Summary and Warnings



AML stepper motors are specifically designed for use in vacuum environments making them ideally suited for low-speed precision in-vacuum manipulation. The model HV motors are two phase hybrid stepper motors, available in a range of standard sizes and torque ratings. Standard motors provide 200 full steps per revolution, are suitable for use below 1x10^-7 mBar and temperatures between -20 °C to +200 °C.

Do not drop, demagnetise, disassemble, modify or overheat the motor or allow particles to enter the bearings or pumping ports.

The published performance was obtained using an SMD4 drive operating with standard settings for step division. The SMD4 is a bipolar, switch-mode, current-regulating drive, optimised for use with vacuum stepper motors. Different drives will produce different speed/torque curves. Drives capable of producing a total phase current of more than 1A RSS (root sum of squares) may damage the insulation, even if the current is claimed to be adjustable.

Design mechanisms with balanced rotating loads and/or friction to maintain position with reduced or zero phase current for minimum outgassing. Use step division only to smooth transitions: increase resolution by reduction gearing.

Ensure ice cannot form in the motor if testing at low temperature in air. Avoid thermal shocks, for example, plunging in liquid nitrogen.