Name

Course

Instructor

Date

Parallel and Series Motor Connection

Flow of electricity is measured in two components, voltage and current. Voltage can be termed as the difference in electric pressure while current is the amount of electricity flowing through a point at a specific time. Voltage remains constant in a parallel circuits while current remains constant in series circuit. Voltage changes in series while current remains constant in the same circuit configurations.



Figure 1: Parallel and series motor configuration

In series, the current is retained while the voltage is divided among the number of motors. Due to decreased voltage, the motors run on decreased power, speed and have lower number of revolutions per second. The main advantage of a series connections is the low risk of overheating. Another important aspect to note is that, in series the motors may run when not loaded but fail to run when the loads are introduced due to low power output.

In parallel, the voltage is maintained across the various branches of the circuit while the current is divided among the branches. This leads to increased power and torque. Motors in this configuration can run smoothly when loads are introduced. The motors run at high speeds and have a high torque and power performance even at higher speeds. The main disadvantage of parallel configuration is the motors in the rapid increase in torque and power output.

The windings of the motors can also be adjusted to suit either series or parallel configurations. Stepper motor engineering takes this aspect in consideration in the design of motor in order to reap the benefits of both series and parallel connections. This is the beauty or engineering, harnessing the advantages of each systems and combining them together for a superior product.

Works Cited

Herman, Stephen L. *The Complete Laboratory Manual for Electricity*. Albany, N.Y: Delmar, 2001. Print.