.43" x 0.50" x 1.06"	
• NA-80 Dimensions:	0.5" x 0.5" x 2.5"	

Custom Actuators

The NA architecture can be readily adapted and scaled to other force and stroke ranges.



NA-80 Step Response Behavior (zoomed in - 1 ms/div)



NA-80 Voltage/Displacement