

Brushless Servo Motors

Quantum QB34 Series Housed Brushless Servo Motors

NEMA Size 34 High Power Density, Sinusoidal BEMF

Allied Motion's **Quantum (QB) housed brushless servo motors** are designed for use in precision servo applications that require a standard NEMA size 17, 23, 34 or 56 frame motor.

The QB034 series are six-pole motors with 3-phase delta-wound stators that conform to NEMA size 34 mounting standards. Rated torques range from 0.56 up to 3.05 Nm, and rated power extends from 148 up to 897 W. Winding voltage choices are 24, 40 and 130 V.

The QB series are electromechanically 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.

Quantum motors are also available as frameless versions for direct machine integration.

Features & Benefits

- NEMA 34 frame size with four stack lengths
- Rated torque from 0.56 up to 3.05 Nm and rated power from 148 up to 897 W
- Standard winding voltage ratings of 24, 40, and 130 V
- Rare-earth NdFeB magnets maximize torque production
- Integrated Hall commutation sensors
- Computer optimized design for maximum power and torque density ensures the most compact and efficient design possible

Options

- Encoder or resolver feedback compatible with Allied Motion and other servo drives and motion controllers
- Sealed versions up to IP65 for operation in harsh environments
- Custom winding voltages and other customizations to meet specific application requirements

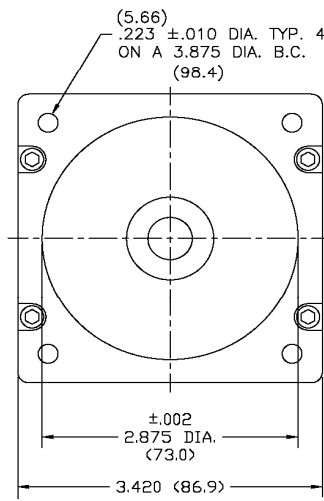


- NEMA size 34 high performance brushless servo motor
- Rated power from 148 up to 897 W and rated torque of from 0.56 up to 3.05 Nm
- Standard winding voltages of 24, 40, and 130 V

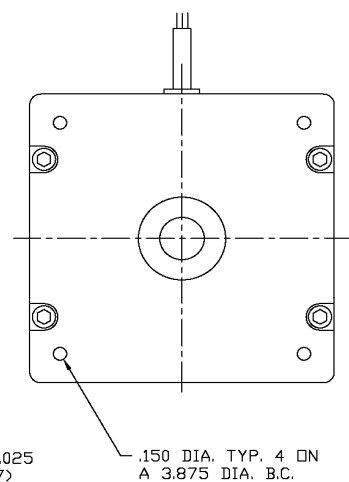
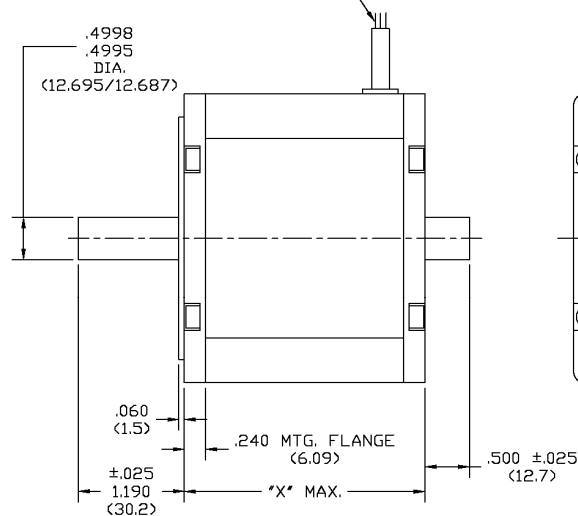
DIMENSIONS

MODEL NO.	LENGTH "X"
QB03400	3.01 (76.5)
QB03401	3.76 (95.5)
QB03402	4.51 (114.6)
QB03403	5.26 (133.6)

LEADWIRE – TEFLON COATED
 TYPE "E" PER MIL-W-16878/4
 12" MINIMUM LENGTH (304)
 A) MOTOR: 16 AWG. RED(A),WHT(B),BLK(C)
 B) SENSOR: 28 AWG. BLU(+),BRN(A), ORG(B)
 YEL(C),GRN(GRD)



in (mm)



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SPECIFICATIONS

Model No.		QB03400			QB03401		
Winding Voltage	V	24	40	130	24	40	130
Stall Torque (continuous) ⁽¹⁾	oz-in	118	125	122	221	218	210
	Nm	0.83	0.88	0.86	1.56	1.54	1.48
Rated Power ⁽¹⁾	W	148	226	385	199	273	503
Rated Torque ⁽¹⁾	oz-in	112	115	79	211	203	155
	Nm	0.79	0.81	0.56	1.49	1.43	1.10
Rated Speed	RPM	1790	2650	6600	1275	1825	4390
Peak Torque	oz-in	605	605	605	1374	1374	1374
	Nm	4.27	4.27	4.27	9.7	9.7	9.7
Rated Phase Current	A	10.6	9.0	4.4	13.6	10.6	6.1
Peak Current	A	46	38	28	74	59	37
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
Voltage Constant (±10%)	V/kRPM	9.76	11.7	16.4	13.7	17.1	27.4
	V/rad/s	0.093	0.112	0.157	0.131	0.163	0.261
Cogging Torque (max.)	oz-in	3.5			5.0		
	Nm	0.0025			0.035		
Rotor Inertia	oz-in-s ²	7.63E-03			1.52E-02		
	kg-m ²	5.4E-05			1.1E-04		
Motor Constant	oz-in/√W	20.6	21.8	21.3	34.7	34.1	32.9
	Nm/√W	0.15	0.15	0.15	0.24	0.24	0.23
Elect. Time Constant	ms	1.81	2.02	1.97	2.42	2.35	2.18
Mech. Time Constant	ms	2.34	2.10	2.21	1.65	1.70	1.83
Thermal Resistance ⁽¹⁾	°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	3.5	3.6	3.6	5.2	5.2	5.1
	kg	1.61	1.62	1.61	2.36	2.34	2.30
Model No.		QB03402			QB03403		
Winding Voltage	V	24	40	130	24	40	130
Stall Torque (continuous) ⁽¹⁾	oz-in	335	320	337	448	453	415
	Nm	2.37	2.26	2.38	3.16	3.20	2.93
Rated Power ⁽¹⁾	W	246	334	699	281	441	897
Rated Torque ⁽¹⁾	oz-in	320	300	266	432	428	288
	Nm	2.26	2.12	1.88	3.05	3.03	2.03
Rated Speed	RPM	1040	1500	3550	878	1391	4213
Peak Torque	oz-in	2071	2071	2071	2760	2760	2760
	Nm	14.6	14.6	14.6	19.5	19.5	19.5
Rated Phase Current	A	17.1	13.1	8.2	20.2	16.7	9.7
Peak Current	A	91	74	46	100	91	72
Torque Constant (±10%)	oz-in/A	22.7	28.0	44.6	26.8	30.3	38.5
	Nm/A	0.160	0.197	0.315	0.189	0.514	0.272
Voltage Constant (±10%)	V/kRPM	16.8	20.7	32.9	19.8	22.4	28.4
	V/rad/s	0.160	0.197	0.315	0.189	0.514	0.272
Cogging Torque (max.)	oz-in	6.5			7.9		
	Nm	0.046			0.056		
Rotor Inertia	oz-in-s ²	2.27E-02			3.02E-02		
	kg-m ²	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	0.32	0.31	0.32	0.39	0.39	0.39
Elect. Time Constant	ms	2.80	2.56	2.83	2.81	2.58	2.41
Mech. Time Constant	ms	1.42	1.55	1.40	1.32	1.29	1.54
Thermal Resistance ⁽¹⁾	°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	6.8	6.7	6.7	8.4	8.4	8.3
	kg	3.10	3.05	3.06	3.83	3.83	3.75

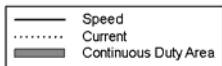
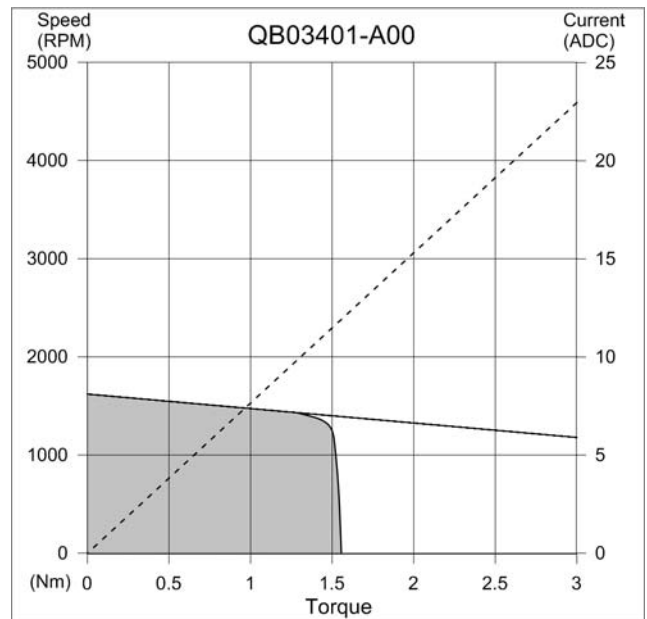
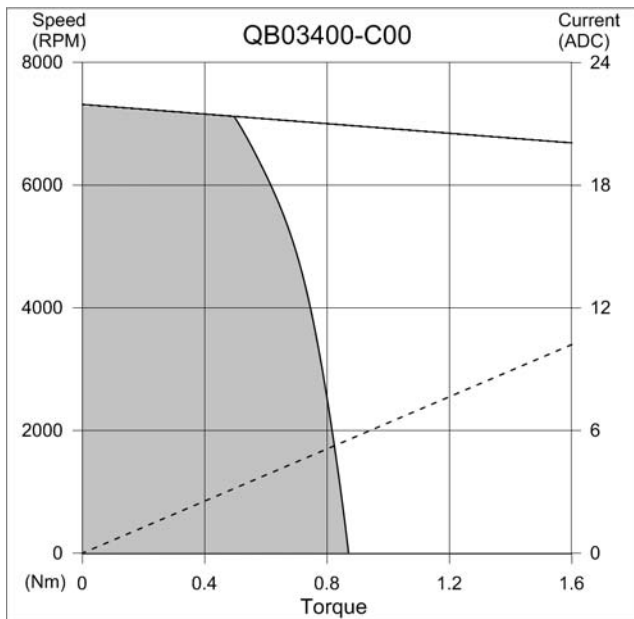
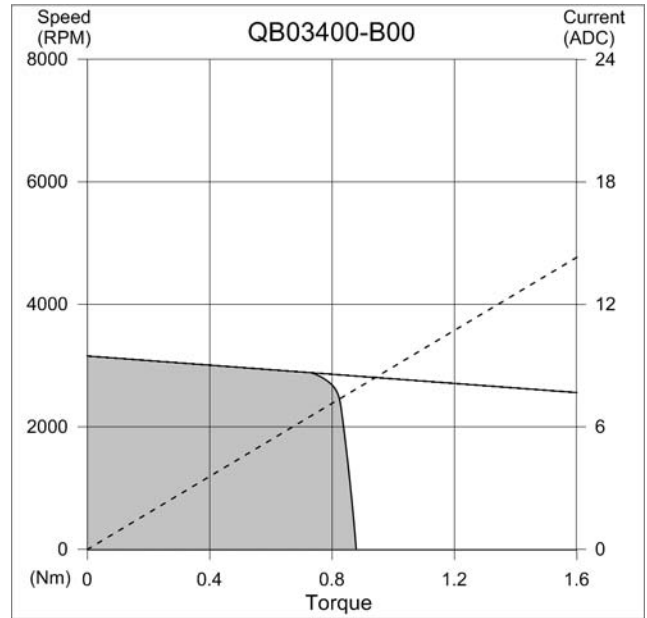
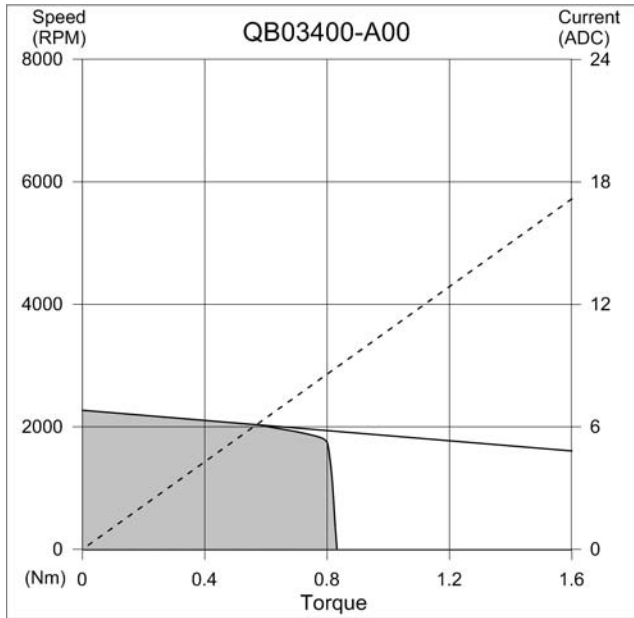
(1) Motor mounted to 152 mm sq. x 6.35 mm (6 in. sq x 0.25 in.) aluminum plate in still air; maximum operating temperature (ambient + rise) is 130 °C.

(2) Storage temperature range is -55 to 150 °C.

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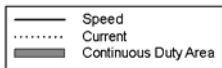
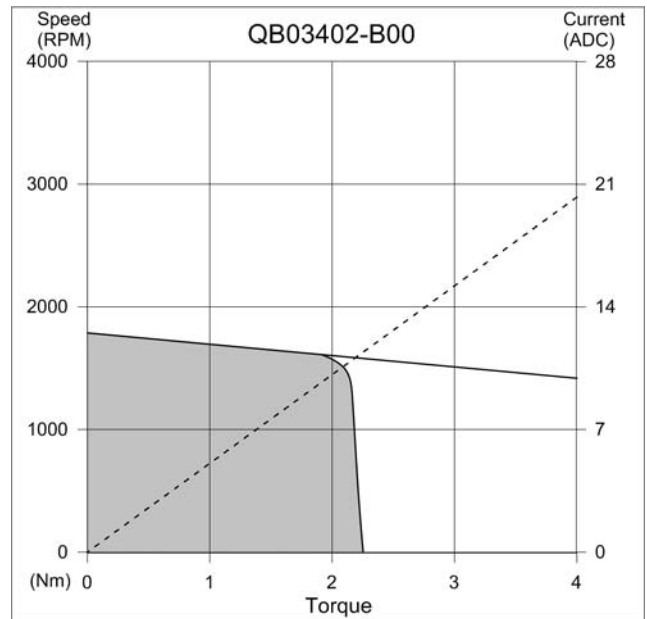
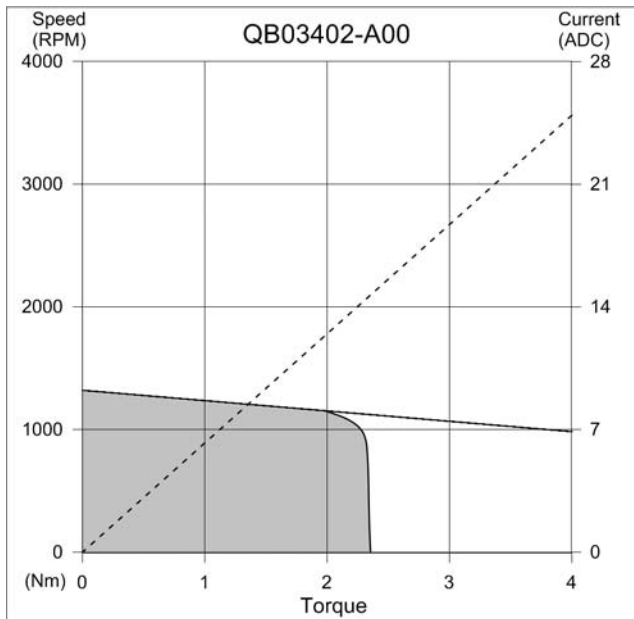
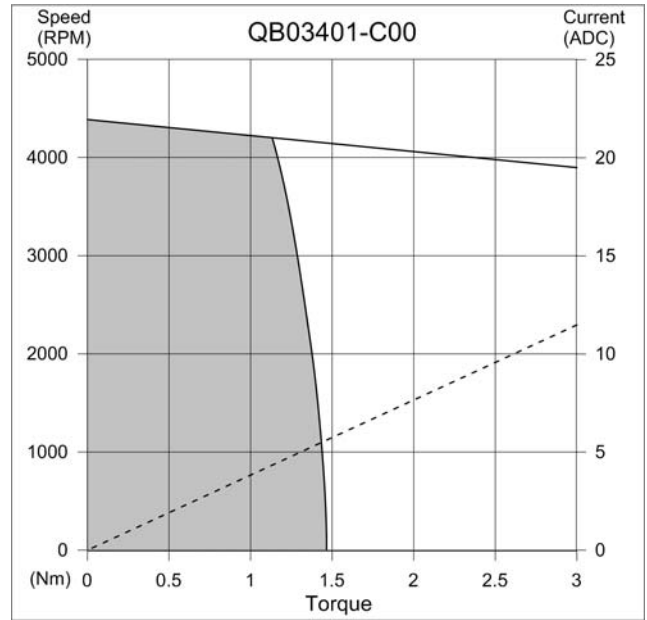
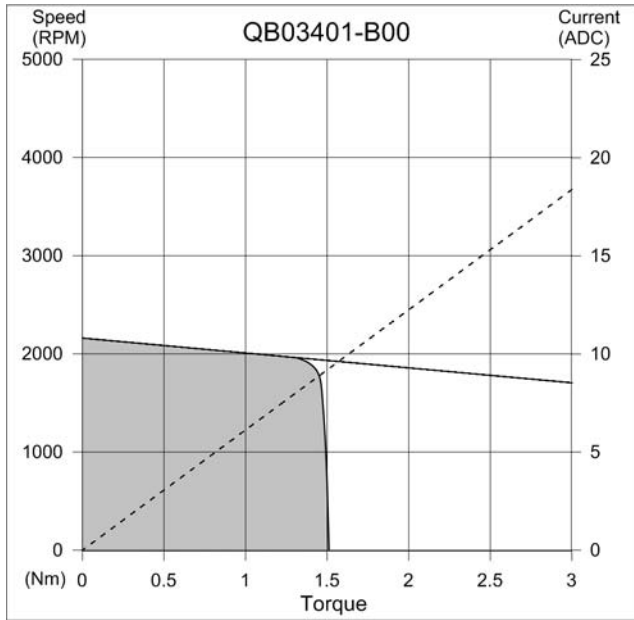
PERFORMANCE



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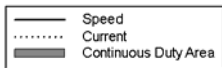
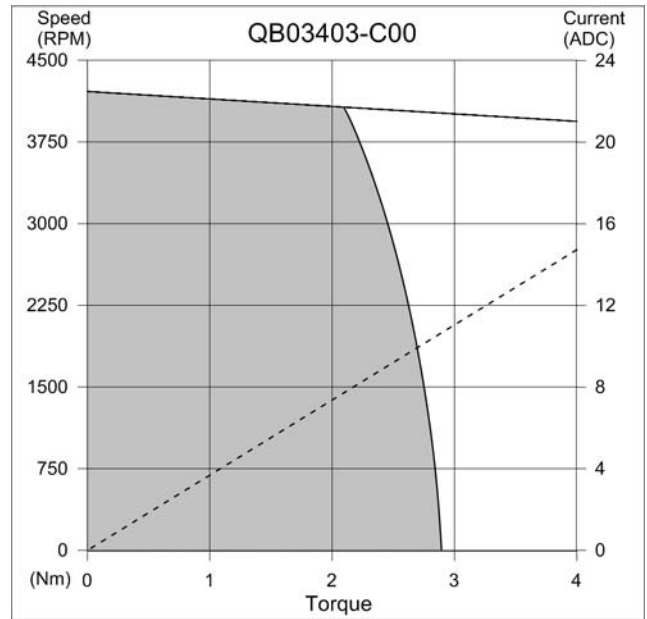
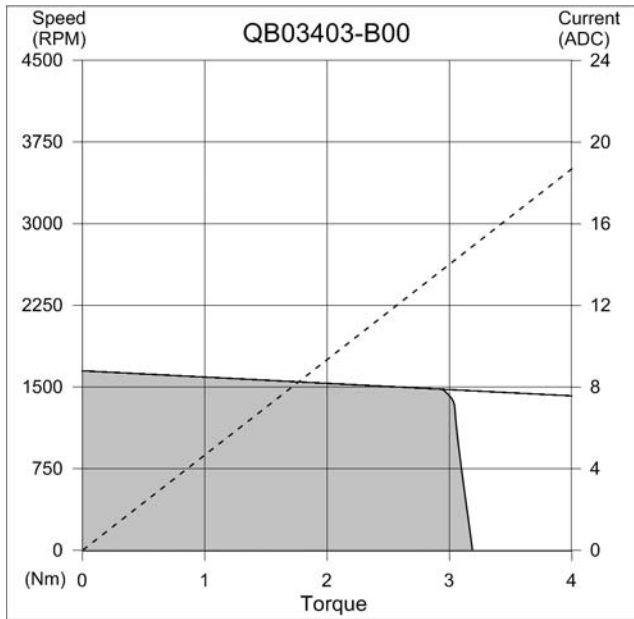
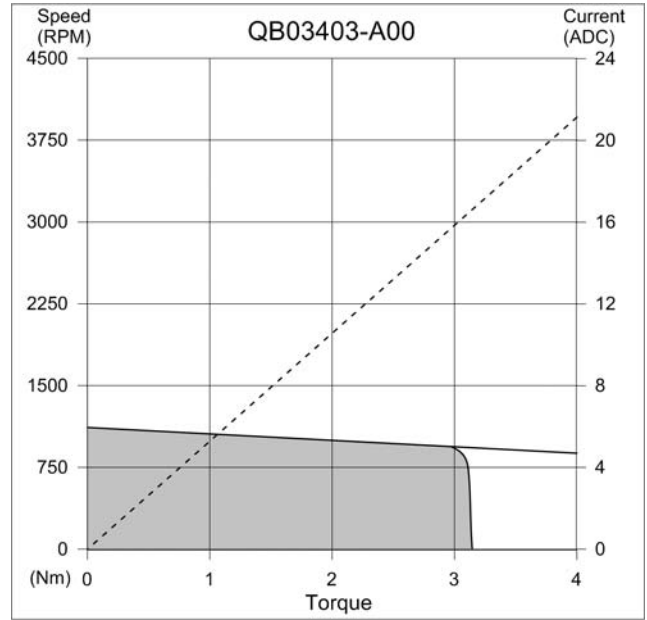
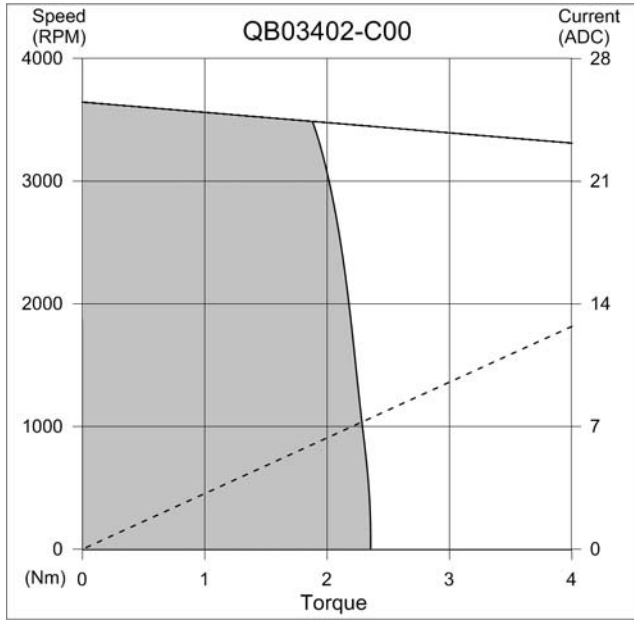
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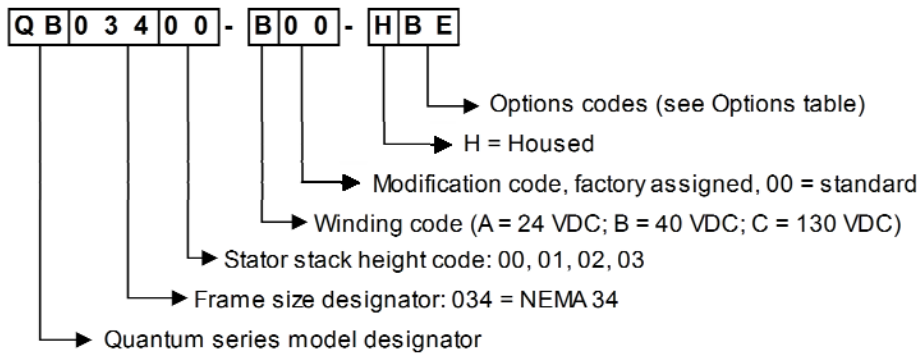
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MODEL NUMBERING



Options
E = Encoder
B = Holding brake
C = Motor connector
G = Gearbox
I = IP65 rating (IP44 std.)
P = Ruggedized housing
R = Resolver