

MIDWEST MOTION PRODUCTS, INC.

The Leaders in Rapid Prototyping of High-Quality Motion Control Solutions

QUICK TIPS FOR SUCCESSFUL DC MOTOR & GEARMOTOR OPERATION

- Understanding your load characteristics: It is critical to ensure your motor or gearmotor is operating within the recommended torque parameters. To verify this, measure the current draw during a typical and if possible, a worst-case cycle. If you prefer, you can let us know your measured values and we'll calculate your exact torque. If unsure how to measure the Current, please see this [link](#).
- Circuit Protection/Fusing: Protect the unit from accidental overloads. Proper fusing, circuit breakers or electronic current limiting is a must. Every application has the potential of inadvertent overload conditions. Therefore, ALL applications should be protected. If you have any questions regarding the proper level of fusing, please contact us.
- Protection from mechanical damage: Is the coupling for the output shaft properly aligned? Is the unit properly sized for the radial and/or axial loads which will be applied? Have you considered vibration and shock loads in your mounting scheme?
- Operating environment: Is the operating environment such that the unit could be damaged over time? If so, protect the unit from temperature extremes, or extreme dirt, dust and moisture conditions. Because applications vary, so will appropriate solutions.
- Back-driving/Braking: Are inadvertent reversals possible in the application? If so, a failsafe brake should be considered. If using a brake, please see this [link](#) on our website for guidelines on successful brake operation. When back-driving is permissible or expected, be aware of the voltage (BEMF) that will be generated, resulting in potential damage to your drive electronics.
- Wiring/Components: If you are experiencing unexpected motor stalling at low current levels, the motor may be "starved" of power. Consider whether there any components in the circuit which may have a current limiting feature. Also consider whether the conductors are of sufficient gage in order to carry the current over the required distance.
- Power Source: Is the power supply and/or speed control of sufficient wattage to provide the power required? If using a failsafe brake, be advised that the motor startup current levels can be high and can draw away from the required current for the brake to release, if the available incoming current is not sufficient for both devices.
- Drives and Controls: It is also important to be aware of your load values to ensure that the Motor Control or Servo Drive you intend to use is properly sized for the job. There are many choices on the Market, among them are "SCR" Drives. In many cases, MMP does not recommend the use of SCR Drives, as we discuss in the data found [HERE](#), on our website.
- Longevity: Most intermittent duty applications are well served by brushed motors or gearmotors. Depending on the relative duty, accessibility and power required, some applications are better served by brushless motors or gearmotors. You may wish to contact our sales office to further discuss these specific application requirements.
- Maintenance and Care: If using a brushed motor, it can be helpful to understand the life expectancy of the brushes, based on the rate of wear. The rate of wear will vary depending on the duty, the load and the environment. It may also be useful to understand how to replace brushes and how to clean the brush dust inside the motor. We offer a [Brush Dust Cleaning Manual](#) on our website. For information on the condition of the commutator, we offer a [Brush/Commutator Wear Guide](#) on our website.

These are only the very basic fundamentals, but a good checklist before you begin to apply your motor or gearmotor. If you have any questions or concerns, [please contact us directly at email: sales@midwestmotion.com](mailto:sales@midwestmotion.com) or phone: 320-490-7060.

Products Offered:

DC Brushed & Brushless Motors with Encoder and Brake Compatibility • DC Brushed & Brushless Gearmotors
DC Motor Controls • PWM Servo Amplifiers DC Linear Actuators • Power Supplies • DC Motor Speed Controls



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Website: www.midwestmotion.com • Email : sales@midwestmotion.com • Phone : 320-4907060



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