

# Servo Motors

## Quantum Frameless Brushless Servo Motors

*Brushless component (rotor and stator) servo motor*

Allied Motion's **Quantum (QB) series of frameless brushless servo motors** are specifically designed for direct axis integration in machine applications where a housed motor is undesirable.

The QB series are brushless kit motors (rotor & stator sets) designed to deliver high performance and servo precision at minimal cost. They can be easily customized to the exact specifications required. QS versions, which offer improved efficiency at high speeds, are available upon request. Quantum servo motors are also available as housed versions in standard NEMA sizes (17, 23, 34 and 56 frames) for use in typical servo applications.

The QB series are optimized for high output power, high torque density, and low cogging torque. Their high power density ratio allows a smaller size motor to be used in many applications, saving space and weight.

Common applications for the frameless QB series include laboratory automation, robot joints, gimbal systems, powered wheel drives, semiconductor manufacturing equipment and special high speed pumps.

### Features & Benefits

- Frameless brushless servomotors designed for direct integration onto the driven axis
- Continuous stall torque from 0.069 Nm (9.7 oz-in) up to 15.04 Nm (2130 oz-in)
- Standard winding voltage ratings of 24, 40, and 130 V (40, 130 and 300 V for the QB056 series)
- High strength NdFeB magnets maximize torque production
- Integrated Hall commutation sensors

### Options & Accessories

- Model QS versions that are optimized for high speed operation
- Custom winding designs to accommodate specific performance requirements
- Custom rotor through-bore size
- Thermistor or other temperature-sensing option



- Frameless motor rotor and stator set for directly driven axis applications
- Continuous stall torque up to 15 Nm (2130 oz-in)
- No load speed up to 30,000+ RPM
- Standard winding voltages of 24, 40, or 130 V (300 V for QB56 models)

## SPECIFICATION SUMMARY

Model	Units	QB017	QB023	QB034	QB056
Continuous Stall Torque	oz-in	9.7 - 45.4	49.2 - 188	118 - 453	597 - 2130
	Nm	0.069 - 0.320	0.348 - 1.328	0.835 - 3.202	4.22 - 15.04
Winding Voltage	VDC	24, 40, 130			40, 130, 300
No-load Speed	RPM	4864 - 30746	2152 - 10000	1116 - 7313	1939 - 5534
	rad/s	525 - 3220	225 - 1047	117 - 733	203 - 580
Motor Inertia	oz-in-s <sup>2</sup>	1.40E-4 - 5.58E-4	1.04E-3 - 4.16E-3	7.48E-3 - 3.0E-2	5.3E-02 - 0.21
	kg-m <sup>2</sup>	9.85E-7 - 3.94E-6	7.35E-6 - 2.94E-5	5.35E-5 - 2.1E-4	3.7E-4 - 1.5E-3
Diameter (Outer)	in	1.41	2.18	3.20	5.00
	mm	35.81	55.37	81.28	127.00

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## QB017 Series Frameless Brushless Servo Motors

### SPECIFICATIONS (all data measured at 20 °C ambient)

Model No.		QB01700			QB01701		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	10.8	10.2	9.7	23.0	21.3	18.4
	Nm	0.076	0.072	0.069	0.162	0.150	0.130
Peak Torque	oz-in	55	55	65	84	84	84
	Nm	0.39	0.39	0.46	0.59	0.59	0.59
Peak Current	A	23.9	15.8	12.0	21.7	16.6	7.8
No Load Speed	RPM	12992	14287	30746	7918	10072	15237
	rad/s	1361	1496	3220	829	1055	1605
Torque Constant (±10%)	oz-in/A	2.3	3.5	5.4	3.8	5.0	10.8
	Nm/A	0.016	0.025	0.038	0.027	0.036	0.076
Voltage Constant (±10%)	V/kRPM	1.70	2.57	3.97	2.85	3.73	7.95
	V/rad/s	0.016	0.025	0.038	0.027	0.036	0.076
Cogging Torque (max.)	oz-in	0.99			1.56		
	Nm	0.007			0.011		
Rotor Inertia	oz-in-s <sup>2</sup>	1.40E-04			2.79E-04		
	kg-m <sup>2</sup>	9.85E-07			1.97E-06		
Motor Constant	oz-in/√W	2.99	2.84	2.80	5.34	4.94	4.28
	Nm/√W	0.021	0.020	0.020	0.038	0.035	0.030
Elect. Time Constant	ms	0.4	0.4	0.4	0.6	0.5	0.4
Mech. Time Constant	ms	2.0	2.2	2.4	1.3	1.5	2.0
Thermal Resistance <sup>(1)</sup>	°C/W	4.7			3.3		
Terminal Resistance (±12%)	Ohm	0.59	1.49	3.69	0.52	1.04	6.32
Terminal Inductance (±30%)	mH	0.25	0.58	1.42	0.29	0.49	2.24
Motor Weight (±8%)	lb	0.19	0.18	0.17	0.35	0.34	0.31
	kg	0.09	0.08	0.08	0.16	0.15	0.14
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 152 mm sq. x 6.35 mm (6 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

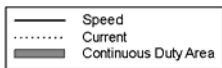
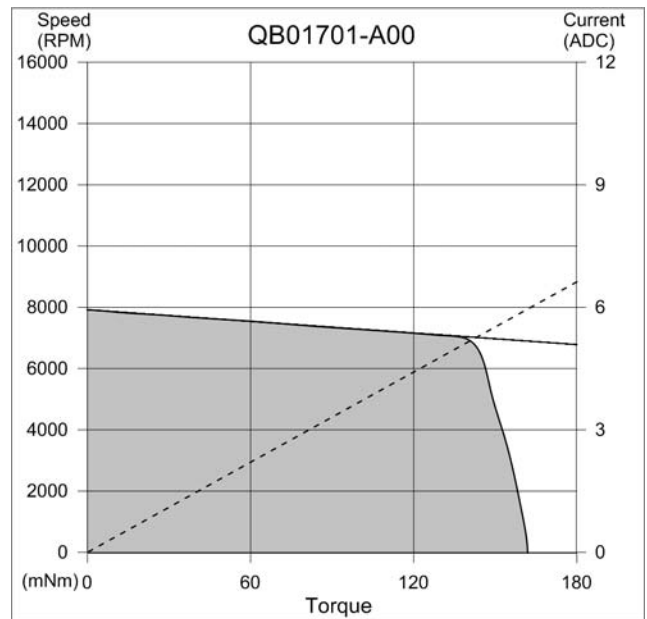
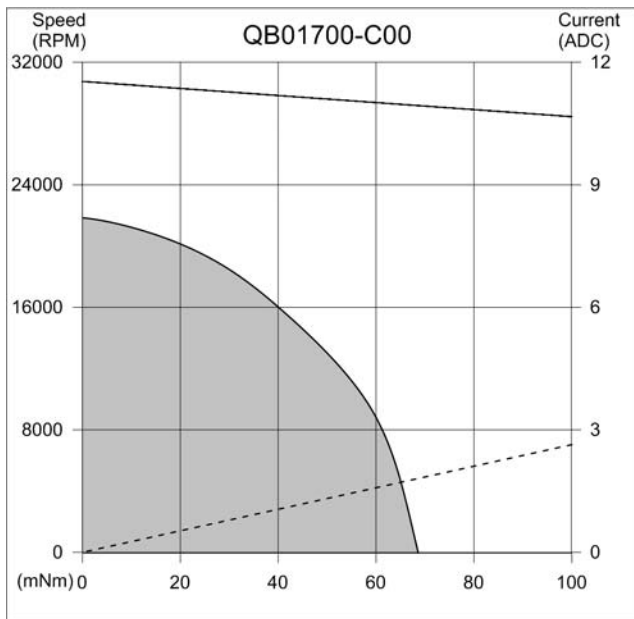
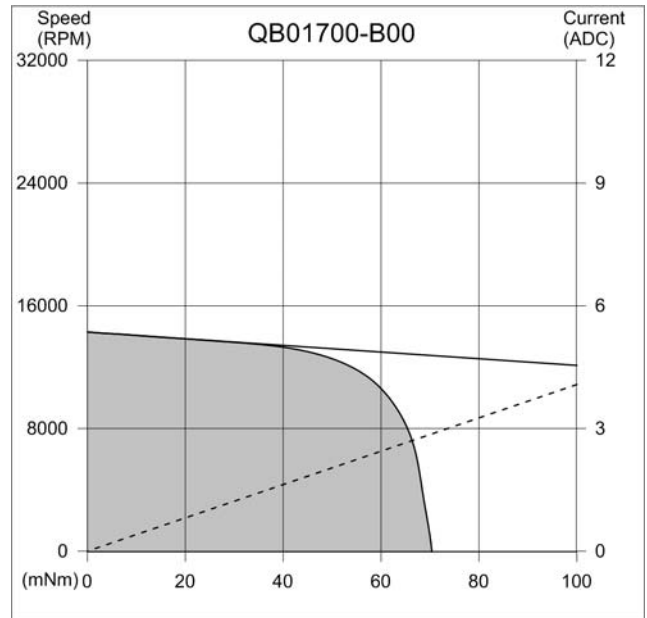
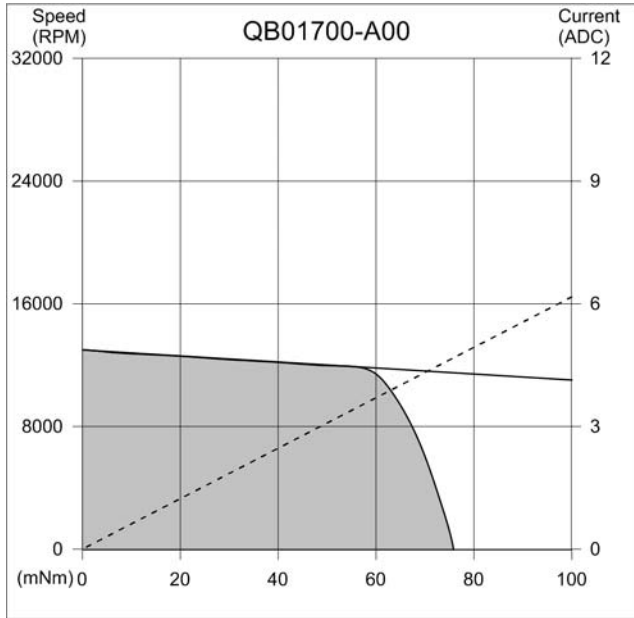
Model No.		QB01702			QB01703		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	33.9	31.8	32.5	43.0	45.4	43.6
	Nm	0.239	0.225	0.230	0.303	0.320	0.308
Peak Torque	oz-in	230	238	2.38	249	262	262
	Nm	1.62	1.68	1.68	1.76	1.85	1.85
Peak Current	A	45.2	38.0	15.0	39.9	44.9	18.4
No Load Speed	RPM	5991	8112	10396	4864	7220	9599
	rad/s	654	885	1093	525	784	1065
Torque Constant (±10%)	oz-in/A	5.1	6.3	15.9	6.3	7.0	17.2
	Nm/A	0.036	0.044	0.112	0.044	0.050	0.121
Voltage Constant (±10%)	V/kRPM	3.76	4.63	11.72	4.62	5.20	12.72
	V/rad/s	0.036	0.044	0.112	0.044	0.050	0.121
Cogging Torque (max.)	oz-in	1.84			2.27		
	Nm	0.013			0.016		
Rotor Inertia	oz-in-s <sup>2</sup>	4.19E-04			5.58E-04		
	kg-m <sup>2</sup>	2.96E-06			3.94E-06		
Motor Constant	oz-in/√W	6.98	6.56	6.70	8.06	8.51	8.18
	Nm/√W	0.049	0.046	0.047	0.057	0.060	0.058
Elect. Time Constant	ms	0.6	0.6	0.6	0.6	0.7	0.6
Mech. Time Constant	ms	1.1	1.3	1.2	1.3	1.3	1.3
Thermal Resistance <sup>(1)</sup>	°C/W	2.58			2.14		
Terminal Resistance (±12%)	Ohm	0.53	0.91	5.60	0.60	0.68	4.42
Terminal Inductance (±30%)	mH	0.34	0.51	3.27	0.38	0.48	2.85
Motor Weight (±8%)	lb	0.51	0.49	0.50	0.65	0.66	0.65
	kg	0.23	0.22	0.22	0.30	0.30	0.30
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 152 mm sq. x 6.35 mm (6 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

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## QB017 Series Frameless Brushless Servo Motors

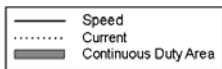
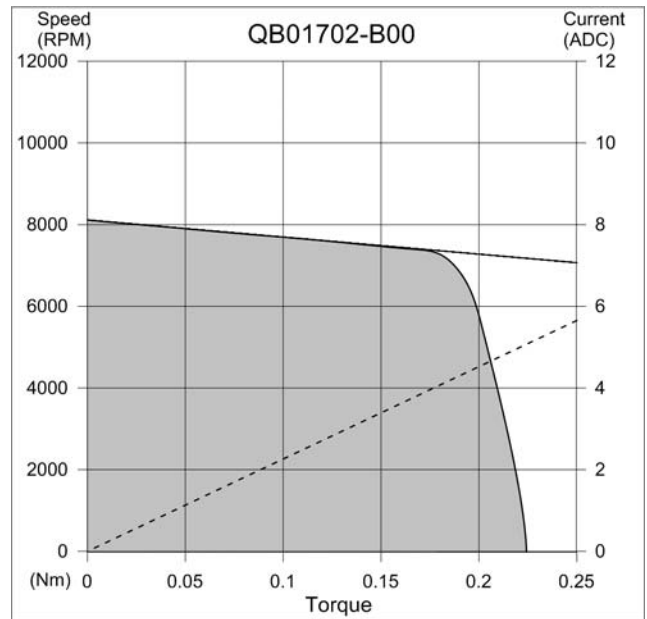
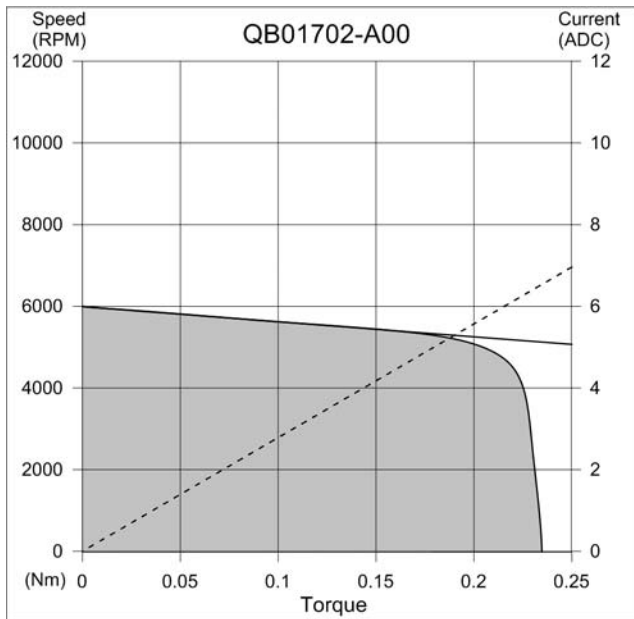
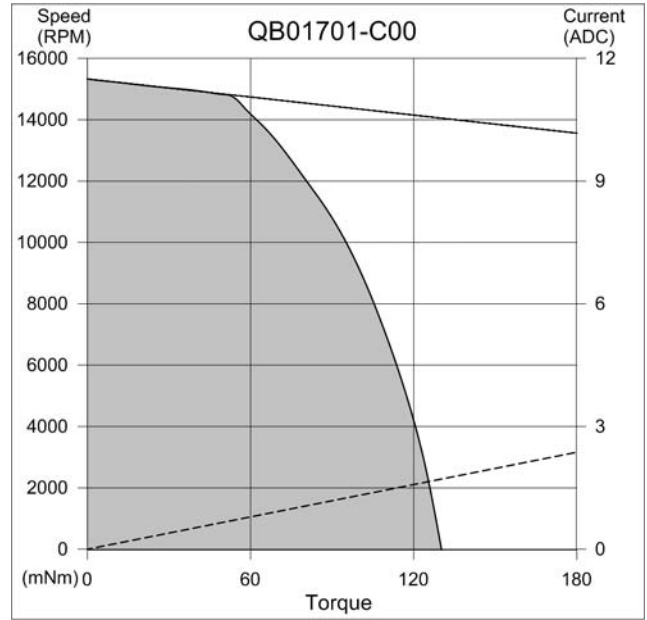
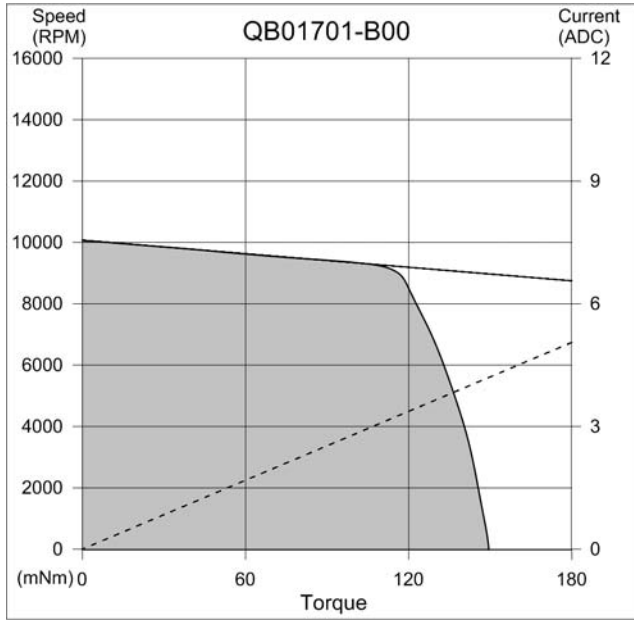
### PERFORMANCE



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## QB017 Series Frameless Brushless Servo Motors

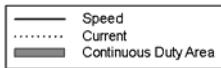
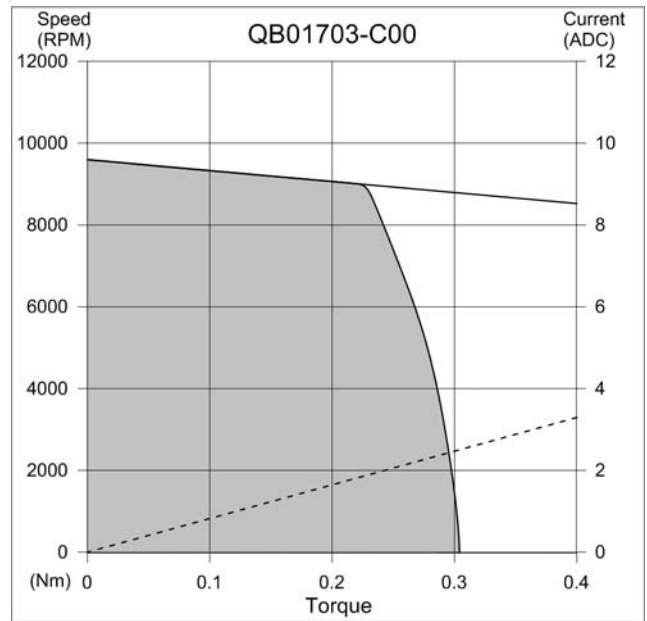
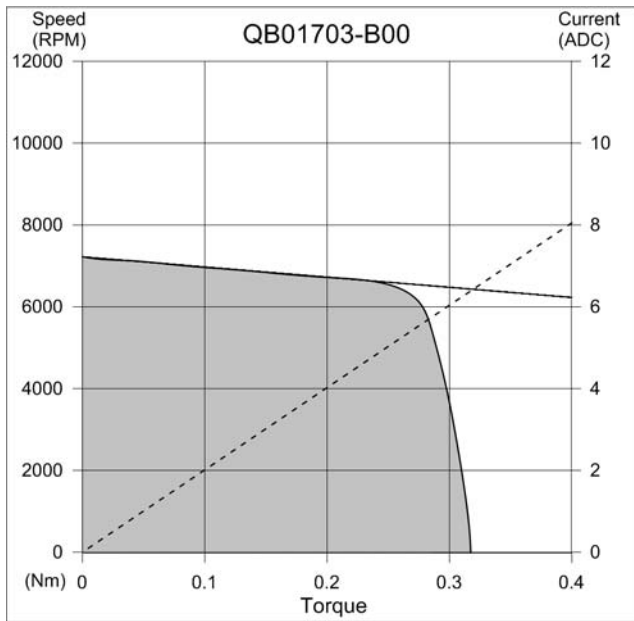
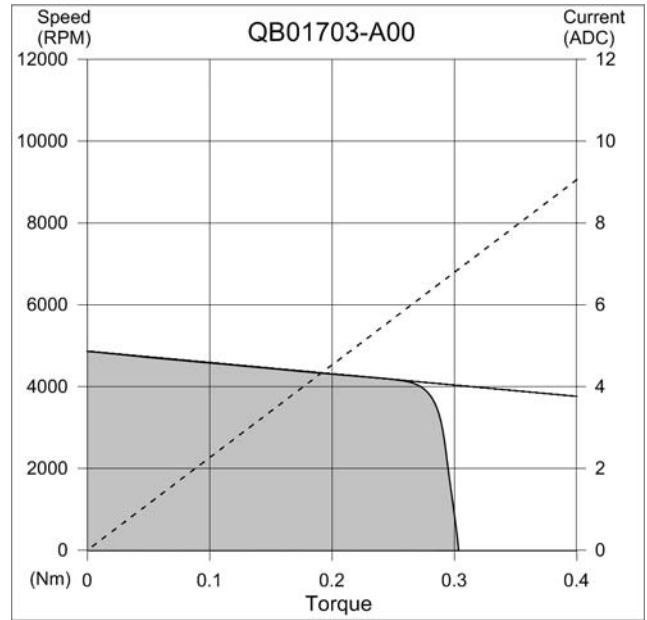
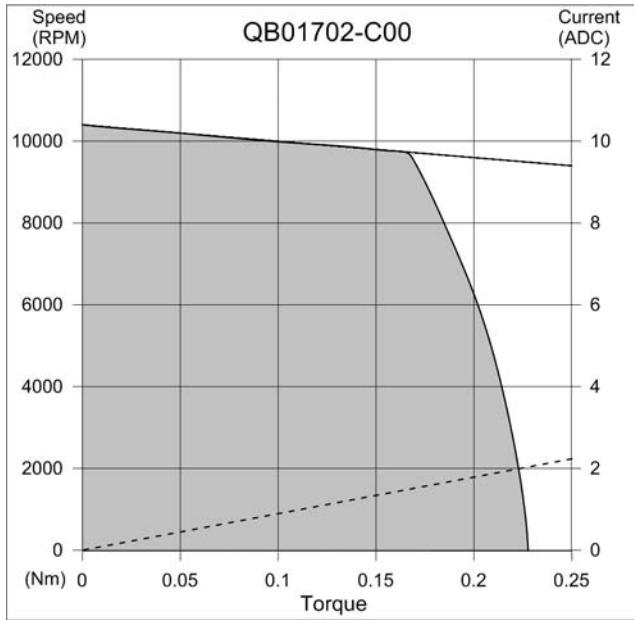
### PERFORMANCE



# Servo Motors

## QB017 Series Frameless Brushless Servo Motors

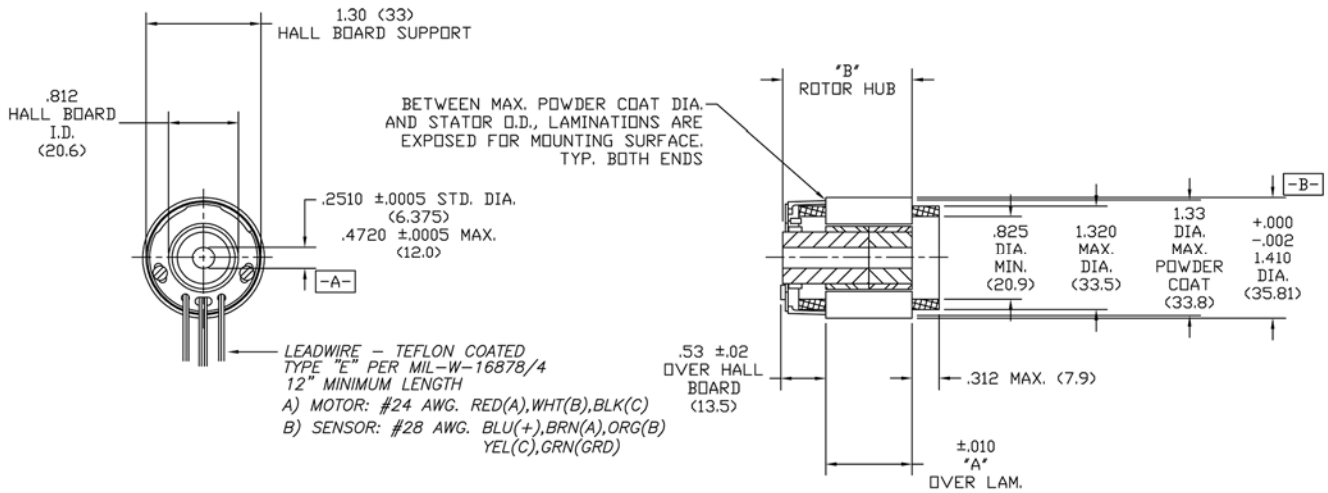
### PERFORMANCE



# Servo Motors

## QB017 Series Frameless Brushless Servo Motors

### DIMENSIONS



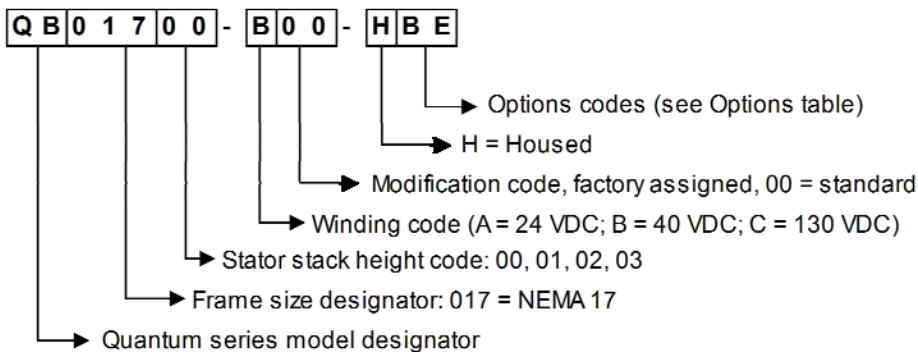
MODEL NO.	"A" STATOR	"B" ROTOR
QB01700	.500 (12.70)	1.000 (25.40)
QB01701	1.000 (25.40)	1.500 (38.10)
QB01702	1.500 (38.10)	2.000 (50.80)
QB01703	2.000 (50.80)	2.500 (63.5)

- MOTOR SUPPLIED AS TWO SEPARATE COMPONENTS, ROTOR ASSEMBLY AND STATOR ASSEMBLY.
- DIAMETERS "A" AND "B" TO BE CONCENTRIC WITHIN .002 WHEN MOUNTED.
- STD. HUB LENGTH IS 1.000" LG. .500" HUBS ARE PROVIDED FOR CUSTOMER STACKING BEYOND 1.000".

in (mm)



### MODEL NUMBERING



Options
Z = RoHS compliant

# Servo Motors

## QB023 Series Frameless Brushless Servo Motors

### SPECIFICATIONS (all data measured at 20 °C ambient)

Model No.		QB02300			QB02301		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	49.3	49.4	49.2	93.8	96.5	96.5
	Nm	0.348	0.349	0.348	0.662	0.681	0.681
Peak Torque	oz-in	403	403	395	644	787	787
	Nm	2.84	2.84	2.79	4.55	5.56	5.56
Peak Current	A	77.3	61.0	23.8	61.2	59.1	29.5
No Load Speed	RPM	5892	7752	10000	2860	3763	6115
	rad/s	617	812	1047	299	394	640
Torque Constant (±10%)	oz-in/A	5.2	6.6	16.6	10.5	13.3	26.6
	Nm/A	0.037	0.047	0.117	0.074	0.094	0.188
BEMF Constant (±10%)	V/kRPM	3.85	4.88	12.27	7.77	9.84	19.70
	V/rad/s	0.037	0.047	0.117	0.074	0.094	0.188
Cogging Torque (max.)	oz-in	2.55			4.11		
	Nm	0.018			0.029		
Rotor Inertia	oz-in-s <sup>2</sup>	1.04E-03			2.08E-03		
	kg-m <sup>2</sup>	7.35E-06			1.5E-05		
Motor Constant	oz-in/√W	10.46	10.48	10.43	16.79	17.27	17.27
	Nm/√W	0.074	0.074	0.074	0.119	0.122	0.122
Elect. Time Constant	ms	1.0	1.1	0.9	1.1	1.3	1.3
Mech. Time Constant	ms	1.3	1.3	1.3	1.0	0.9	0.9
Thermal Resistance <sup>(1)</sup>	°C/W	2.79			2.00		
Terminal Resistance (±12%)	Ohm	0.25	0.40	2.53	0.39	0.60	2.38
Terminal Inductance (±30%)	mH	0.24	0.44	2.23	0.42	0.75	3.01
Motor Weight (±8%)	lb	0.63	0.63	0.58	1.16	1.18	1.18
	kg	0.29	0.29	0.26	0.53	0.54	0.54
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 203 mm sq. x 6.35 mm (8 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

Model No.		QB02302			QB02303		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	133	140	125	187	188	172
	Nm	0.937	0.988	0.879	1.323	1.328	1.215
Peak Torque	oz-in	1024	1174	1205	1215	1562	1562
	Nm	7.23	8.29	8.51	8.58	11.0	11.0
Peak Current	A	97.6	89.5	43.1	87.0	89.4	50.8
No Load Speed	RPM	2866	3821	5820	2152	2869	5298
	rad/s	300	400	609	225	300	555
Torque Constant (±10%)	oz-in/A	10.5	13.1	28.0	14.0	17.5	30.7
	Nm/A	0.074	0.093	0.198	0.099	0.123	0.217
BEMF Constant (±10%)	V/kRPM	7.76	9.70	20.70	10.33	12.92	22.71
	V/rad/s	0.074	0.093	0.198	0.099	0.123	0.217
Cogging Torque (max.)	oz-in	5.10			6.23		
	Nm	0.036			0.044		
Rotor Inertia	oz-in-s <sup>2</sup>	3.12E-03			4.16E-03		
	kg-m <sup>2</sup>	2.21E-05			2.94E-05		
Motor Constant	oz-in/√W	21.15	22.30	19.83	26.60	26.70	24.43
	Nm/√W	0.149	0.157	0.140	0.188	0.189	0.173
Elect. Time Constant	ms	1.1	1.3	0.9	1.4	1.4	1.1
Mech. Time Constant	ms	0.9	0.8	1.0	0.8	0.8	0.9
Thermal Resistance <sup>(1)</sup>	°C/W	1.59			1.26		
Terminal Resistance (±12%)	Ohm	0.25	0.35	1.99	0.28	0.43	1.58
Terminal Inductance (±30%)	mH	0.27	0.45	1.84	0.38	0.60	1.74
Motor Weight (±8%)	lb	1.69	1.72	1.62	2.27	2.27	2.20
	kg	0.77	0.78	0.73	1.03	1.03	1.00
Ambient Storage Temperature	°C	-55 to 150					

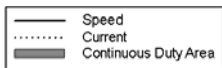
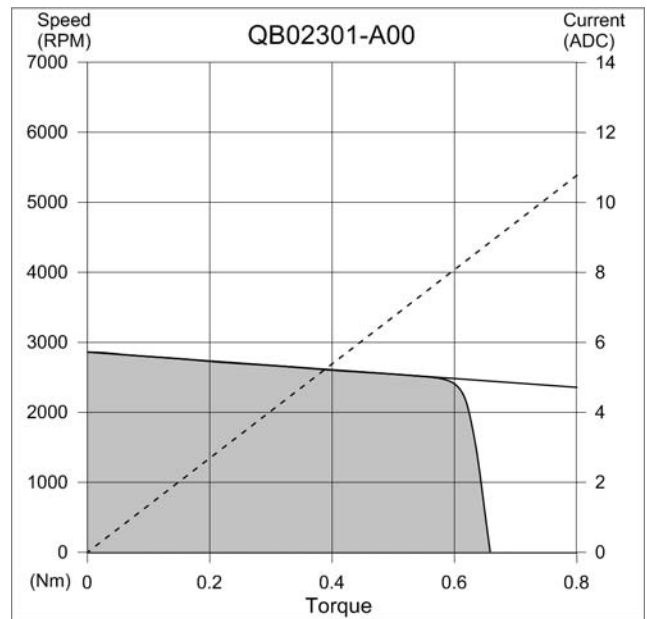
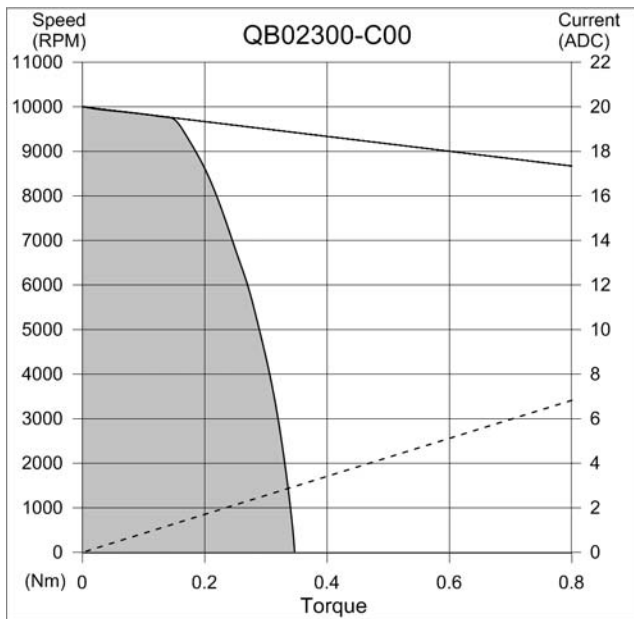
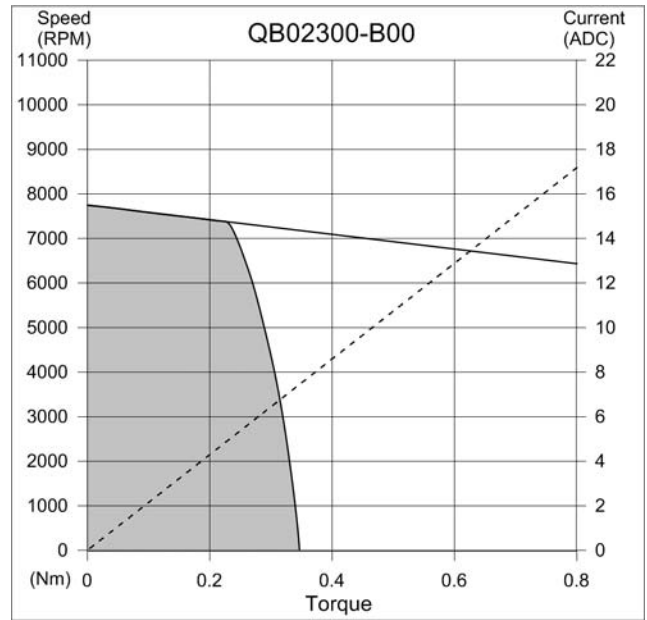
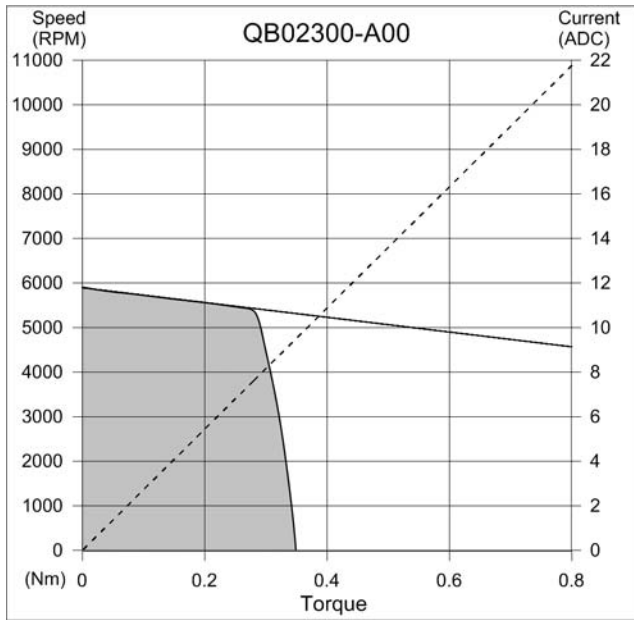
(1) Housed version of motor mounted to 203 mm sq. x 6.35 mm (8 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C



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## QB023 Series Frameless Brushless Servo Motors

### PERFORMANCE

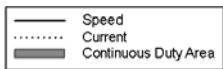
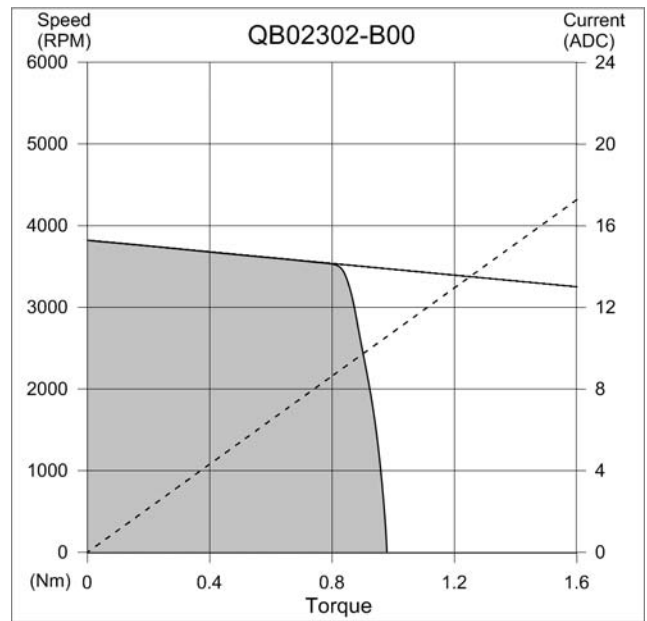
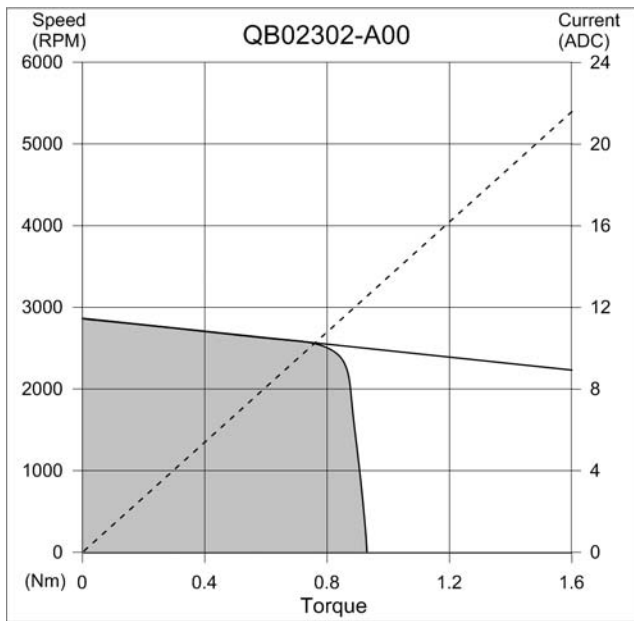
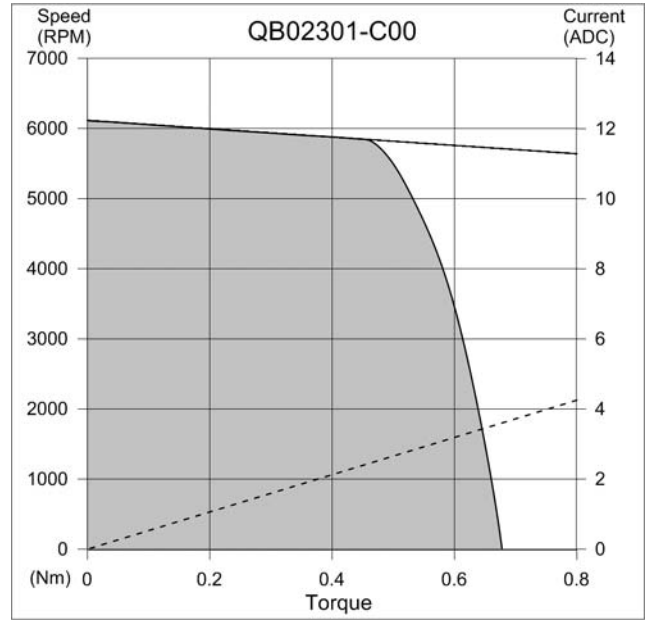
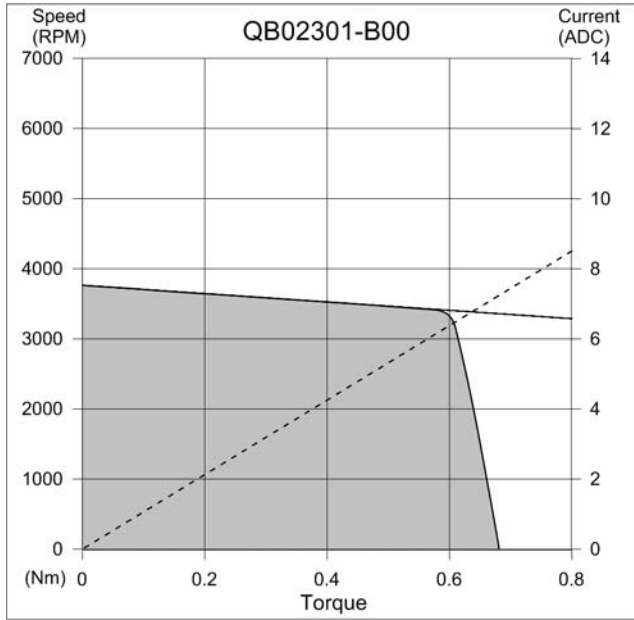




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## QB023 Series Frameless Brushless Servo Motors

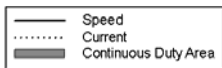
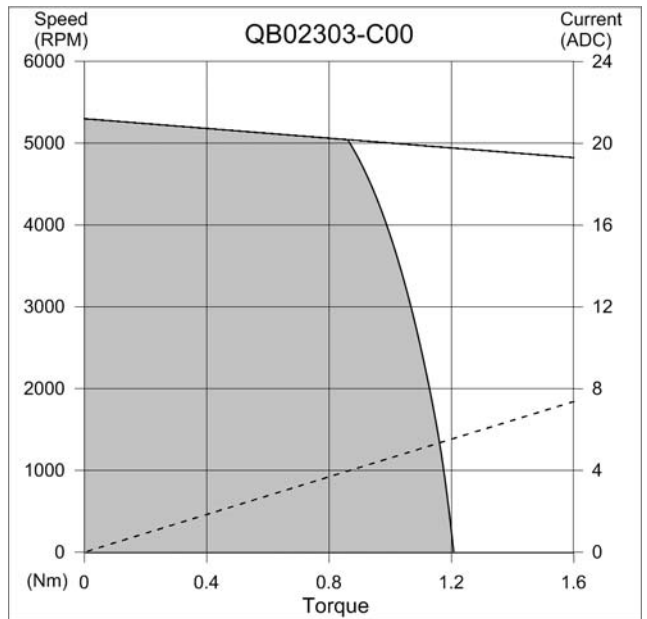
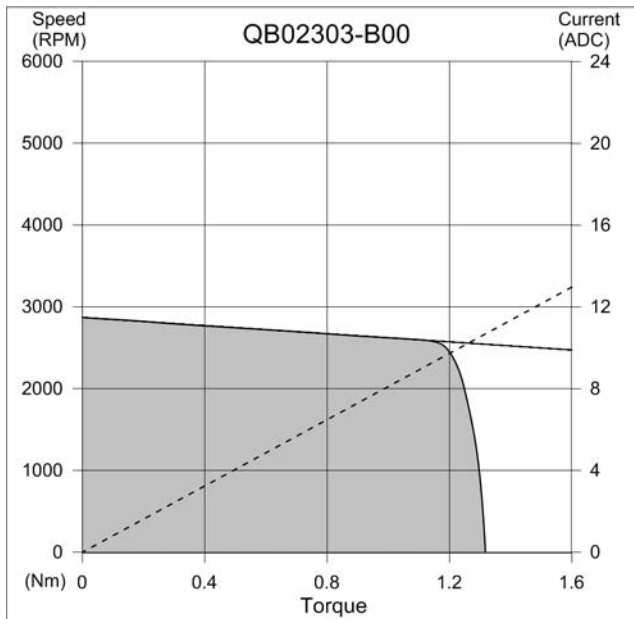
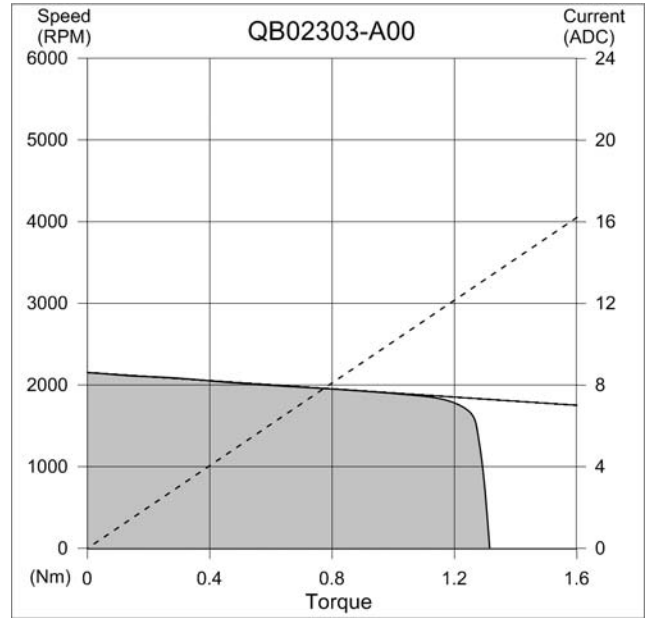
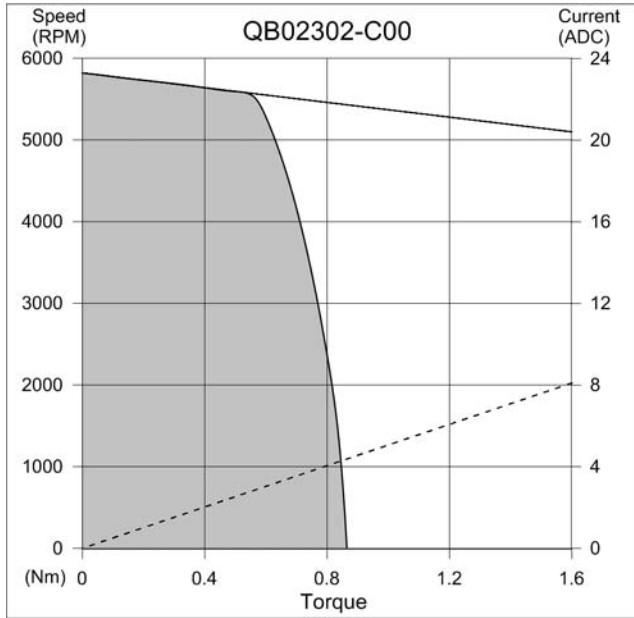
### PERFORMANCE



# Servo Motors

## QB023 Series Frameless Brushless Servo Motors

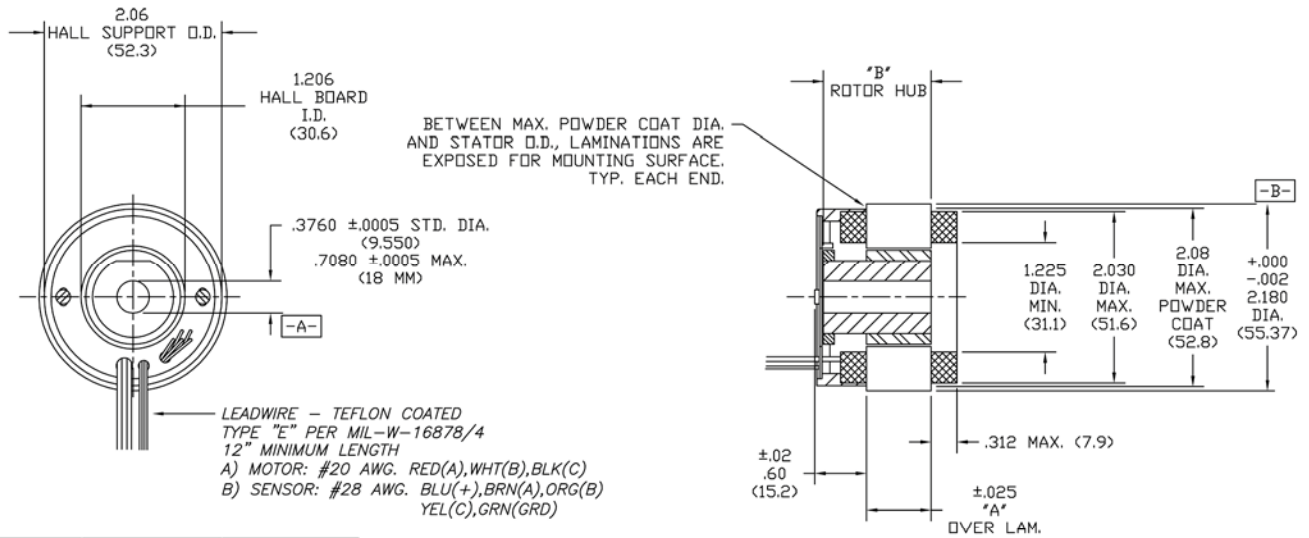
### PERFORMANCE



# Servo Motors

## QB023 Series Frameless Brushless Servo Motors

### DIMENSIONS



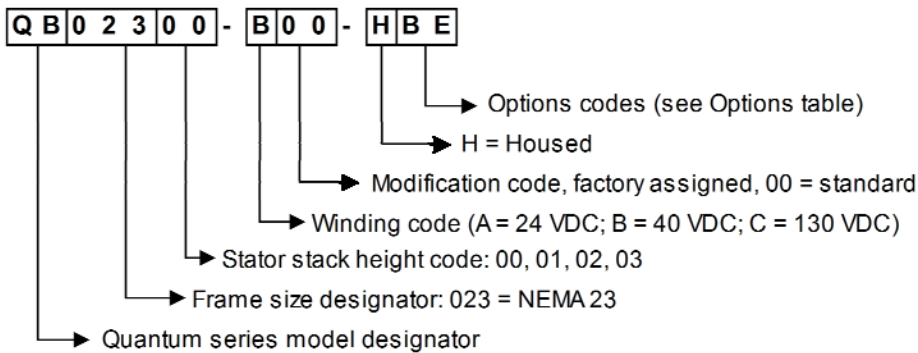
MODEL NO.	"A" STATOR	"B" ROTOR
QB02300	.750 (19.05)	1.250 (31.75)
QB02301	1.500 (38.10)	2.000 (50.80)
QB02302	2.250 (57.15)	2.750 (69.85)
QB02303	3.000 (76.2)	3.500 (88.90)

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. STD. HUB LENGTH IS 1.250" LG. .750" HUBS ARE PROVIDED FOR CUSTOMER STACKING BEYOND 1.250".

in (mm)



### MODEL NUMBERING



Options
Z = RoHS compliant

# Servo Motors

## QB034 Series Frameless Brushless Servo Motors

### SPECIFICATIONS (all data measured at 20 °C ambient)

Model No.		QB03400			QB03401		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	118	125	122	221	218	210
	Nm	0.835	0.881	0.860	1.563	1.538	1.484
Peak Torque	oz-in	605	605	605	1374	1374	1374
	Nm	4.27	4.27	4.27	9.70	9.70	9.70
Peak Current	A	45.9	38.2	28.1	74.3	59.4	37.1
No Load Speed	RPM	2271	3155	7313	1620	2160	4387
	rad/s	238	330	733	170	226	459
Torque Constant (±10%)	oz-in/A	13.2	15.8	22.2	18.5	23.1	37.0
	Nm/A	0.093	0.112	0.157	0.131	0.163	0.261
BEMF Constant (±10%)	V/kRPM	9.76	11.71	16.41	13.68	17.10	27.36
	V/rad/s	0.093	0.112	0.157	0.131	0.163	0.261
Cogging Torque (max.)	oz-in	3.54			4.96		
	Nm	0.025			0.035		
Rotor Inertia	oz-in-s <sup>2</sup>	7.48E-03			1.5E-02		
	kg-m <sup>2</sup>	5.3E-05			1.1E-04		
Motor Constant	oz-in/√W	20.6	21.8	21.3	34.7	34.1	32.9
	Nm/√W	0.146	0.154	0.150	0.245	0.241	0.232
Elect. Time Constant	ms	1.8	2.0	2.0	2.4	2.3	2.2
Mech. Time Constant	ms	2.3	2.1	2.2	1.6	1.7	1.8
Thermal Resistance <sup>(1)</sup>	°C/W	1.87			1.51		
Terminal Resistance (±12%)	Ohm	0.41	0.53	1.09	0.29	0.46	1.26
Terminal Inductance (±30%)	mH	0.74	1.07	2.15	0.69	1.08	2.76
Motor Weight (±8%)	lb	1.46	1.48	1.38	2.84	2.80	2.72
	kg	0.66	0.68	0.67	1.29	1.27	1.23
Ambient Storage Temperature	°C	-55 to 150			-55 to 150		

(1) Housed version of motor mounted to 254 mm sq. x 6.35 mm (10 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

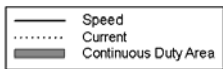
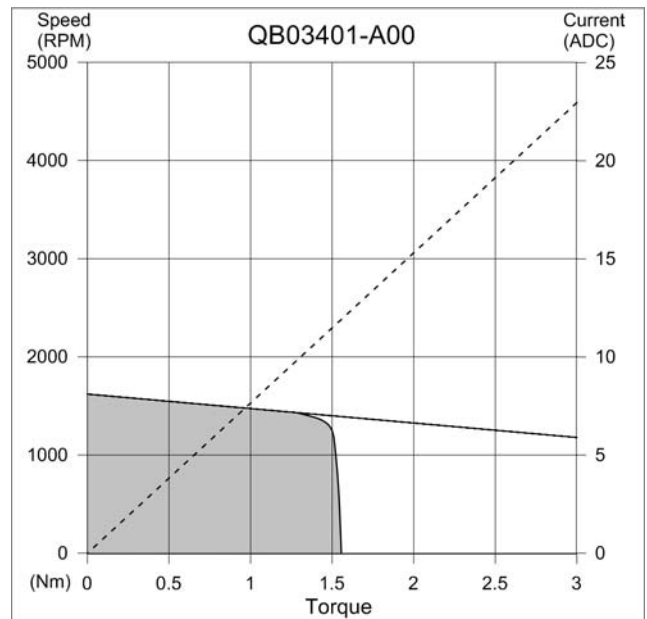
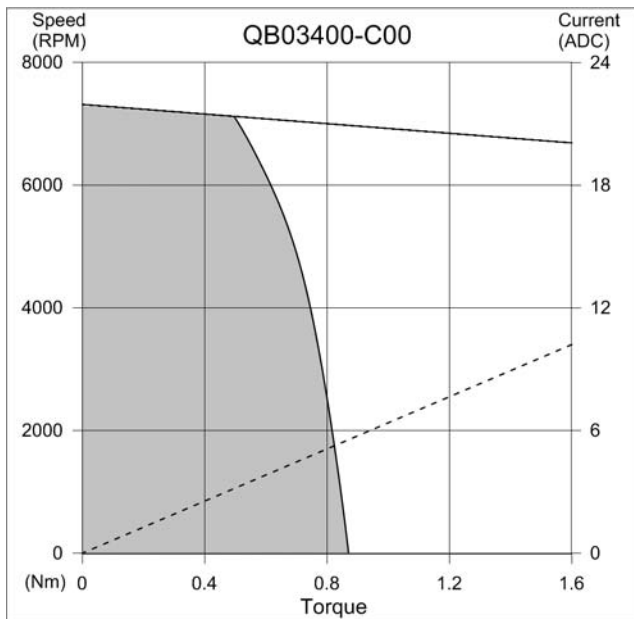
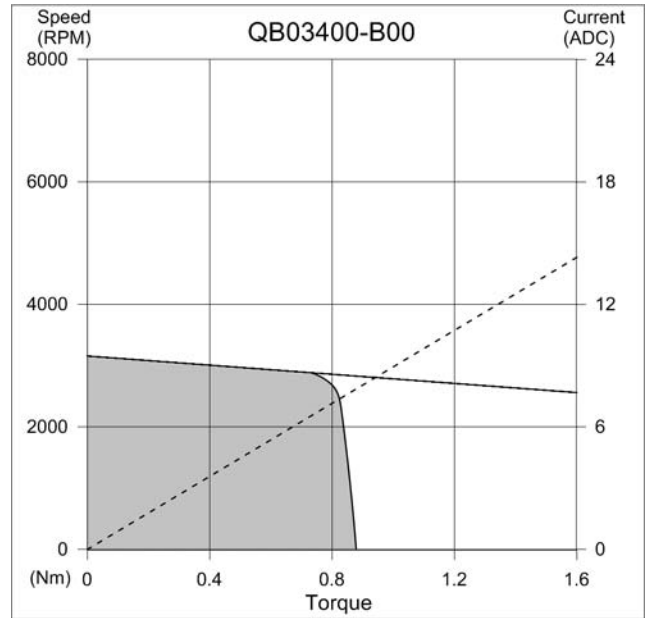
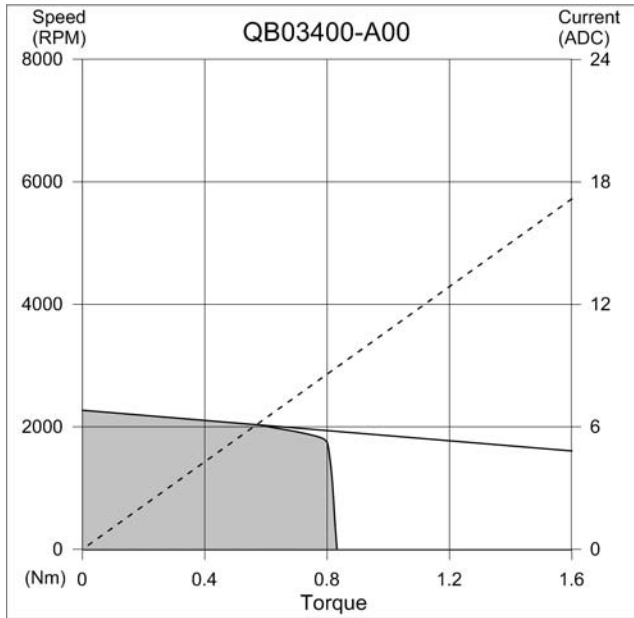
Model No.		QB03402			QB03403		
Winding Voltage	V	24	40	130	24	40	130
Poles	-	6					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	335	320	337	448	453	415
	Nm	2.366	2.263	2.377	3.163	3.202	2.928
Peak Torque	oz-in	2071	2071	2071	2760	2760	2760
	Nm	14.6	14.6	14.6	19.5	19.5	19.5
Peak Current	A	91.2	74.1	46.5	100	91.1	71.8
No Load Speed	RPM	1319	1787	3643	1116	1648	4213
	rad/s	138	187	381	117	173	441
Torque Constant (±10%)	oz-in/A	22.7	26.0	44.6	26.8	30.3	38.5
	Nm/A	0.160	0.197	0.315	0.189	0.214	0.272
BEMF Constant (±10%)	V/kRPM	16.8	20.67	32.95	19.82	22.41	28.43
	V/rad/s	0.160	0.197	0.315	0.189	0.214	0.272
Cogging Torque (max.)	oz-in	6.52			7.93		
	Nm	0.046			0.056		
Rotor Inertia	oz-in-s <sup>2</sup>	2.2E-02			3.0E-02		
	kg-m <sup>2</sup>	1.6E-04			2.1E-04		
Motor Constant	oz-in/√W	45.8	43.8	46.0	54.7	55.4	50.7
	Nm/√W	0.323	0.309	0.325	0.386	0.391	0.358
Elect. Time Constant	ms	2.8	2.6	2.8	2.8	2.6	2.4
Mech. Time Constant	ms	1.4	1.5	1.4	1.3	1.3	1.5
Thermal Resistance <sup>(1)</sup>	°C/W	1.15			0.92		
Terminal Resistance (±12%)	Ohm	0.25	0.41	0.94	0.24	0.30	0.58
Terminal Inductance (±30%)	mH	0.69	1.05	2.66	0.67	0.77	1.39
Motor Weight (±8%)	lb	4.20	4.10	4.11	5.5	5.5	5.4
	kg	1.90	1.86	1.87	2.51	2.51	2.43
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 254 mm sq. x 6.35 mm (10 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

# Servo Motors

## QB034 Series Frameless Brushless Servo Motors

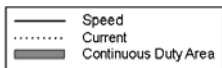
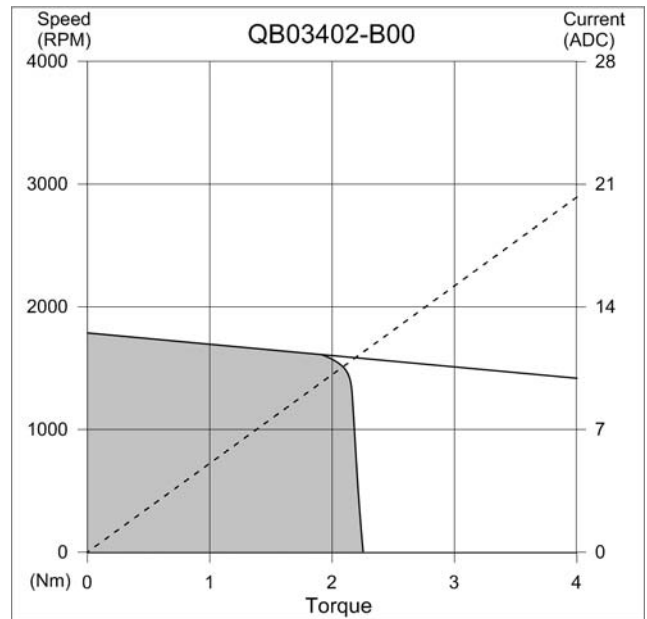
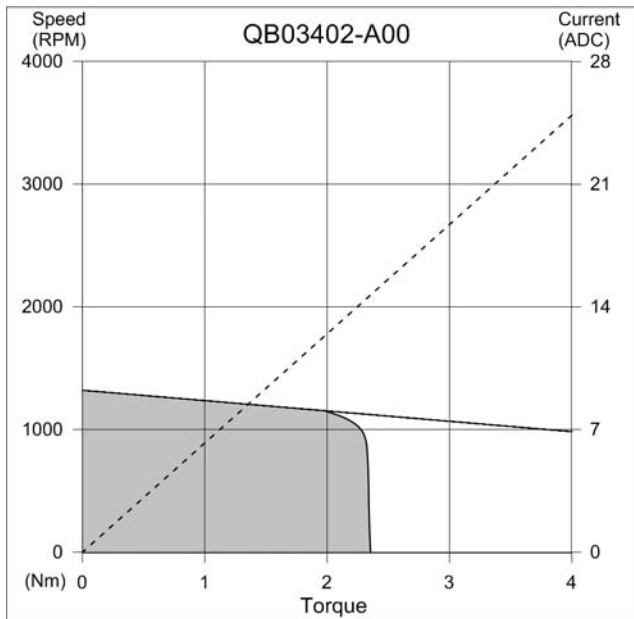
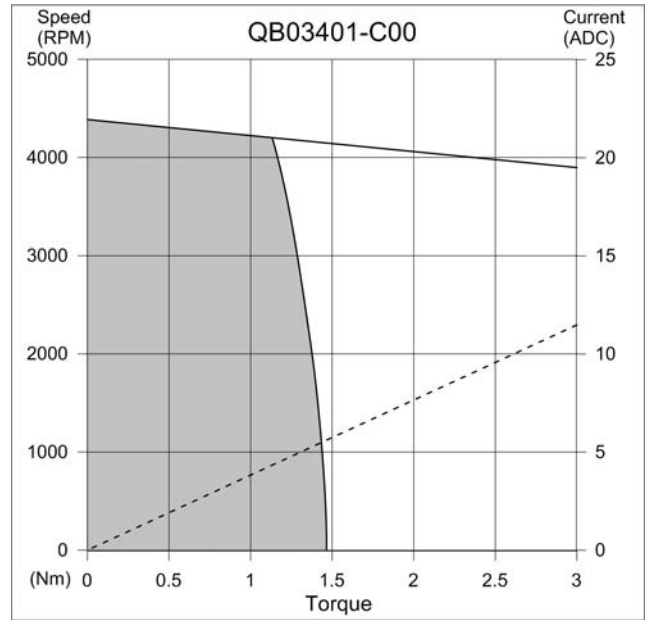
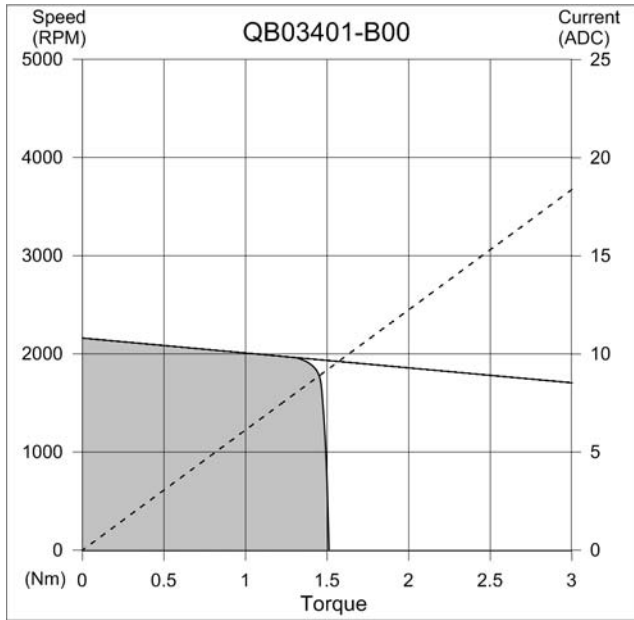
### PERFORMANCE



# Servo Motors

## QB034 Series Frameless Brushless Servo Motors

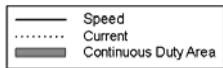
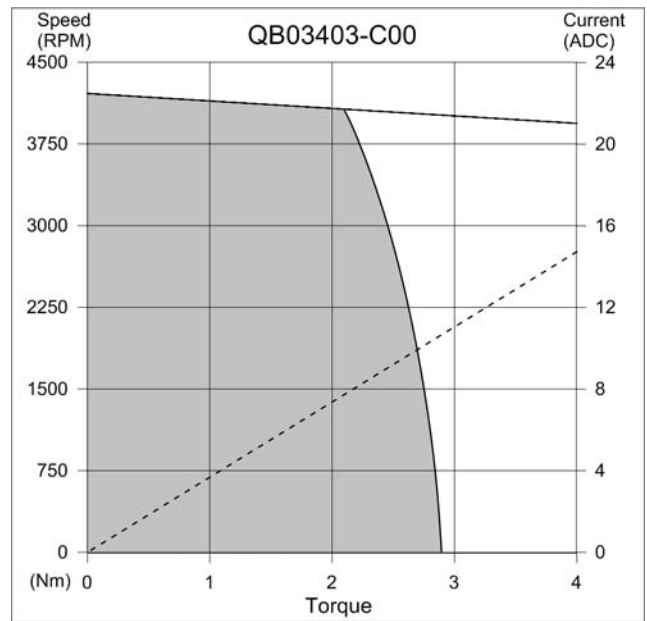
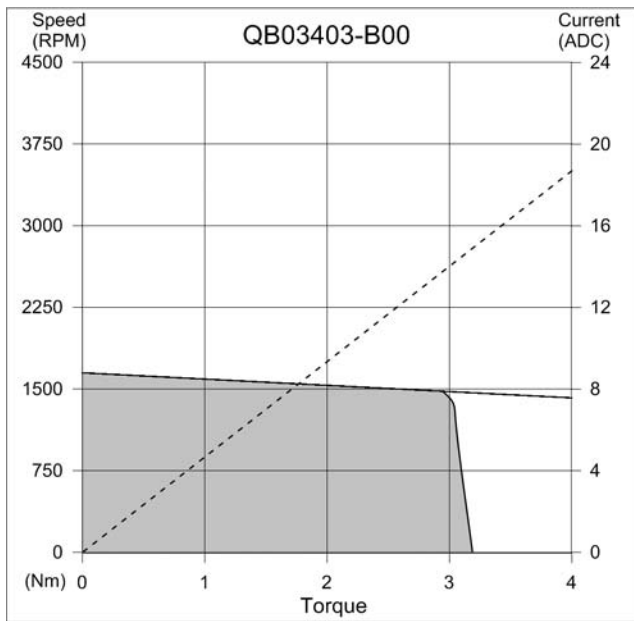
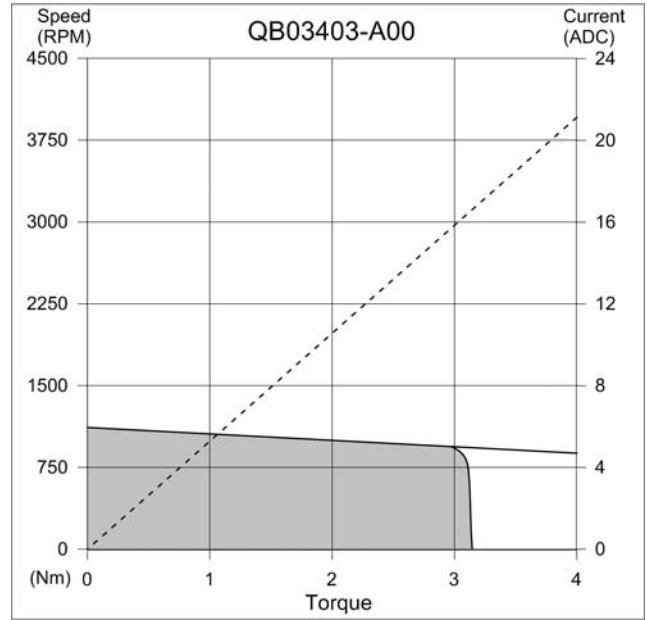
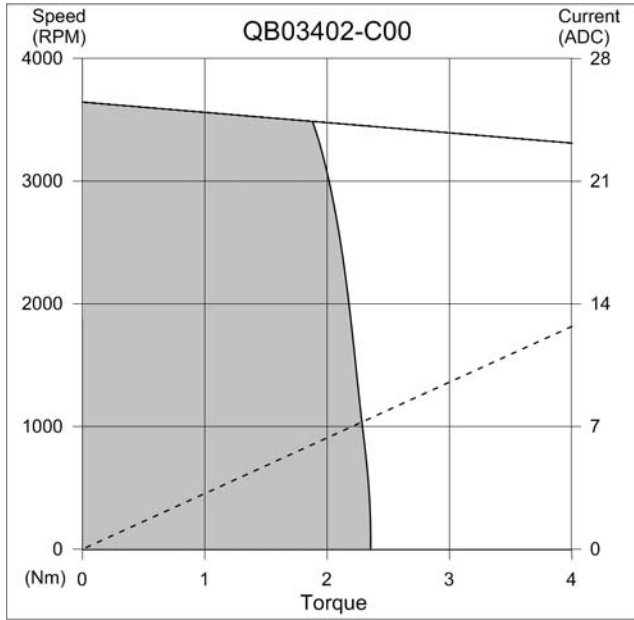
### PERFORMANCE



# Servo Motors

## QB034 Series Frameless Brushless Servo Motors

### PERFORMANCE

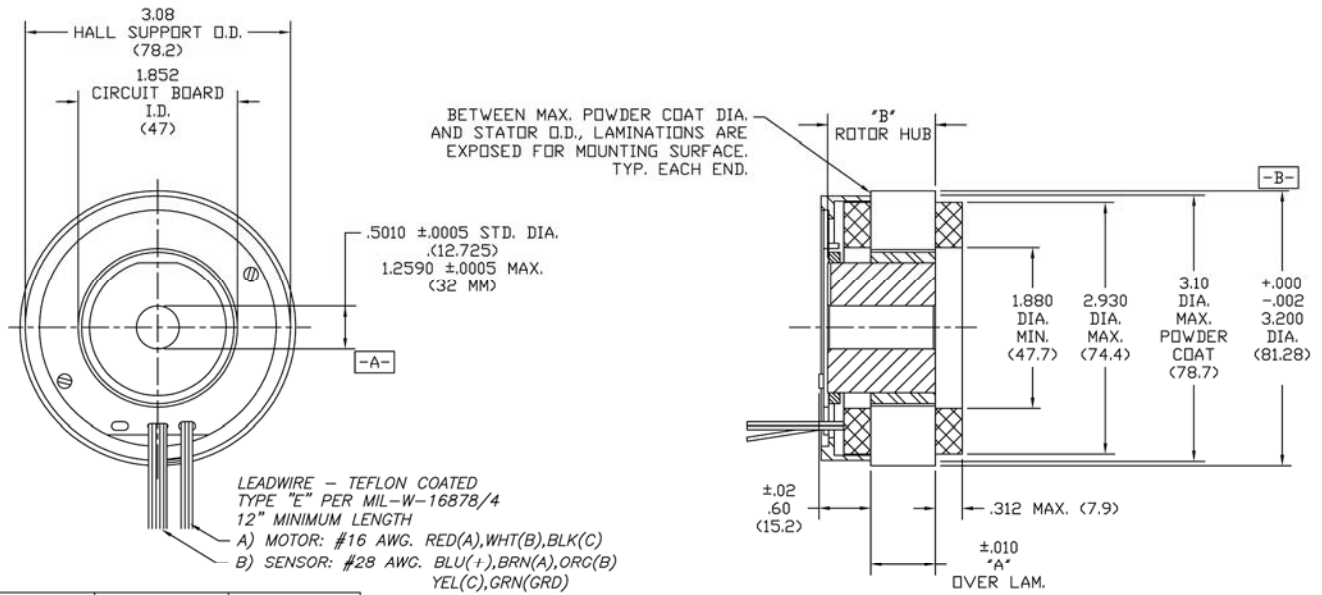




# Servo Motors

## QB034 Series Frameless Brushless Servo Motors

### DIMENSIONS



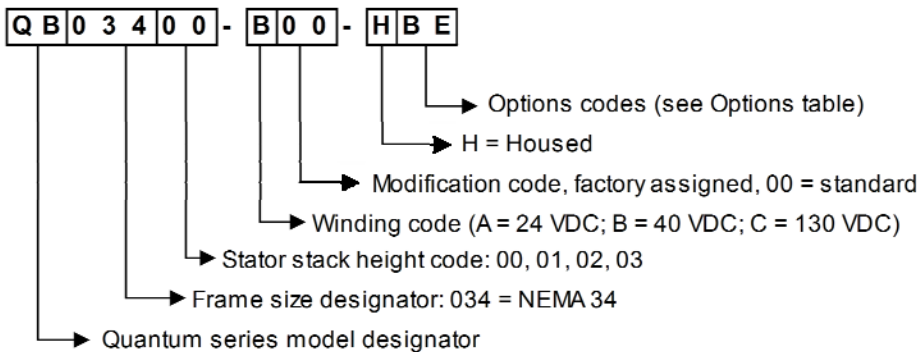
MODEL NO.	"A" STATOR	"B" ROTOR
QB03400	.750 (19.05)	1.250 (31.75)
QB03401	1.500 (38.10)	2.000 (50.80)
QB03402	2.250 (57.15)	2.750 (69.85)
QB03403	3.000 (76.20)	3.500 (88.90)

- MOTOR SUPPLIED AS TWO SEPARATE COMPONENTS, ROTOR ASSEMBLY AND STATOR ASSEMBLY.
- DIAMETERS "A" AND "B" TO BE CONCENTRIC WITHIN .002 WHEN MOUNTED.
- STD. HUB LENGTH IS 1.250" LG. .750" HUBS ARE PROVIDED FOR CUSTOMER STACKING BEYOND 1.250"

in (mm)



### MODEL NUMBERING



Options
Z = RoHS compliant

# Servo Motors

## QB056 Series Frameless Brushless Servo Motors

### SSPECIFICATIONS (all data measured at 20 °C ambient)

Model No.		QB05600			QB05601		
Winding Voltage	V	40	130	300	40	130	300
Poles	-	8					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	599	597	601	1145	1133	1173
	Nm	4.23	4.22	4.24	8.09	8.00	8.28
Peak Torque	oz-in	4243	4243	4243	8497	8497	8497
	Nm	30	30	30	60	60	60
Peak Current	A	227	123	63	411	205	94
No Load Speed	RPM	2653	4637	5534	2400	3930	4162
	rad/s	278	486	580	251	412	436
Torque Constant (±10%)	oz-in/A	18.8	34.9	67.6	20.7	41.3	89.7
	Nm/A	0.133	0.247	0.477	0.146	0.292	0.633
BEMF Constant (±10%)	V/kRPM	13.9	25.8	50.0	15.3	30.5	66.3
	V/rad/s	0.133	0.247	0.477	0.146	0.292	0.633
Cogging Torque (max.)	oz-in	11			19		
	Nm	0.078			0.13		
Rotor Inertia	oz-in-s <sup>2</sup>	5.3E-02			1.1E-01		
	kg-m <sup>2</sup>	3.7E-04			7.4E-04		
Motor Constant	oz-in/√W	80.1	79.7	80.3	126	126	129
	Nm/√W	0.565	0.563	0.567	0.891	0.887	0.914
Elect. Time Constant	ms	5.2	5.2	5.3	5.4	5.4	5.8
Mech. Time Constant	ms	1.1	1.1	1.1	0.9	0.9	0.8
Thermal Resistance <sup>(1)</sup>	°C/W	1.09			0.75		
Terminal Resistance (±12%)	Ohm	0.06	0.19	0.71	0.03	0.11	0.48
Terminal Inductance (±30%)	mH	0.29	1.00	3.72	0.15	0.58	2.76
Motor Weight (±8%)	lb	5.0	4.9	4.9	9.6	9.2	9.3
	kg	2.26	2.24	2.20	4.33	4.19	4.23
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 305 mm sq. x 6.35 mm (12 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

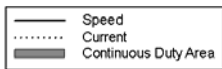
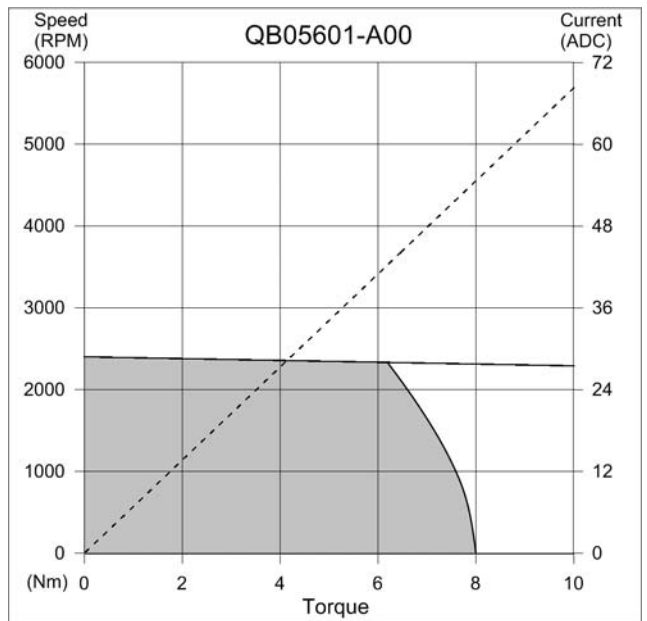
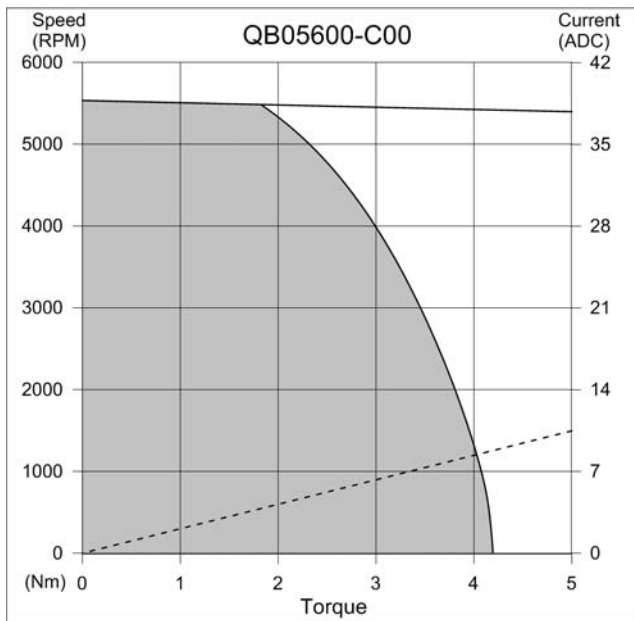
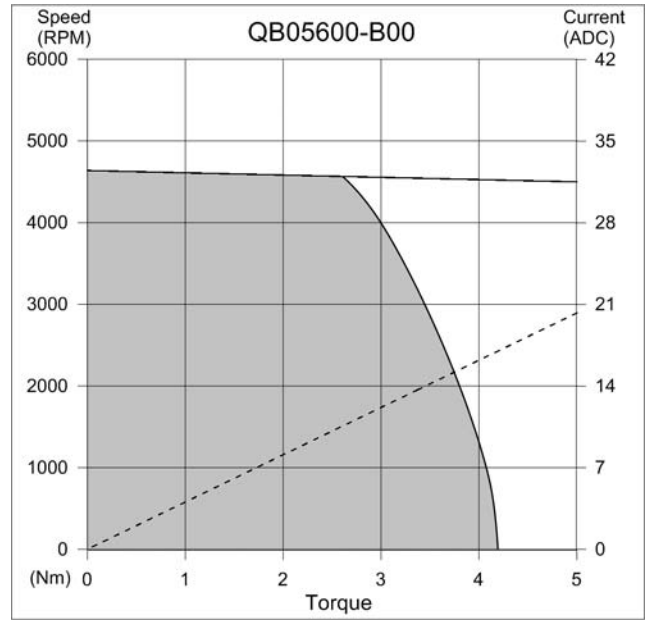
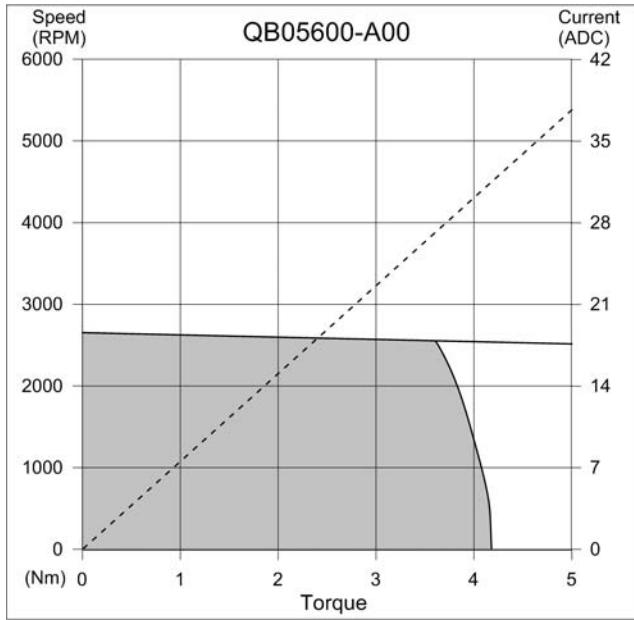
Model No.		QB05602			QB05603		
Winding Voltage	V	40	130	300	40	130	300
Poles	-	8					
Stall Torque (continuous) <sup>(1)</sup>	oz-in	1675	1704	1634	2058	2057	2130
	Nm	11.83	12.04	11.5	14.53	14.52	15.04
Peak Torque	oz-in	12746	12746	12746	15861	15861	15861
	Nm	90	90	90	112	112	112
Peak Current	A	502	266	133	617	288	149
No Load Speed	RPM	1960	3372	3865	1939	2940	3512
	rad/s	205	353	407	203	308	368
Torque Constant (±10%)	oz-in/A	25.3	48.0	96.2	25.7	55.1	106.4
	Nm/A	0.179	0.339	0.679	0.182	0.389	0.751
BEMF Constant (±10%)	V/kRPM	18.7	35.5	71.1	19.0	40.7	78.7
	V/rad/s	0.179	0.339	0.679	0.182	0.389	0.751
Cogging Torque (max.)	oz-in	27			35		
	Nm	0.19			0.25		
Rotor Inertia	oz-in-s <sup>2</sup>	1.6E-01			2.1E-01		
	kg-m <sup>2</sup>	1.1E-03			1.5E-03		
Motor Constant	oz-in/√W	165	168	161	190	190	196
	Nm/√W	1.165	1.189	1.140	1.339	1.338	1.385
Elect. Time Constant	ms	6.8	7.1	6.5	7.0	7.0	7.5
Mech. Time Constant	ms	0.8	0.7	0.8	0.8	0.8	0.7
Thermal Resistance <sup>(1)</sup>	°C/W	0.60			0.52		
Terminal Resistance (±12%)	Ohm	0.02	0.08	0.36	0.02	0.08	0.29
Terminal Inductance (±30%)	mH	0.16	0.57	2.30	0.13	0.59	2.20
Motor Weight (±8%)	lb	13.8	13.8	13.5	18.2	18.0	17.8
	kg	6.25	6.25	6.13	8.27	8.18	8.08
Ambient Storage Temperature	°C	-55 to 150					

(1) Housed version of motor mounted to 305 mm sq. x 6.35 mm (12 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C

# Servo Motors

## QB056 Series Frameless Brushless Servo Motors

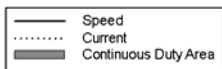
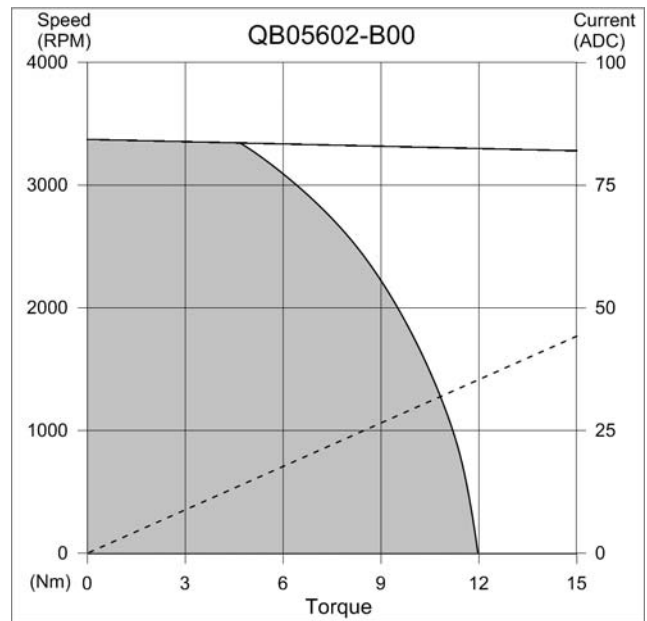
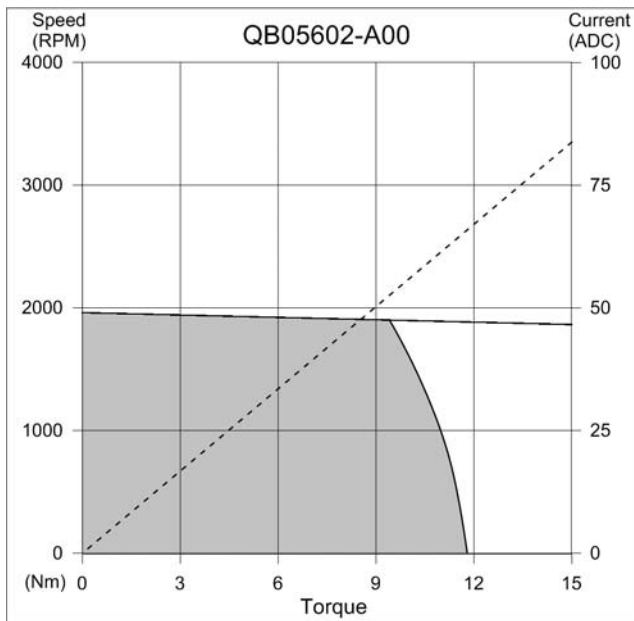
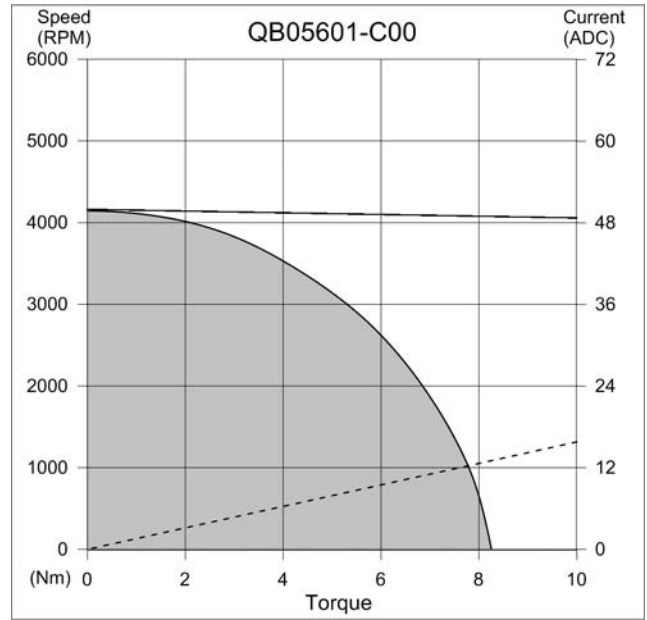
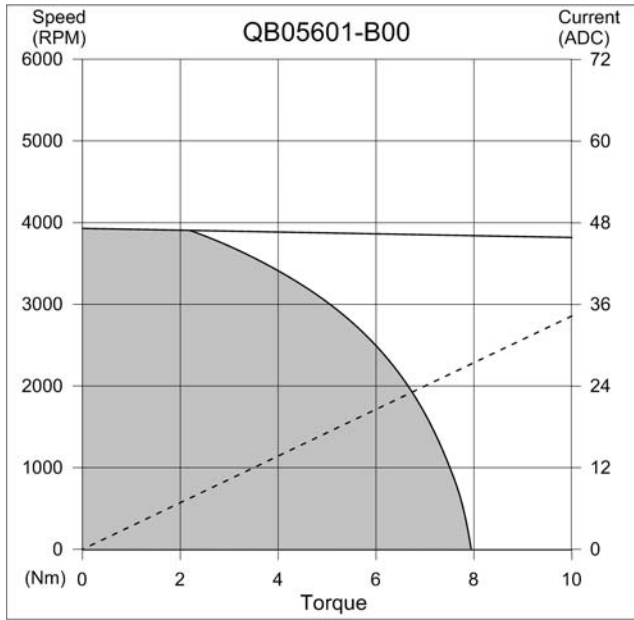
### PERFORMANCE



# Servo Motors

## QB056 Series Frameless Brushless Servo Motors

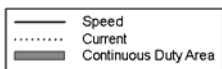
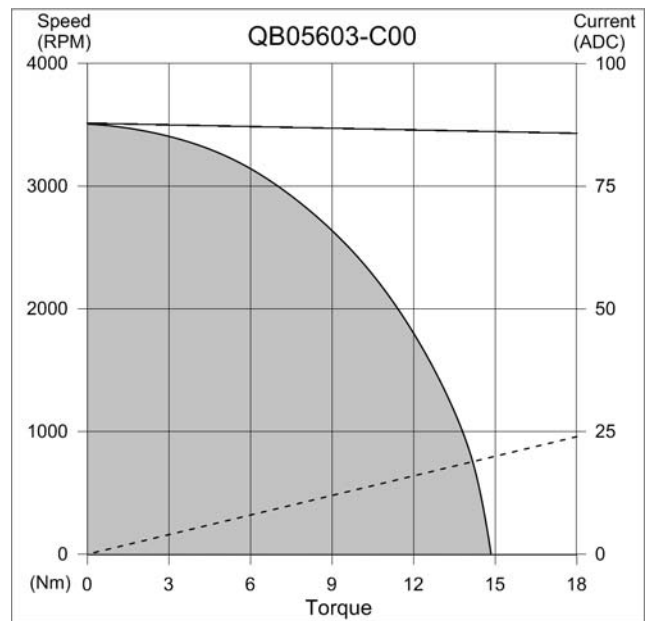
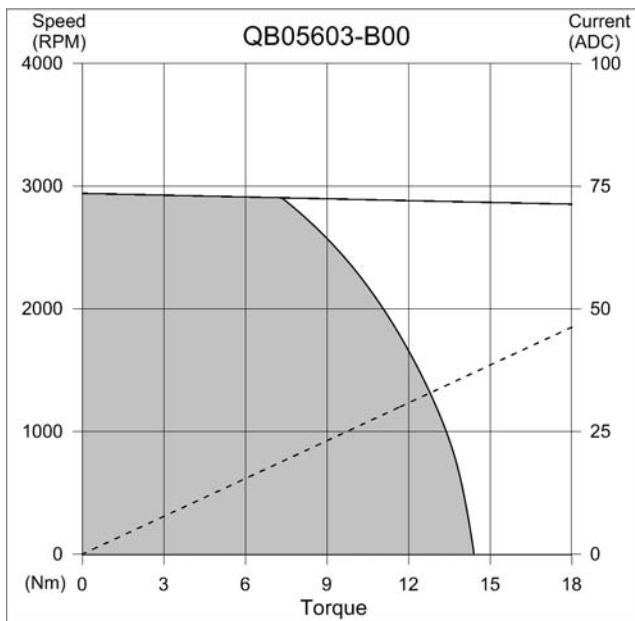
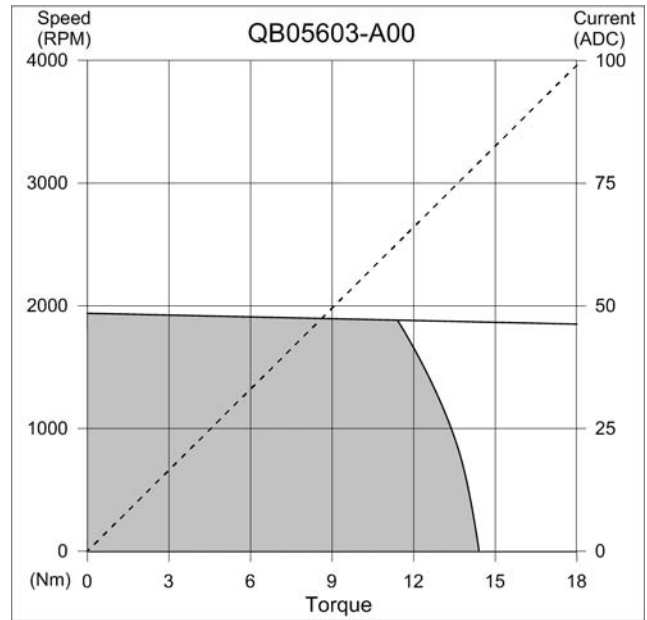
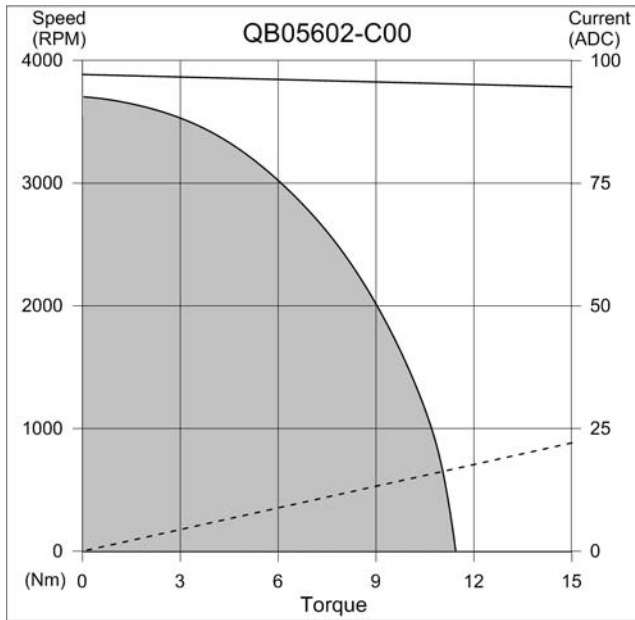
### PERFORMANCE



# Servo Motors

## QB056 Series Frameless Brushless Servo Motors

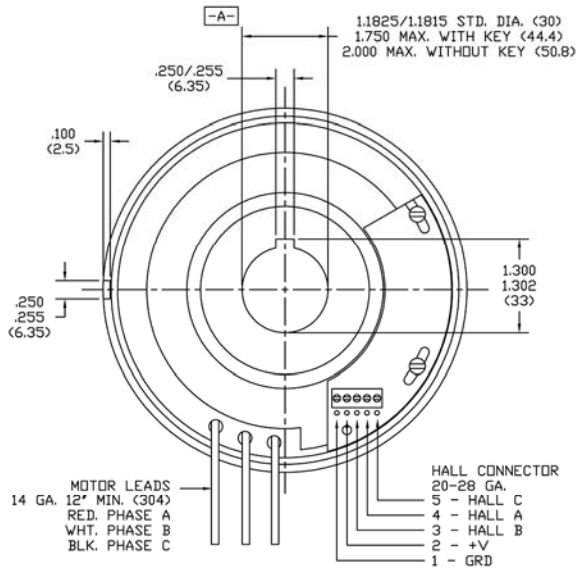
### PERFORMANCE



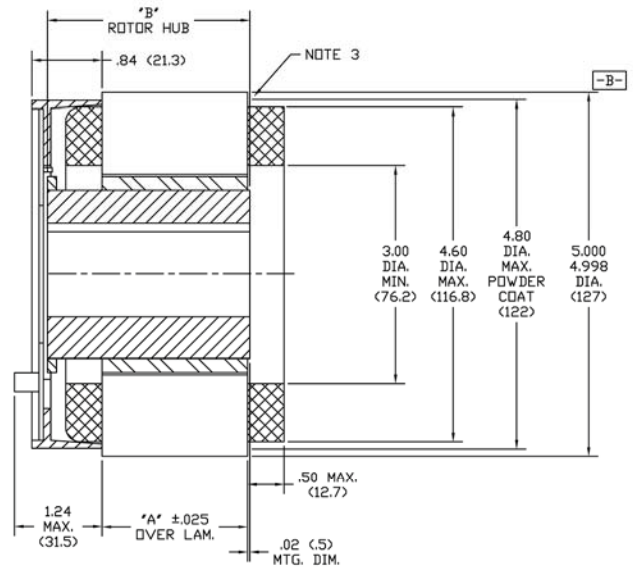
# Servo Motors

## QB056 Series Frameless Brushless Servo Motors

### DIMENSIONS



MODEL	"A" STATOR	"B" ROTOR
5600	1.0 (25.4)	1.78 (45.2)
5601	2.0 (50.8)	2.81 (71.3)
5602	3.0 (76.2)	3.81 (96.7)
5603	4.0 (101.6)	4.84 (122.9)
5604	5.0 (127)	5.84 (148.3)
5605	6.0 (152.4)	6.87 (174.5)

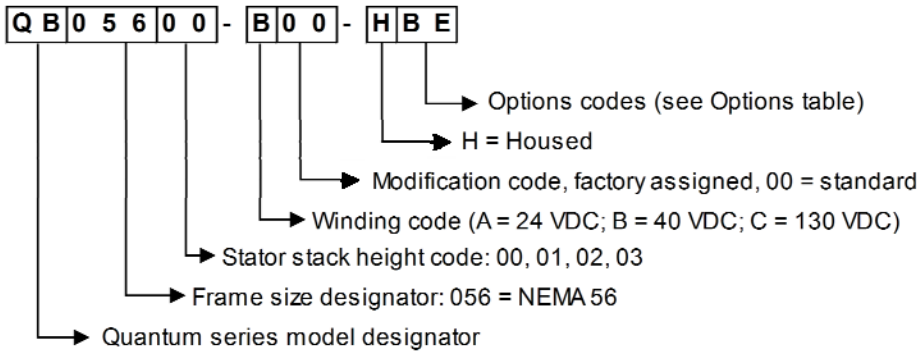


1. MOTOR SUPPLIED AS TWO SEPARATE COMPONENTS, ROTOR ASSEMBLY AND STATOR ASSEMBLY.
2. DIAMETERS "A" AND "B" TO BE CONCENTRIC WITHIN .005 WHEN MOUNTED.
3. BETWEEN STATOR O.D. AND POWDER COAT, LAMINATIONS ARE EXPOSED FOR MOUNTING SURFACE, BOTH ENDS.

in (mm)



### MODEL NUMBERING



Options
Z = RoHS compliant