ITT

Engineered for life

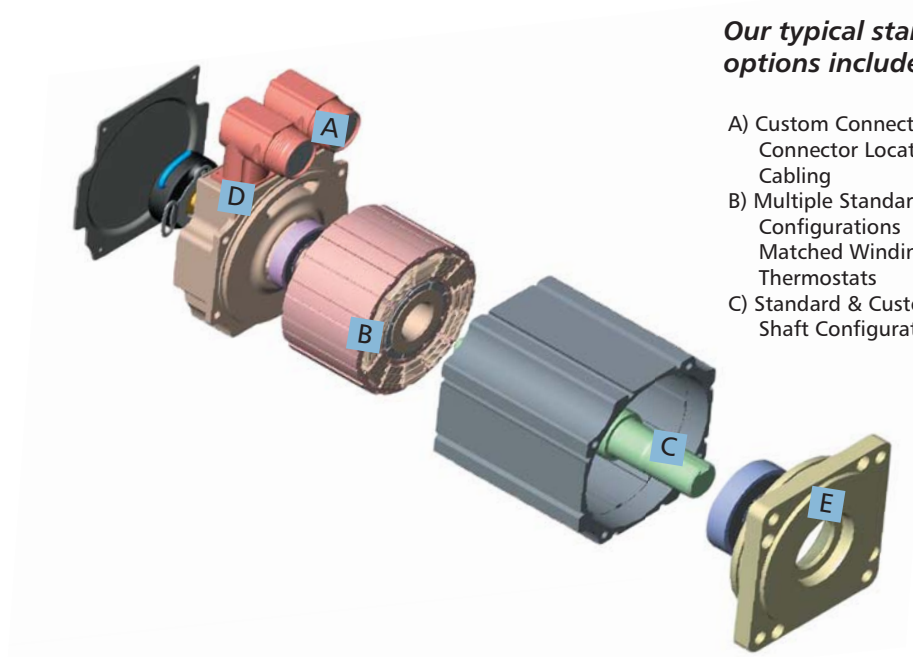
Cleveland Motion Controls

MDM-5000
Brushless Servo Motor
Product Guide

More solutions from us equals more success for you.

At Cleveland Motion Controls, 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 can also provide you with a Total Automation Solution including FALCON PAC, Servo Drives and decades of engineering and application support.



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

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. Four sizes – 60mm, 85mm, 110mm and 140mm are available with a continuous stall torque range .5Nm (4.5 lb–in.) to 27.5Nm (243 lb – in.).

Cleveland Motion Controls 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.

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




High Energy Brushless Servomotor Platforms

Key Continuous Duty Intermittent Duty

Standard Design Features:

High Energy Neodymium Magnets
CE/UL/CUL Compliant
Multiple Winding Availability
IP 67 Construction
Clean Operating, Low Maintenance Brushless Design

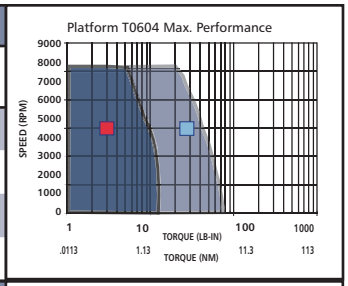
Rigid Application Development Process:

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

Platform T060

Multiple Standard and Custom Windings Available

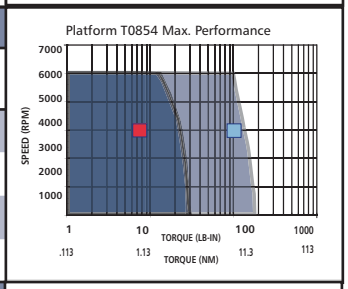
Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia** lb-in-sec2	Rotor Inertia** Kg-cm2
T0601	247	4.4	0.50	22	2.50	0.000135	0.15255
T0602	410	7.7	0.87	39	4.40	0.00017	0.1921
T0603	478	10.5	1.18	52	5.90	0.00024	0.2712
T0604	504	12.4	1.40	62	7.00	0.00031	0.3503



Platform T085

Multiple Standard and Custom Windings Available

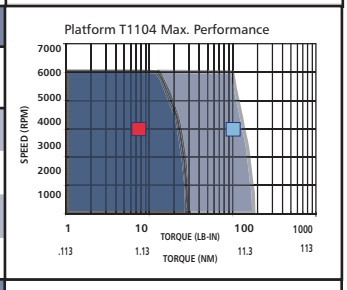
Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia** lb-in-sec2	Rotor Inertia** Kg-cm2
T0851	967	17.7	2.00	57	6.40	0.000825	0.93225
T0852	1536	31	3.50	103	11.60	0.00147	1.6611
T0853	1941	43.4	4.90	144	16.30	0.00182	2.0566
T0854	2059	53.1	6.00	180	20.40	0.0024	2.712



Platform T110

Multiple Standard and Custom Windings Available

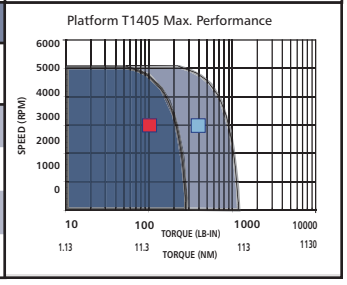
Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia** lb-in-sec2	Rotor Inertia** Kg-cm2
T1101	1543	43.3	4.90	106	12.00	0.0021	2.373
T1102	2628	75.2	8.50	194	21.90	0.0038	4.294
T1103	3175	99.1	11.20	264	29.80	0.0059	6.667
T1104	3722	125	14.1	333	37.60	0.008	9.04



Platform T140

Multiple Standard and Custom Windings Available

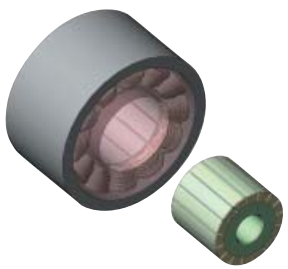
Platform Number	Rated Power W	Cont. Stall Torque lb-in	Cont. Stall Torque NM	Peak Torque lb-in	Peak Torque NM	Rotor Inertia** lb-in-sec2	Rotor Inertia** Kg-cm2
T1402	5500	122.00	13.80	420	47.50	0.01169	13.2097
T1403	5780	164.00	18.50	529	71.00	0.01669	18.8597
T1404	6200	204.00	22.50	840	95.00	0.02175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



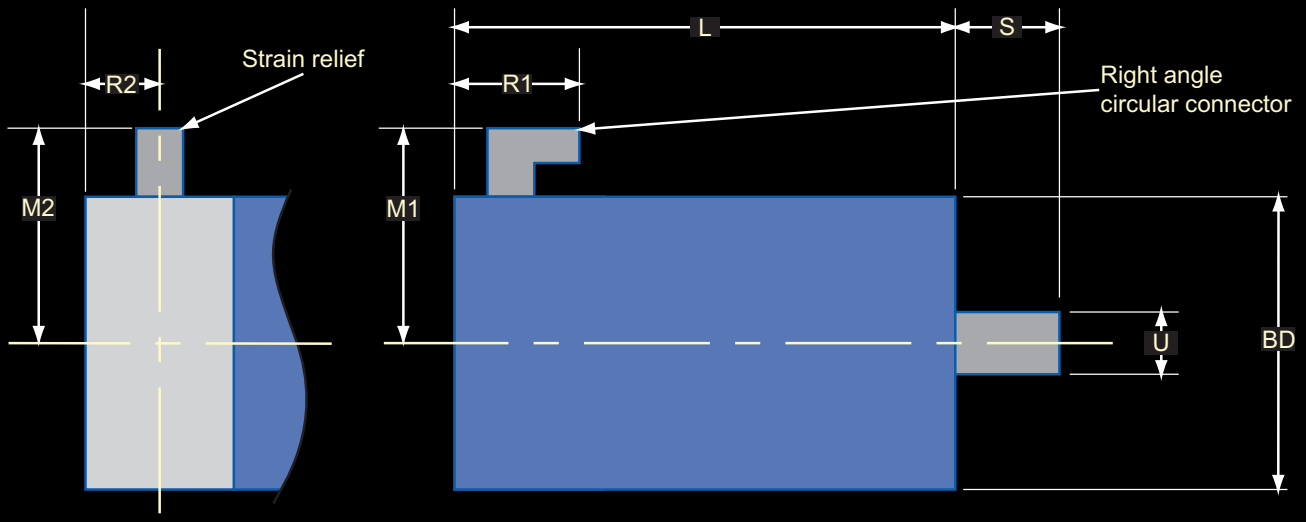
The MDM–5000 internal component design integrates superbly into customer equipment where size and weight are important considerations. The MDM-5000's superior torque density provides for a compact design that easily fits into your equipment, reducing overall size and maximizing rate and position accuracy. 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	Cont. Stall Torque Range NM	Peak Torque Range lb - in	Peak Torque Range NM	Max. Speed RPM
P055	282 - 591	4.8 - 13.2	0.55 - 1.5	22 - 62	2.5 - 7	8000
P063	319 - 1053	4.8 - 15	0.55 - 1.7	20 - 78	2.3 - 8.9	8000
P065	453 - 1223	7.3 - 19.5	0.83 - 2.2	36 - 84	4.1 - 9.5	8000
P076	449 - 1331	8.8 - 26.5	1.0 - 3.0	55 - 155	6.2 - 17.5	8000
P081	502 - 1725	9.7 - 33.6	1.1 - 3.8	45 - 178	5.1 - 20.1	8000
P105	2230 - 4739	43.3 - 125	4.9 - 14.1	106 - 333	12 - 37.8	6000
P127	903 - 3998	20 - 103	2.3 - 11.7	70 - 430	7.9 - 48.6	6000
P143	2746 - 7904	64.6 - 243	7.3 - 27.5	65 - 1044	28 - 118	6000



Nominal Motor Dimensions



Platform	Frame Length mm	(L -in.)	Frame square mm	(BD -in.)	Shaft extension mm	(S -in.)	Shaft diameter mm	(V -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	38	1.5	18	0.7	20	0.79
T0602	131	5.16	58	2.28	30	1.18	14	0.55	36.5	1.44	38	1.5	18	0.7	20	0.79
T0603	150	5.9	58	2.28	30	1.18	14	0.55	36.5	1.44	38	1.5	18	0.7	20	0.79
T0604	169	6.65	58	2.28	30	1.18	14	0.55	36.5	1.44	38	1.5	18	0.7	20	0.79
T0851	130	5.12	85	3.34	40	1.57	19	0.748	46	1.82	38	1.5	18	0.7	20	0.79
T0852	159	6.26	85	3.34	40	1.57	19	0.748	46	1.82	38	1.5	18	0.7	20	0.79
T0853	188	7.4	85	3.34	40	1.57	19	0.748	46	1.82	38	1.5	18	0.7	20	0.79
T0854	217	8.54	85	3.34	40	1.57	19	0.748	46	1.82	38	1.5	18	0.7	20	0.79
T1101	142	5.59	110	4.33	50	1.97	24	0.945	48	1.89	39	1.54	20	0.79	20	0.79
T1102	173	6.81	110	4.33	50	1.97	24	0.945	48	1.89	39	1.54	20	0.79	20	0.79
T1103	204	8.03	110	4.33	50	1.97	24	0.945	48	1.89	39	1.54	20	0.79	20	0.79
T1104	235	9.25	110	4.33	50	1.97	24	0.945	48	1.89	39	1.54	20	0.79	20	0.79
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

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 envelope dimensions

Nema and IEC mounting standards available

Motor dimensions subject to change

Cleveland Motion Controls, Inc.
7550 Hub Parkway * Cleveland, OH 44125
Tel: 216.524.8800 or 800.321.8072
Fax: 216.642.2199
cmcsales@itt.com
www.cmccontrols.com