



Bake-Out Procedures For Nanomotion Vacuum and Ultra High Vacuum Motors





Bake-Out Procedures

Bake-out procedures are performed in a vacuum oven, with the motor power off. Bake-out may be performed on motors detached from their systems or on complete systems without detaching the motor. It should be noted, prior to baking an assembly, proper consideration is given to the potential impact of thermal expansion, based on the materials in the system.

***Important:
Before baking motors, short-circuit the wire leads.
Instructions for short-circuiting are found below.***

Bake-Out Temperature

Use the bake-out procedure to remove most contaminants from vacuum motors and other system components. Nanomotion motors are intended to be baked at 120° C. For applications that require baking at higher temperatures, between 120°C and 150°C there is a potential degradation of motor performance, reducing the maximum velocity by 10%. For applications requiring baking over 150°C, please contact the factory.

To Perform Bake-Out:

1. If the motor is detached from the system, short circuit the connecting wires (see Short-Circuiting for details).
2. Place the vacuum motor (or system) in the vacuum oven.
3. Gradually raise the temperature (at a typical rate of 4°C/min) to the required temperature.
4. Bake times may vary based on specific needs but typical baking is done for 24 hours.
5. Gradually cool down the vacuum oven at a typical rate of 4°C/min.

After the vacuum oven has reached room temperature, the vacuum motor is ready for use. Note, upon operating a motion system in vacuum, expect that the Coefficient of Friction of Nanomotion's motor as well as of the bearing structure will increase. This may require evaluation of Envelop of Performance curves.

Short-Circuiting

The wire leads of the vacuum motor must be short-circuited before the bake-out process. The following table describes the wire colors and the corresponding D-type pin numbers for short-circuiting:

Wire	Pin
White	3
Black	4
Red or Orange	5