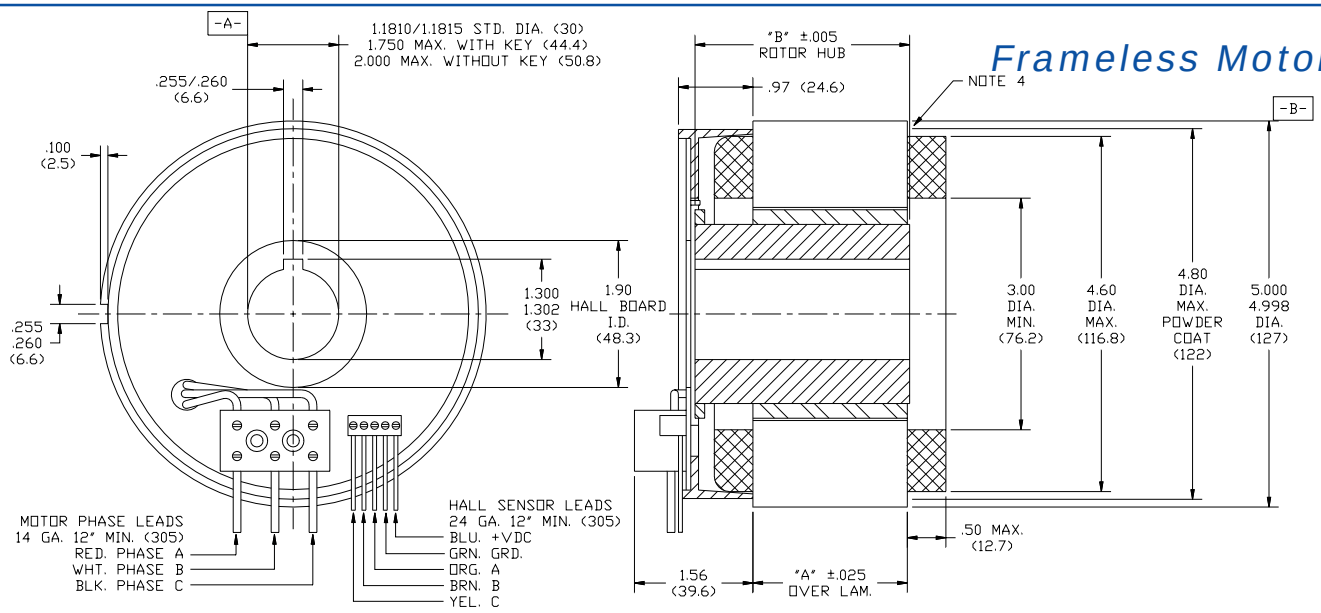
MACCON
MOTION UNDER CONTROL

Quantum Series

Size 56

Frameless Motor



1. MOTOR SUPPLIED AS TWO SEPARATE COMPONENTS, ROTOR ASSEMBLY AND STATOR ASSEMBLY.
2. DIAMETERS "A" AND "B" TO BE CONCENTRIC WITHIN .002 WHEN MOUNTED.
3. STANDARD HUB LENGTH IS 1.78" LONG, MULTIPLE HUBS IN 1.00" INCREMENTS ARE PROVIDED FOR CUSTOMER STACKING BEYOND 1.78".
4. BETWEEN STATOR O.D. AND POWDER COAT, LAMINATIONS ARE EXPOSED FOR MOUNTING SURFACE, BOTH ENDS.
5. LEAD CONNECTION TO TERMINAL BLOCKS OPTIONAL.

MODEL	"A" STATOR	"B" ROTOR
5600	1.0 (25.4)	1.78 (45.2)
5601	2.0 (50.8)	2.78 (70.6)
5602	3.0 (76.2)	3.78 (96)
5603	4.0 (101.6)	4.78 (121.4)
5604	5.0 (127)	5.78 (146.8)
5605	6.0 (152.4)	6.78 (172.2)

Housed Motor

Final definition of the housed versions of the QB05600 Series motors
had not been completed at the time of printing.
Please contact our sales group for the latest information.

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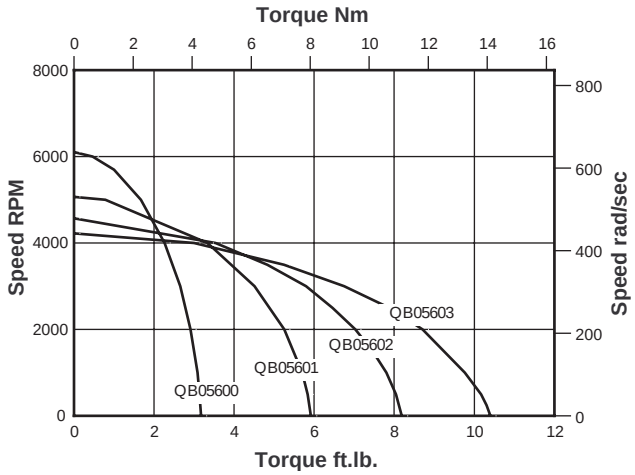
Electrical and Mechanical Data

Size Constants	Symbol	Unit	QB05600			QB05601			QB05602			QB05603		
Max Cont. Stall Torque	T_C	Nm	4.29			8.03			11.10			14.10		
Max Rated Torque, 25%	T_R	Nm	30.3			57.2			85.1			113.5		
Motor Constant,	K_M	Nm/√W	0.56			0.88			1.09			1.29		
Electrical Time Constant	T_E	msec	5.09			5.49			6.59			6.83		
Mechanical Time Constant	T_M	msec	1.13			0.93			0.92			0.88		
Thermal Resistance	TPR	°C/Watt	1.09			0.75			1.15			0.52		
Viscous Damping	F_i	Nm/rpm	2.3E-5			4.9E-5			7.5E-5			1.0E-4		
Max Cogging Torque	T_F	Nm	0.078			0.134			0.191			0.247		
Mechanical Constants														
Frameless Motor Inertia	J_M	$Kg.m^2$	3.6E-4			7.3E-4			1.1E-3			1.5E-3		
Frameless Motor Weight	Wt	Kg	1.72			3.99			5.84			7.76		
Housed Motor Inertia	J_M	$Kg.m^2$	6.3E-4			1.1E-3			1.6E-3			2.1E-3		
Housed Motor Weight	Wt	Kg	4.80			7.84			10.4			13.0		
Number of Poles	-	-	8			8			8			8		
Winding Constants			**A**	**B**	**C**	**A**	**B**	**C**	**A**	**B**	**C**	**A**	**B**	**C**
Design Voltage	V_P	Volts	40	130	300	40	130	300	40	130	300	40	130	300
Peak Torque	T_P	Nm	30.3	30.3	30.3	59.2	59.2	59.2	85.1	85.1	85.1	113.5	113.5	113.5
Peak Current	I_P	Amperes	224	121	62	409	204	93	498	263	124	640	299	154
Torque Constant,±10%	K_T	Nm/A	0.135	0.250	0.486	0.145	0.290	0.633	0.171	0.323	0.683	0.177	0.380	0.734
No Load Speed	S_{NL}	RPM	2830	4971	5896	2634	4281	4528	2235	3847	4192	2156	3270	3903
		Rad/s	296	520	617	275	448	474	234	402	439	225	342	408
BEMF Constant, ±10%	K_B	V/KRPM	14.3	26.1	50.8	15.1	30.3	66.2	17.8	33.8	71.5	18.5	39.7	76.8
		V/rad/s	0.135	0.250	0.486	0.145	0.290	0.633	0.171	0.323	0.683	0.177	0.380	0.734
Terminal Resistance, ±12%	R_M	Ohms	0.056	0.196	0.761	0.027	0.107	0.511	0.024	0.085	0.400	0.019	0.088	0.324
Terminal Inductance, ±30%	L_M	mH	0.287	0.981	3.715	0.146	0.586	2.788	0.160	0.570	2.556	0.127	0.585	2.187

Speed/Torque Curves



Continuous Duty Speed/Torque Curves for 100°C Temperature rise.

The continuous duty speed/torque curves provide a guide to the operational capability of the motors. Continuous operation at a loadpoint on or under the curve limits the temperature rise of the motor to 100°C. Although the duration of acceleration or deceleration periods should be checked, the RMS speed and torque combination should also lie on or under the continuous duty curve. The curves assume housed motors mounted to a nominal size of aluminum heatsink in a 25°C ambient environment and still air cooling. Higher ambient temperatures will generally decrease the continuous duty capability of a motor. With increased heatsink areas or improved cooling such as forced air or water, the continuous duty capability of the motor may be increased. However, for most applications, the practical maximum motor temperature is 150°C with Hall effect