

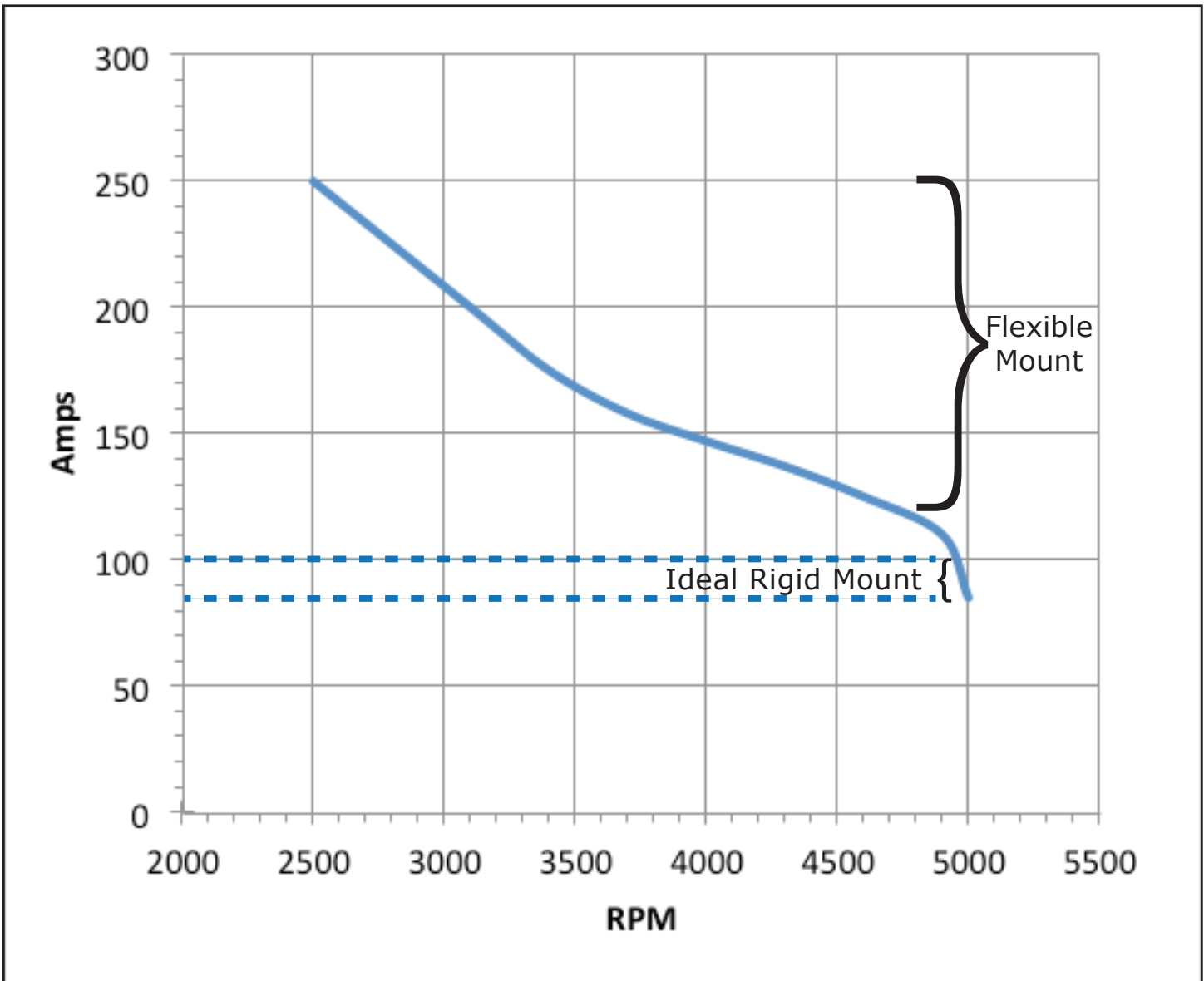
Special Applications Causing Performance Variations

Examples - High Amps and Reduced Speed Reducing Force Output

When using Global Manufacturing DC Vibrators on certain applications, performance can vary unexpectedly. The speed or force output might be less than expected from our standard performance data. Also, the amp draw might be higher than anticipated. First it should be understood that the **published performance data is based on an ideal rigid mount**. With electric vibrators of all types, the performance can vary quite a bit depending on the rigidity of the mount. **The more flexible the mount, the higher the amp draw will be, and the slower the vibrator will run (the force output will decrease as the vibrator speed decreases)**. With AC Vibrators using squirrel cage

induction motors, this lack of rigidity in the mount can be disastrous because if the vibrator does not get up to speed, the windings will overheat and fail.

DC Motors are more forgiving. As with universal AC brush motors, the speed can vary with the load and input voltage. The motor for this series of Global vibrators is very powerful. **Although we expect it will run at 5,000 rpm and pull 80-90 amps at 12V DC on a good rigid mount, it can tolerate a less rigid mount. The motor will slow down and pull more amps, but this will not hurt the motor because it can tolerate over 200 amps.** In fact, the motor is most efficient at 225 amps. See graph below.





The important fact to keep in mind is the motor temperature. These motors are capable of high torque and can handle high amps, but they are designed for intermittent use and have no fan or vents for cooling. To be safe we **recommend operation for one minute followed by three minutes of rest for cooling.** For special applications where the vibrator is only run once in a 30 minute period, they probably can be run for 4 or 5 minutes at a time. To be sure you are not damaging the motor, it is best to test your operating protocol by monitoring the motor temperature. Checking the temperature at a spot near the center of the motor housing, make sure you **don't exceed 200°F.** This way you can customize the use of your DC vibrator without jeopardizing the life of the motor. You can also fine tune your operating protocol for optimum performance in different ambient temperature environments.

We hope these guidelines help you better understand and use your Global DC vibrator. If you have additional questions, please contact Global Customer Service at 800-551-3569.

Since the heat production of the motor is directly related to the amp draw, it is best to do what you can to keep the amp draw as low as possible. As implied above, having a rigid mount will help to do that. We recommend you follow as closely as possible the mounting instructions in the operations manual provided with your vibrator. Another way to keep the amp draw down is to make sure you keep your voltage as close to 12 volts as possible. On truck applications, we recommend keeping the truck engine running while operating the vibrator. This will help to keep the battery fully charged. It is also **important to use the proper cable for your application to minimize the voltage drop between your power source and the vibrator.** A good voltage drop calculator can be found at:

<http://www.nooutage.com/vdrop.htm>

- Select 12V for voltage.
- Select the cable size you are attempting to use (we recommend at least 4 awg).
- For the load enter the amp draw you measure for your application.
- Select copper conductor for conductor type.
- Select DC for sytem type.
- Select conductor temperature.
- Select "no conduit" for conduit type.
- Select "single set of conductors".
- Put in the length of your cable in feet.
- Then press "Calculate Voltage Drop." If the voltage drop is greater than 5%, we recommend using a heavier cable or a shorter cable.