

Brushless Servomotor Product Guide



Guiding you towards the right solution.



Sold & Serviced By:

 **ELECTROMATE**

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A division of Cleveland Motion Controls

An IMC Company

The logo for Cleveland Motion Controls, featuring the letters "CVC" in a stylized blue font with white diagonal stripes. To the right, the words "Cleveland Motion Controls" are written in a smaller blue font, with "An IMC Company" in a very small font below.

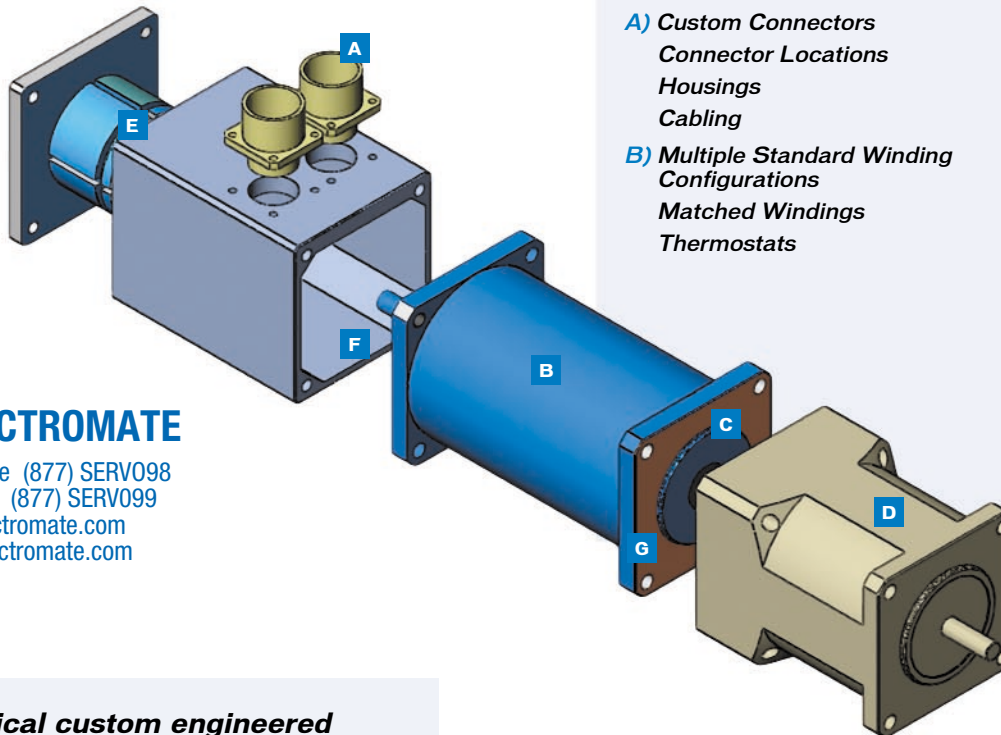


More solutions from us equals more success for you.

At Torque Systems, we have always believed in giving you more choices. After all, your application is unique, so the Brushless Servomotor you choose for it should be unique, too. While the competition stacks their shelves with motors and hardware, we pack ours with engineered solutions. The truth is, our shelf contains just about any type of solution you could require, from simple integration components such as brakes, encoders and tachometers, to elaborate breakthrough designs.

In addition to our wide selection of clean operating, low maintenance brushless servomotors, we also provide you with a range of standard integration and custom engineered options to round out your solution.

Our typical standard integration options include:



A) Custom Connectors
Connector Locations
Housings
Cabling

B) Multiple Standard Winding Configurations
Matched Windings
Thermostats

C) Standard & Custom Shaft Configurations
D) Multiple Gearhead Options

E) Brakes

F) Hall Sensors

Standard and Custom Encoders
Resolvers
Tachometers

G) Standard Flange Mounting
NEMA Mounting

IEC Mounting

Multiple Standard Winding Configurations

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Our typical custom engineered options include:

- Extended Ambient Temperature Ratings
- Custom Winding Configurations
- Special Electromagnetic Design Platforms
- Specialized Military Coatings
- Corrosion Resistant Materials
- Food Grade Materials
- Custom Bearings
- Witness Testing
- P 65 and IP 67 Sealing

Being able to choose from an array of Brushless AC Servomotor solutions is only the beginning. You will also be guided through the entire selection process by members of our highly trained sales force. They will work closely with you so they can gain a thorough understanding of your particular application. This enables them to determine how to create the best solution for you. Once that judgment has been made, our application development engineers step in to ensure that at the end of the process you receive a reliable, high-quality working solution. All this is possible because *Torque Systems will design a product to fit your application* – rather than altering your application to fit our product.

To make the entire process as smooth as possible, we give you the opportunity to size motors and select many standard integration options using our convenient web site servomotor platform configuration feature. **To begin the process, simply visit www.torquesystems.com.**

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Brushless Servomotor Platforms

Key: ■ Continuous Duty ■ Intermittent Duty

Standard Design Features:

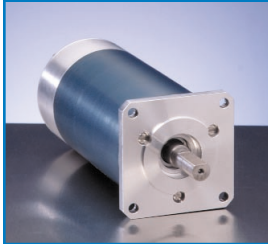
High Energy Neodymium Magnets
CE/UL Compliant
Multiple Winding Availability
Sealed Bearings
Clean Operating, Low Maintenance Brushless Design

Rigid Application Development Process:

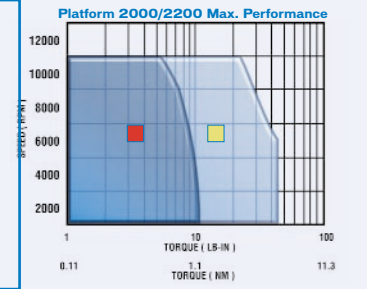
Application Review
Motion Profile Analysis
Magnetic FEA 3D Modeling & Computer Simulation
Prototype Design
Performance Verification

Platform BMR 2000/2200

12 standard available windings



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia lb-in-sec ²	Rotor Inertia Kg(10 ⁻⁴)-m ²
2005	215	5	0.56	23	2.60	0.0004	0.4519
2010	350	10	1.13	45	5.08	0.0009	1.0169
2205	215	5	0.56	23	2.60	0.0004	0.4519
2210	350	10	1.13	45	5.08	0.0009	1.0169

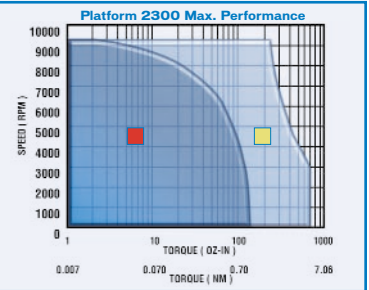


Platform BNL 2300

12 Standard Windings Available



Platform Number	Rated Power W	Cont. Stall Torque oz-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia oz-in-sec ²	Rotor Inertia Kg(10 ⁻⁴)-m ²
2305	145	50	0.35	250	1.77	0.00159	0.1120
2310	260	100	0.71	500	3.53	0.00281	0.1981
2315	320	120	0.85	600	4.24	0.00380	0.2684
2320	330	140	0.99	700	4.94	0.00480	0.3388

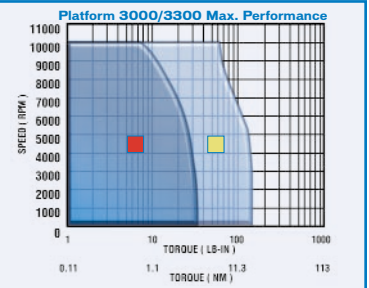


Platform BNR 3000/3300

12 Standard Windings Available



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia lb-in-sec ²	Rotor Inertia Kg(10 ⁻⁴)-m ²
3012	670	12	1.36	60	6.78	0.00080	0.9039
3024	1430	24	2.71	110	12.43	0.00150	0.1695
3034	1700	34	3.84	150	16.95	0.00196	0.2215
3312	670	12	1.36	60	6.78	0.00080	0.9039
3324	1430	24	2.71	110	12.43	0.00150	0.1695
3334	1700	34	3.84	150	16.95	0.00196	0.2215

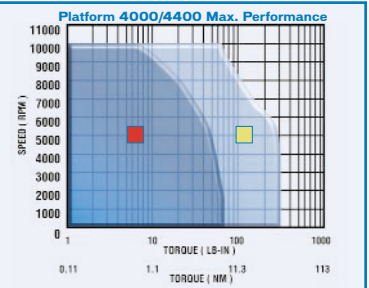


Platform BMR 4000/4400

12 Standard Windings Available



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia lb-in-sec ²	Rotor Inertia Kg(10 ⁻⁴)-m ²
4027	1560	27	3.1	115	13.0	0.00260	2.9376
4045	2440	45	5.1	200	22.6	0.00420	4.7454
4067	2930	67	7.6	300	33.9	0.00720	8.1349
4427	1560	27	3.1	115	13.0	0.00260	2.9376
4445	2440	45	5.1	200	22.6	0.00420	4.7454
4467	2930	67	7.6	300	33.9	0.00720	8.1349



BPS Direct Drive Sets

17 Total Platforms, 12 Windings Each*



Max. Performance	Rated Power Kw	Cont. Stall Torque oz-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia oz-in-sec ²	Rotor Inertia Kg(10 ⁻⁴)-m ²
2320	0.5	160	1.130	700	4.944	0.00539	0.3807
3030	1.7	34	3.84	170	19.21	0.001609	1.8179
4030	2.0	55	6.2	315	35.59	0.003558	4.0200
5050	6.2	200	22.6	900	101.7	0.016600	18.756

Key Benefits:

- Easy integration into customer hardware
- No belts, gears or backlash
- Minimize size & weight, maximize rate & position accuracy
- Low electrical time constant for fast response
- High pole count for smooth, low cogging operation

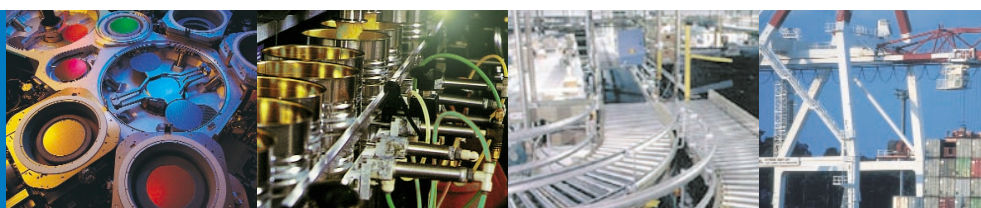
Custom motors available up to 7.5 in. (190 mm) diameter and 450 lb.- in. (41 NM)

*For a complete list of available platforms, please consult the BPS data sheet

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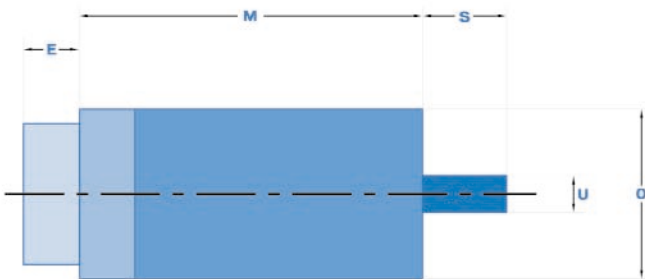
ES Torque Systems will design a product to fit your application – rather than altering your application to fit our product.

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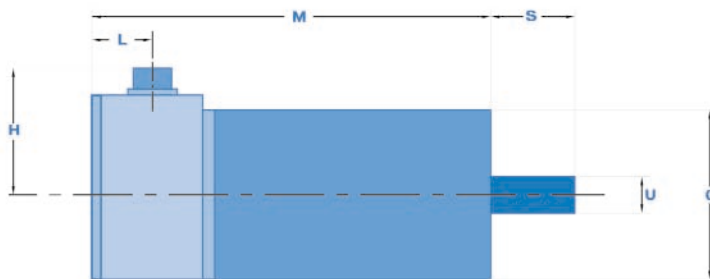


Nominal Motor Dimensions

Platforms 2200, 3300 & 4400



Platforms 2000, 3000 & 4000



Platform		Frame Length Round or D End Bell M -in. (mm)	Frame Diameter	Encoder E -in. (mm)	Addition (mm)	D End Bell Connector C/L to Motor End L -in. (mm)	D End Bell Connector Height to Motor C/L H -in. (mm)	Shaft Extension S -in. (mm)	Shaft Diameter U -in. (mm)
BMR 2000	2005	5.72 (145.3)	2.28 (57.9)	0	0	0.85 (21.6)	2.54 (2.54)	0.77 (19.6)	0.355 (9.02)
	2010	7.22 (183.4)	2.28 (57.9)	0	0	0.85 (21.6)	2.54 (2.54)	0.77 (19.6)	0.355 (9.02)
BMR 2200	2205	4.99 (126.7)	2.28 (57.9)	0.85 (21.6)	N/A	N/A	N/A	0.77 (19.6)	0.355 (9.02)
	2210	6.49 (164.8)	2.28 (57.9)	0.85 (21.6)	N/A	N/A	N/A	0.77 (19.6)	0.355 (9.02)
BNL 2300	2305	2.47 (62.4)	2.25 (57.2)	0.85 (21.6)	N/A	N/A	N/A	0.81 (20.6)	0.25 (6.35)
	2310	2.97 (75.4)	2.25 (57.2)	0.85 (21.6)	N/A	N/A	N/A	0.81 (20.6)	0.25 (6.35)
	2315	3.47 (88.1)	2.25 (57.2)	0.85 (21.6)	N/A	N/A	N/A	0.81 (20.6)	0.25 (6.35)
	2320	3.97 (100.8)	2.25 (57.2)	0.85 (21.6)	N/A	N/A	N/A	0.81 (20.6)	0.25 (6.35)
BNR 3000	3012	6.40 (162.6)	3.38 (85.9)	0	0	1.37 (34.8)	3.35 (3.35)	1 (25.4)	0.5 (12.7)
	3024	7.40 (188.0)	3.38 (85.9)	0	0	1.37 (34.8)	3.35 (3.35)	1 (25.4)	0.5 (12.7)
	3034	8.40 (213.4)	3.38 (85.9)	0	0	1.37 (34.8)	3.35 (3.35)	1 (25.4)	0.5 (12.7)
BNR 3300	3312	3.91 (99.3)	3.38 (85.9)	0.85 (21.6)	N/A	N/A	N/A	1 (25.4)	0.5 (12.7)
	3324	4.91 (124.7)	3.38 (85.9)	0.85 (21.6)	N/A	N/A	N/A	1 (25.4)	0.5 (12.7)
	3334	5.98 (158.9)	3.38 (85.9)	0.85 (21.6)	N/A	N/A	N/A	1 (25.4)	0.5 (12.7)
BMR 4000	4027	8.5 (215.9)	4.21 (106.9)	0	0	1.82 (1.82)	3.35 (46.2)	2.04 (51.8)	0.625 (15.9)
	4045	9.75 (247.7)	4.21 (106.9)	0	0	1.82 (1.82)	3.35 (46.2)	2.04 (51.8)	0.625 (15.9)
	4067	11.75 (298.5)	4.21 (106.9)	0	0	1.82 (1.82)	3.35 (46.2)	2.04 (51.8)	0.75 (19.1)
BMR 4400	4427	6.00 (152.4)	4.21 (106.9)	0.85 (21.6)	N/A	N/A	N/A	2.04 (51.8)	0.625 (15.9)
	4445	7.25 (184.2)	4.21 (106.9)	0.85 (21.6)	N/A	N/A	N/A	2.04 (51.8)	0.625 (15.9)
	4467	9.25 (234.0)	4.21 (106.9)	0.85 (21.6)	N/A	N/A	N/A	2.04 (51.8)	0.75 (19.1)

Notes:

Additions including brakes, resolvers, rear shaft extensions, and seals will increase overall length

Shaft extension includes motor face pilot

Connectors, connector housings, and mounting flanges may increase overall diameter

Nema and IEC mounting standards available

Motor dimensions subject to change

Ask about our other motion controls solutions & capabilities:

DC Brush Servomotors

Linear Actuators

Shaft Mounted DataTorque™ Encoders

Expert application development engineering

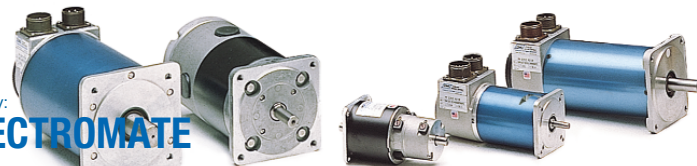
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Encoders



Linear Actuators



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