

GTR Mini Speed Control Gearmotors

Introduction

The Brother P series AC variable speed gearmotors are designed for use in demanding industrial and commercial applications. Available in both in-line and right-angle configurations, these gearmotors provide a compact, maintenance free, flexible speed control solution.

In-line units feature precision helical gears while right-angle units utilize a combination of HYPOID and helical gearing. Both types are lubricated for life and are sealed with machine slip fit O rings. It is worth noting that Hypoid/helical gearsets are up to 80% more efficient than traditional worm designs.

The Brother P Series uses a common AC three wire reversible permanent split capacitor (PSC) motor in conjunction with a specially designed control module. The PSC motors are equipped with a Hall I/C pulse generator which, when coupled with the control module, allows the motor speed to vary.

The audibly quiet and maintenance free aspect of the Brother P Series AC variable speed system is in direct contrast to typical Permanent Magnet (PM) brush type systems. PM brush type systems rely on noisy brush contact and require periodic inspection and brush replacement. Brush inspection and maintenance place a costly burden on the user of the system. Especially when brushes are not inspected and are allowed to wear to a point that causes catastrophic failure requiring complete replacement.

The Brother P series is more cost effective "out-of-the-box". OEM's do not need to consider the savings and relief of burden on their customers. The Brother P Series is cost competitive with comparable quality PM brush systems without considering end user savings on preventative maintenance.

How it Works

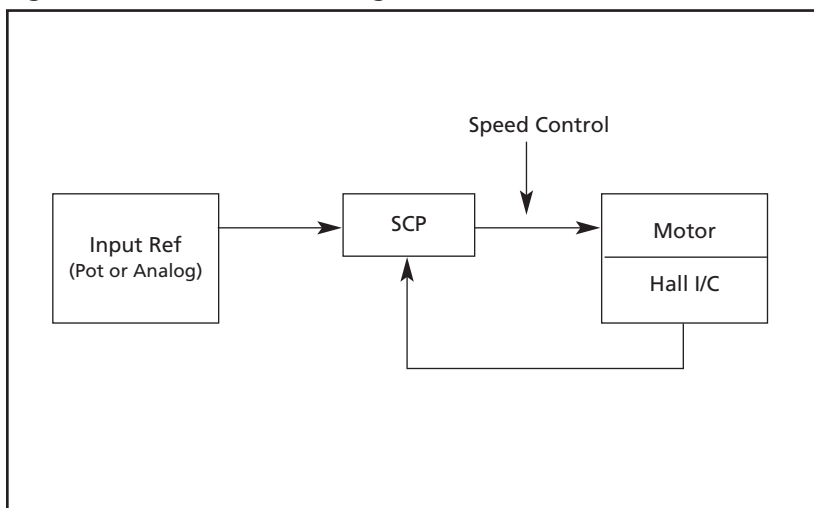
The Brother SCP control module uses a phase control circuit to vary the speed of the motor. The Hall I/C provides motor speed reference in the form of pulses to the control module. The motor speed reference is compared to a user adjusted input reference signal. The input reference signal is adjusted using either a potentiometer or analog signal.

Speed / Torque Characteristics

The specific speed / torque characteristics for each motor size are detailed in the following pages. However, it is worth noting that your required speed range dictates which gearmotor should be selected for a particular output torque. Basically, the full rated torque, shown in the tables is available on a continuous basis down to a particular motor speed as noted in the diagram below. If your application requires continuous operation and sustained torque at speeds below this point, the gearmotor should be selected using the detailed speed / torque curves. (Shown on Page 45.)

The gearmotor can operate at full torque at speeds below the continuous rating, however, only on an intermittent basis. Since all applications are different, the suitability of a unit for intermittent operation can be verified by actual testing and confirmation that the surface temperature of the motor does not exceed 176°F (80°C). If the test reveals a surface operating temperature above 176F, a larger gearmotor with greater torque capacity should be considered.

Fig. 3.0: Schematic Circuit Diagram



Speed / Torque Curve

