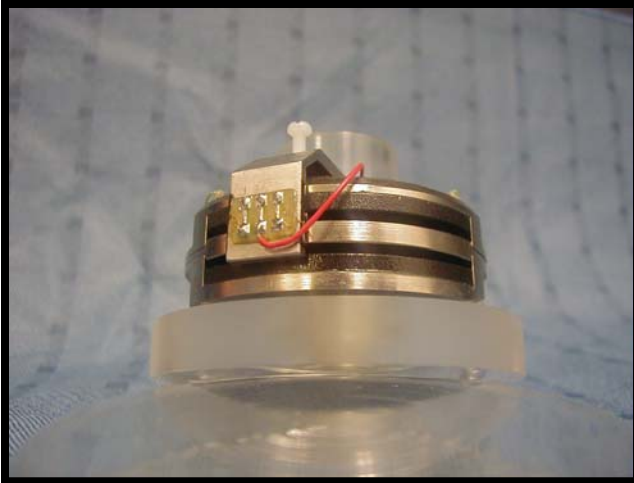


## Voice Coils Actuators



### Introduction

This catalogue is intended as a guide to help select or specify a voice coil motor. The motors depicted in this catalogue are motors which have been designed for specific applications and are not intended as a family of motors. Should the user's requirements fall between the wide variety of styles and performance characteristics shown, Aeroflex will tailor a motor for your specific application. This customization can include size variations and winding characteristics to accommodate power supply availability, performance parameters and physical mounting requirements.

### Voice Coil Description

The voice coil is an electromagnetic actuator in its simplest form. Voice coil actuators come in two forms; rotary and linear. A linear voice coil will move in a back and forth motion and the rotary voice coil moves in an arc.

Voice coil actuators are ideal when a inertial mass needs to be accelerated quickly or positioned accurately. The control circuit to drive a voice coil is not complicated as a voice coil does not require commutation.

A voice coil is a two-element device. There will be a coil assembly and a permanent magnet assembly. The coil assembly is inserted into the permanent magnet field. When current passes through the coil a magnetic flux field a force is produced at a right angle to the direction of the current. This produces the back and forth motion of a voice coil.

## Application Considerations

Some important characteristics/features of voice coils are as follows:

1. Due to the simple construction and electrical interface, voice coil actuators are generally a low cost alternative to other types of brushless motors.
2. Limited motion or stroke.
3. Can be positioned with a high degree of accuracy.
4. Capable of high accelerations
5. Low friction and hysteresis.
6. Voice coils offer cogless operation.



## Custom Voice Coil Applications

When you contact Aeroflex about your voice coil application please be prepared to discuss the following requirements:

- Maximum Force
- Stroke
- Acceleration
- Duty Cycle

Other parameters of interest to the motor designer are:

- Available envelope
- Controller constraints (current, interfaces etc.)
- Description of the mass to be moved
- Temperature range
- Other special environmental requirements (vibration, vacuum, etc.)

