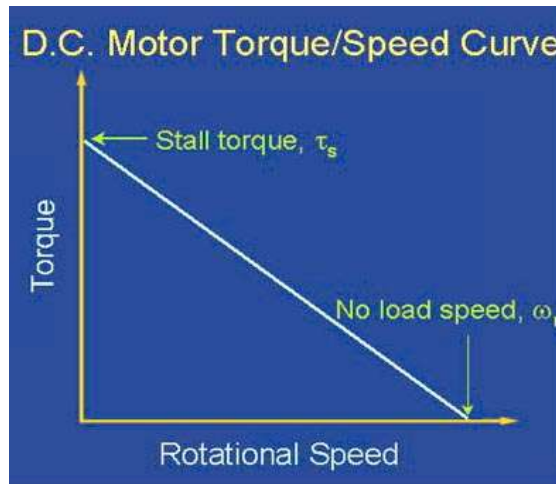




September 18, 2005

### Complete specs of the 39mm diameter motor

Gear ratio	Voltage [V]	Rated current [mA]	Stall current [mA]	Rated torque [oz-in] [N-cm]	Stall torque [oz-in] [N-cm]	Rated Speed [rpm]	No load speed [rpm]	Encoder res [ppr]
8.751 : 1	2-12 to 24	350	1500	[4.10] [2.90]	[ 18] [12.7]	460	570	255 - 1025
34.165 : 1	2-12 to 24	300	850	[13.9] [9.80]	[55.5] [39.2]	140	173	255 - 1025
63.75 : 1	2-12 to 24	250	600	[27.8] [19.6]	[111] [78.4]	75	87	255 - 1025
137.2 : 1	2-12 to 24	200	480	[55.5] [39.2]	[208] [147]	33	41	255 - 1025
150.00 : 1	2-12 to 24			[69.4] [49.0]	[228] [196]	27	33	255 - 1025
200.00 : 1	2-12 to 24			[83.3] [58.8]	[347] [245]	22	26	255 - 1025
300.00 : 1	2-12 to 24			[99.3] [68.8]	[555] [392]	15	16	255 - 1025



The graph above shows a torque/speed curve of a typical D.C. motor. The torque is inversely proportional to the speed of the output shaft.

In other words, there is a trade off between how much torque a motor delivers, and how fast the output shaft spins. Motor characteristics are frequently given as two points on this graph:

- The stall torque,  $T_s$ , represents the point on the graph at which the torque is a maximum, but the shaft is not rotating.
- The no load speed,  $\omega_n$ , is the maximum output speed of the motor (when no torque is applied to the output shaft).

The curve is then approximated by connecting these two points with a line,

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