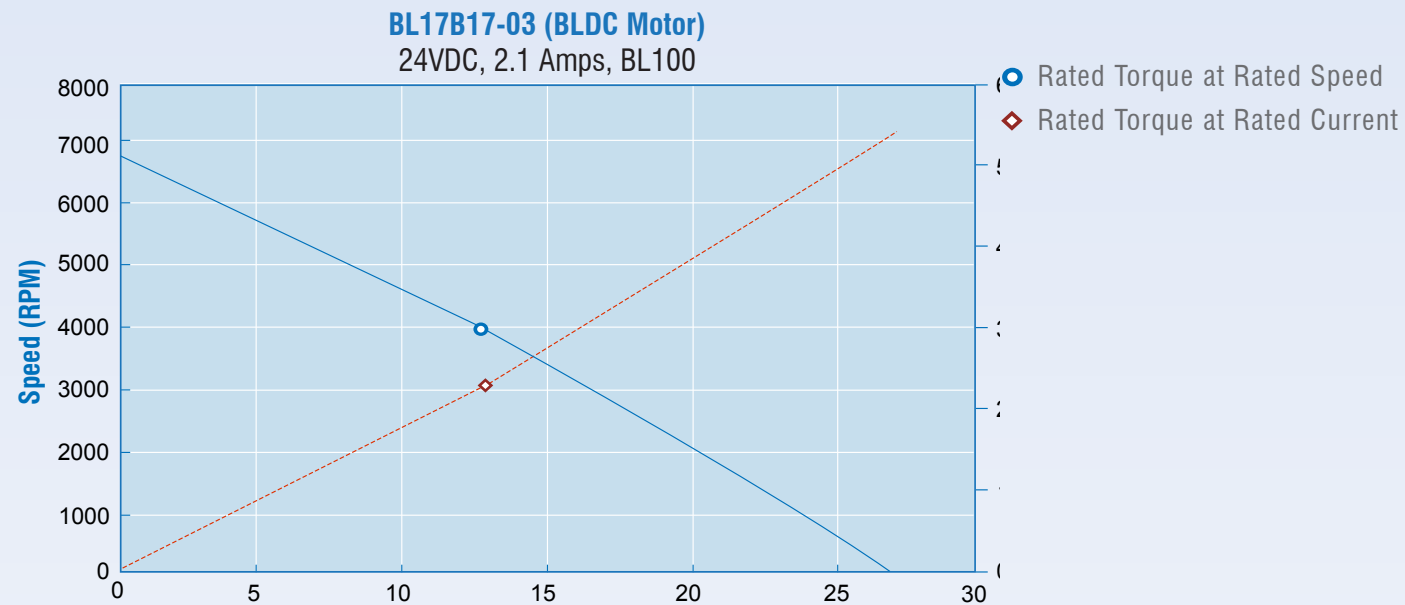


## HOW TO READ BLDC CURVES

The graph below provides three main motor specifications that can help users determine whether or not this BLDC motor is sufficient for the job. The left-side vertical Y-axis represents speed in revolutions per minute (RPM). The speed increments and the title "Speed (RPM)" are blue, which corresponds to the blue curve on the graph. The right-side vertical Y-axis represents Current in Amps. This axis is red, which corresponds to the red line on the graph. The horizontal X-axis is for torque in ounce-inches (oz-in).



The two specifications that can be read from this graph are:

- Speed versus Torque  
(Blue line)
- Current versus Torque  
(Red line)

## SPEED VS. TORQUE CURVE

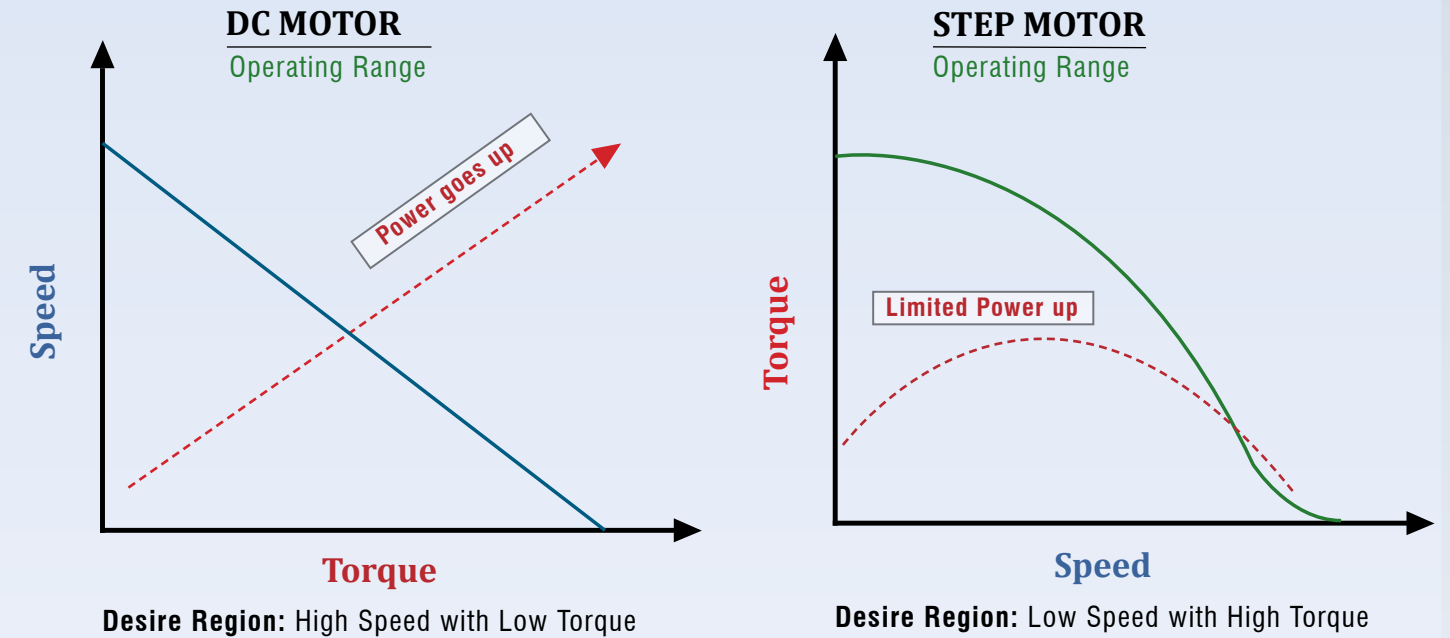
It is crucial to know how much torque this BLDC motor can output at different speeds. Typically, a user has selected a certain speed range and can then understand the torque capabilities of a motor. This speed and torque relationship is linear.

## CURRENT VS. TORQUE CURVE

It is just as important to understand the relationship between how much torque the motor provides and how much current is required by the motor. More torque naturally requires more current. It is also a linear relationship.

## EXPLANATION OF AXIS ORIENTATION

Notice how Speed and Torque are flipped when compared to Step Motor curves. The reason for this is to stay consistent with general presumptions about graphs. In general, X-Y graphs show curves where power goes up when moving to the right and upper corner. Below shows a simple comparison between DC motors and Step Motors; by swapping Speed with Torque in each graph, both graphs can be well understood in the same fashion.



DC Motors work best when maximizing efficiency of the torque. Step Motors work best when maximizing efficiency of the speed.

## MAXIMIZING EFFICIENCY FOR BOTH STEPPERS AND BLDC MOTORS

The crucial factor to make most efficient are different in DC motors and Step motors. Looking at an efficiency curve, one can further see the correlation for swapping the X and Y axes when comparing the two different types of motors.

