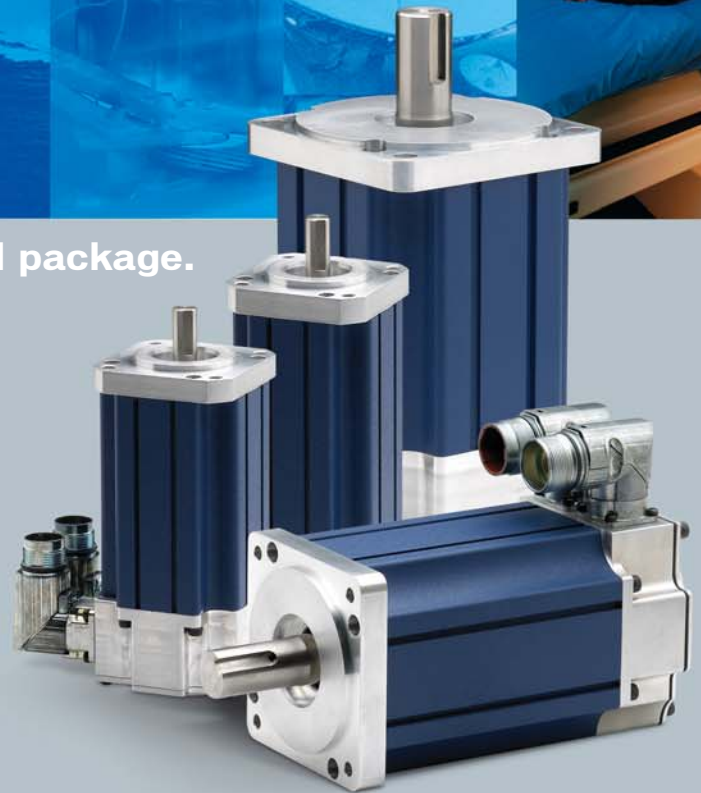


MDM-5000 Product Guide



High torque in a compact, rugged package.



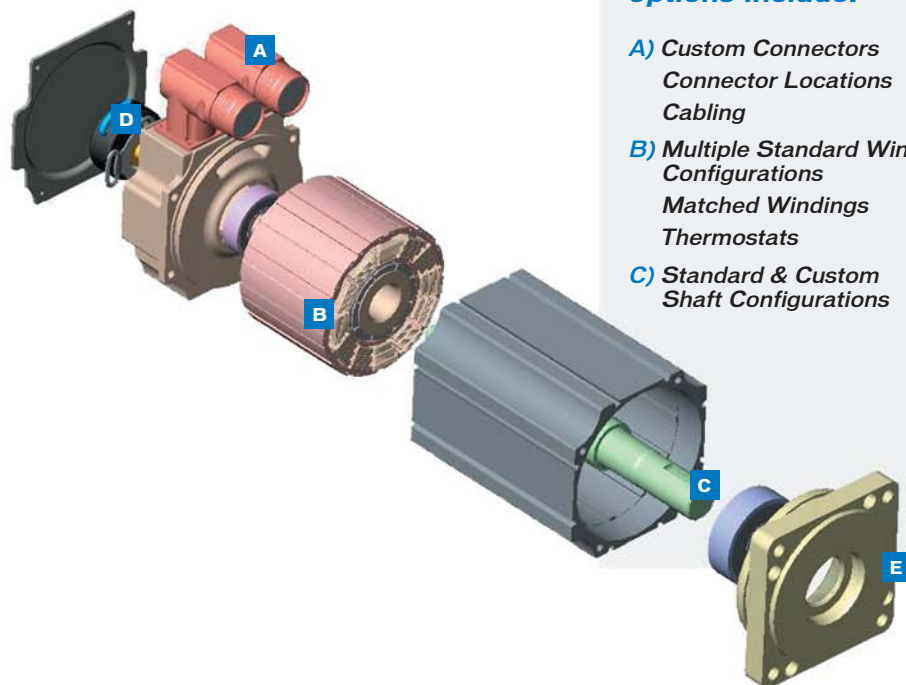


More solutions from us equals more success for you.

At Torque Systems, we have always believed in giving you more choices. After all, your application is unique, so the 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 high power density selection of clean operating, low maintenance 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
Cabling

B) Multiple Standard Winding Configurations
Matched Windings
Thermostats

C) Standard & Custom Shaft Configurations

D) Hall Sensors

Standard and Custom Encoders
Resolvers
Tachometers
Brakes

E) Standard Flange Mounting
NEMA Mounting
IEC Mounting
Multiple Gearhead Options

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
IP 67 Sealing

We engineered the MDM-5000 high-energy brushless servomotor with advanced design features to deliver the industry's highest available torque density in a compact and versatile platform. MDM-5000 servomotors are available in models that produce stall torque up to 35 to 40% higher than conventional designs. The high output is made possible by cut-core, segmented stator lamination technology contained in a high efficiency heat transfer capsule, high slot-fill windings, and a high flux neodymium magnet array.

Standard models are available in either NEMA or IEC mounting configurations with assemble to order availability as standard. Three sizes - 60mm, 85mm and 110mm are available with a continuous stall torque range .5Nm (4.5 lb-in.) to 14.1Nm (125 lb-in.).

Torque Systems can quickly customize the MDM-5000 to fit the most challenging applications and requirements. A wide range of windings is available for fine-tuning to specific power supply specifications. We also offer a broad array of brake and gearbox options and custom termination, connectorization, and cabling configurations to facilitate your assembly requirements. Off-the-shelf feedback options include encoders stocked with multiple line counts, Hall sensors, and resolvers.



High-Energy Brushless Servomotor Platforms

Key: ■ Continuous Duty ■ Intermittent Duty

Standard Design Features:

High Energy Neodymium Magnets
CE/UL Compliant
Multiple Winding Availability
IP 65 Construction
Clean Operating, Low Maintenance Brushless Design

Rigid Application Development Process:

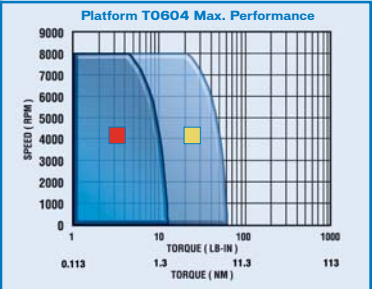
Application Review
Motion Profile Analysis
Magnetic FEA 3D Modeling & Computer Simulation
Prototype Design
Performance Verification

Platform T060

Multiple Standard and Custom Windings Available



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Torque NM	Peak Torque lb-in	Torque NM	Rotor Inertia** lb-in-sec ²	Kg-cm ²
T0601	247	4.4	0.50	22	2.50	0.000135	0.15255
T0602	410	7.7	0.87	39	4.40	0.00017	0.1921
T0603	478	10.5	1.18	52	5.90	0.00024	0.2712
T0604	504	12.4	1.40	62	7.00	0.00031	0.3503

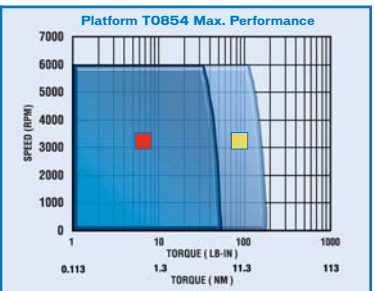


Platform T085

Multiple Standard and Custom Windings Available



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Torque NM	Peak Torque lb-in	Torque NM	Rotor Inertia** lb-in-sec ²	Kg-cm ²
T0851	967	17.7	2.00	57	6.40	0.000825	0.93225
T0852	1536	31	3.50	103	11.60	0.00147	1.6611
T0853	1941	43.4	4.90	144	16.30	0.00182	2.0566
T0854	2059	53.1	6.00	180	20.40	0.0024	2.712

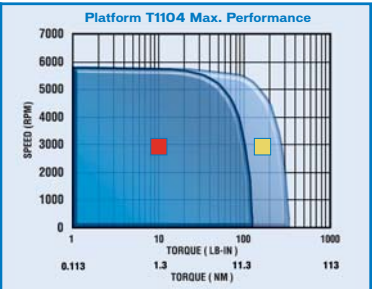


Platform T110

Multiple Standard and Custom Windings Available



Platform Number	Rated Power W	Cont. Stall Torque lb-in	Torque NM	Peak Torque lb-in	Torque NM	Rotor Inertia** lb-in-sec ²	Kg-cm ²
T1101	1543	43.3	4.90	106	12.00	0.0021	2.373
T1102	2628	75.2	8.50	194	21.90	0.0038	4.294
T1103	3175	99.1	11.20	264	29.80	0.0059	6.667
T1104	3722	125	14.1	333	37.60	0.008	9.04

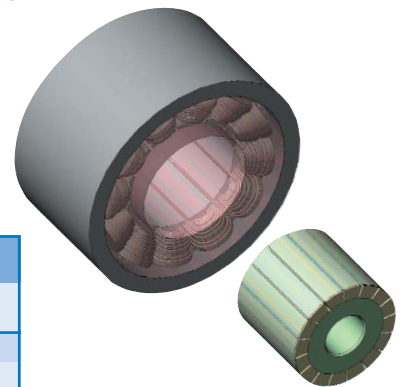


** NOTE: Add Resolver, Encoder or Brake inertia for net rotor inertia

MDM-5000 Direct Drive Sets for Frameless Applications

The MDM-5000 internal component design integrates superbly into customer equipment where size and weight are important considerations. The MDM - 5000's superior torque density provides for a compact design that easily fits into your equipment, reducing overall size and maximizing rate and position accuracy.

Molded in place stator construction maximizes design in flexibility - either molded into typical cylindrical housings or into unique equipment housings that demand specific dimensional requirements. Easier design-in means you don't have to compromise your design to fit our motors.



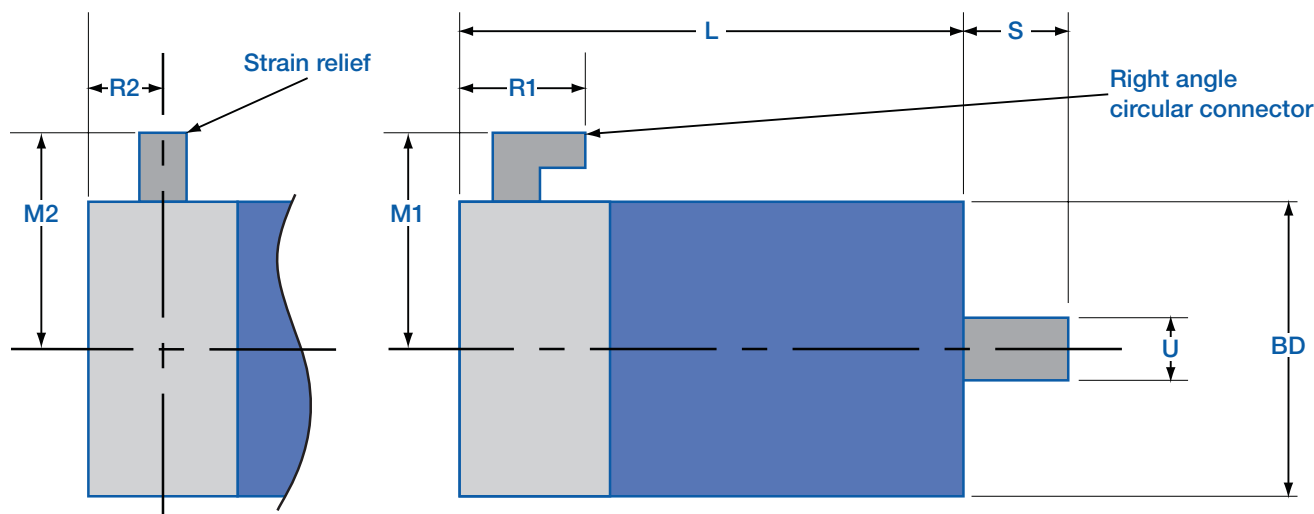
MDM-5000 Direct Drive Sets

Platform Number	Rated Power W	Cont. Stall Torque Range lb-in	Torque Range NM	Peak Torque Range lb-in	Torque Range NM	Max. Speed RPM
P055	247-504	4.4-12.4	0.5-1.4	22.1-62.0	2.5-7.0	8000
P065	300-650	5.4-16.8	0.61-1.9	31.9-117.7	3.6-13.3	8000
P084	967-2059	17.7-53.1	2.0-6.0	56.6-180.6	6.4-20.4	6000
P105	1543-3742	43.4-124.8	4.9-14.1	106.2-332.8	12.0-37.6	6000

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



Nominal Motor Dimensions



Platform	Frame Length mm (L -in.)	Frame square mm (BD -in.)	Shaft extension mm (S -in.)	Shaft diameter mm (U -in.)	End Bell Connector width to motor end mm (R1 -in.)	End Bell Connector height to motor end mm (M1 -in.)	End Bell Connector width to motor end mm (R2 -in.)	End Bell Connector height to motor end mm (M2 -in.)
T0601	112 (4.41)	58 (2.28)	30 (1.18)	14 (0.55)	36.5 (1.44)	67 (2.7)	18 (0.7)	51 (2.0)
T0602	131 (5.16)	58 (2.28)	30 (1.18)	14 (0.55)	36.5 (1.44)	67 (2.7)	18 (0.7)	51 (2.0)
T0603	150 (5.9)	58 (2.28)	30 (1.18)	14 (0.55)	36.5 (1.44)	67 (2.7)	18 (0.7)	51 (2.0)
T0604	169 (6.65)	58 (2.28)	30 (1.18)	14 (0.55)	36.5 (1.44)	67 (2.7)	18 (0.7)	51 (2.0)
T0851	130 (5.12)	85 (3.34)	40 (1.57)	19 (0.748)	46 (1.82)	82 (3.2)	18 (0.7)	63 (2.5)
T0852	159 (6.26)	85 (3.34)	40 (1.57)	19 (0.748)	46 (1.82)	82 (3.2)	18 (0.7)	63 (2.5)
T0853	188 (7.4)	85 (3.34)	40 (1.57)	19 (0.748)	46 (1.82)	82 (3.2)	18 (0.7)	63 (2.5)
T0854	217 (8.54)	85 (3.34)	40 (1.57)	19 (0.748)	46 (1.82)	82 (3.2)	18 (0.7)	63 (2.5)
T1101	142 (5.59)	110 (4.33)	50 (1.97)	24 (0.945)	48 (1.89)	94 (3.7)	20 (0.79)	75 (2.95)
T1102	173 (6.81)	110 (4.33)	50 (1.97)	24 (0.945)	48 (1.89)	94 (3.7)	20 (0.79)	75 (2.95)
T1103	204 (8.03)	110 (4.33)	50 (1.97)	24 (0.945)	48 (1.89)	94 (3.7)	20 (0.79)	75 (2.95)
T1104	235 (9.25)	110 (4.33)	50 (1.97)	24 (0.945)	48 (1.89)	94 (3.7)	20 (0.79)	75 (2.95)

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

Complete repair and refurbishing services



High-Energy Brushless Motors



Brush Motors



Encoders



Linear Actuators



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MORE SOLUTIONS FROM US EQUALS MORE SUCCESS FOR YOU

140 mm HIGH POWER DENSITY BRUSHLESS SERVOMOTOR

Cleveland Motion Control's new high energy servomotor is now expanded to provide up to 27.5 NM continuous stall torques. The MDM – 5000 brings the highest available torque density in a platform that is easily customized to fit your application. The excellent winding density of a proprietary segmented lamination technology combined with a neodymium magnet array provides for maximum power output.



Small in Size – Large on Performance

The 140 mm MDM – 5000 High Energy Cut Core Servomotor provides power and performance in an economically priced, compact package that is ideal for use in factory automation, military, communications and many other applications.

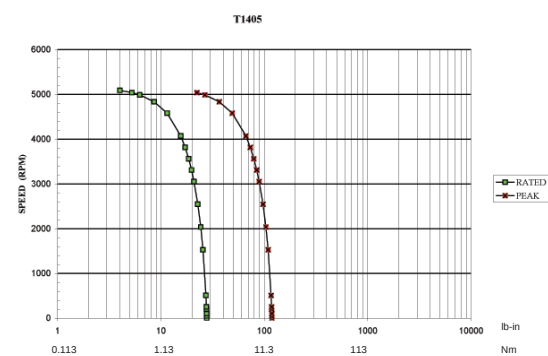
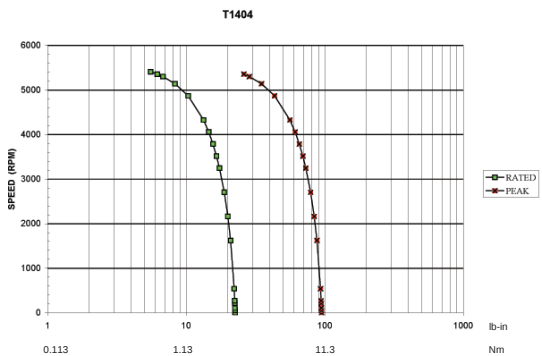
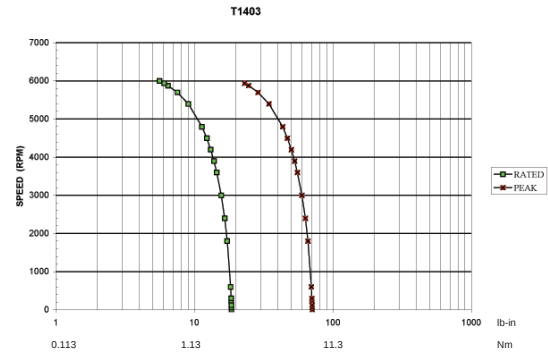
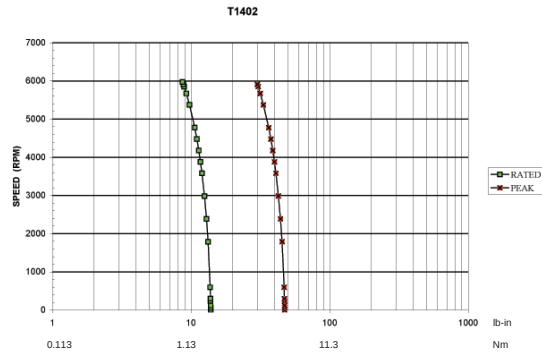
The MDM - 5000 platform is a servomotor solution that can simplify and cost reduce the design and manufacture of any servomotor driven equipment. CMC – Torque Systems will customize the MDM – 5000 to fit your application so you don't have to fit your application to our motor.

- Available with CMC provided amplifier or use with most other manufacturer's amplifiers and controllers
- Multiple Voltage Winding Capability
- IP 65 and 67 Available
- IEC Motor Mounting and Custom Interfaces
- Feedback Options
 - Commutating Encoders
 - Hall Sensors
 - Resolvers
- Complete Termination, Connectorization and Cabling Available
- Brakes
- CE/UL Compliant

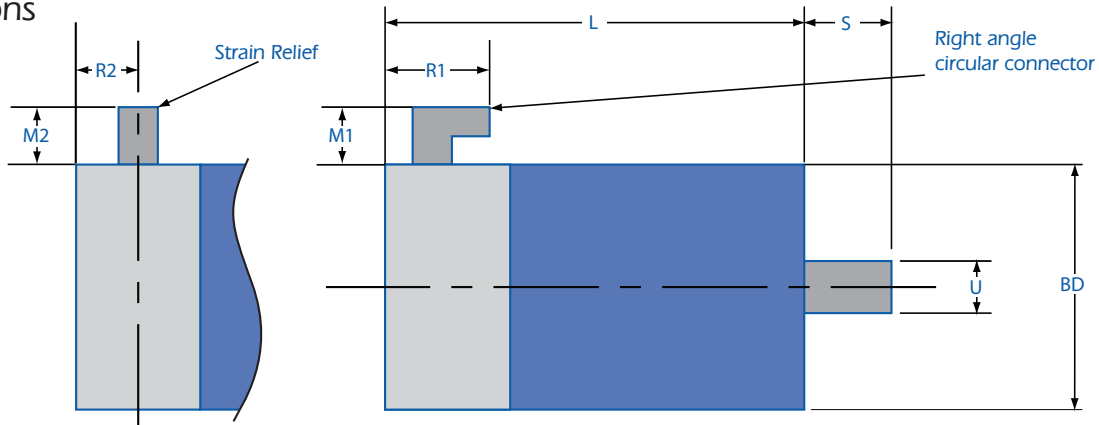
Performance Data

Platform #	Rated Power	Cont. Stall Torque		Peak Torque		Rotor Inertia **	
	Watts	Nm	lb-in	Nm	lb-in	Kg-cm2	lb-in-sec2
T1402	5500	13.80	122.00	47.50	420	13.2097	0.01169
T1403	5780	18.50	164.00	71.00	529	18.8597	0.01669
T1404	6200	22.50	204.00	95.00	840	24.5775	0.02175
T1405	6930	27.5	243	118	1044	30.51	0.027

**NOTE: Add Resolver, Encoder or Brake inertia for the net rotor inertia



Dimensions



Platform	Frame Length L		Frame square BD		Shaft extension S		Shaft diameter U		End Bell Connector R1		End Bell Connector M1		End Bell Connector R2		End Bell Connector M2	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
T1402	180.4	7.1	140	5.52	58	2.28	32	1.26	60	2.36	39	1.54	32	1.26	20	0.79
T1403	205.4	8.1	140	5.52	58	2.28	32	1.26	60	2.36	39	1.54	32	1.26	20	0.79
T1404	230.4	9.1	140	5.52	58	2.28	32	1.26	60	2.36	39	1.54	32	1.26	20	0.79
T1405	255.4	10.1	140	5.52	58	2.28	32	1.26	60	2.36	39	1.54	32	1.26	20	0.79

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