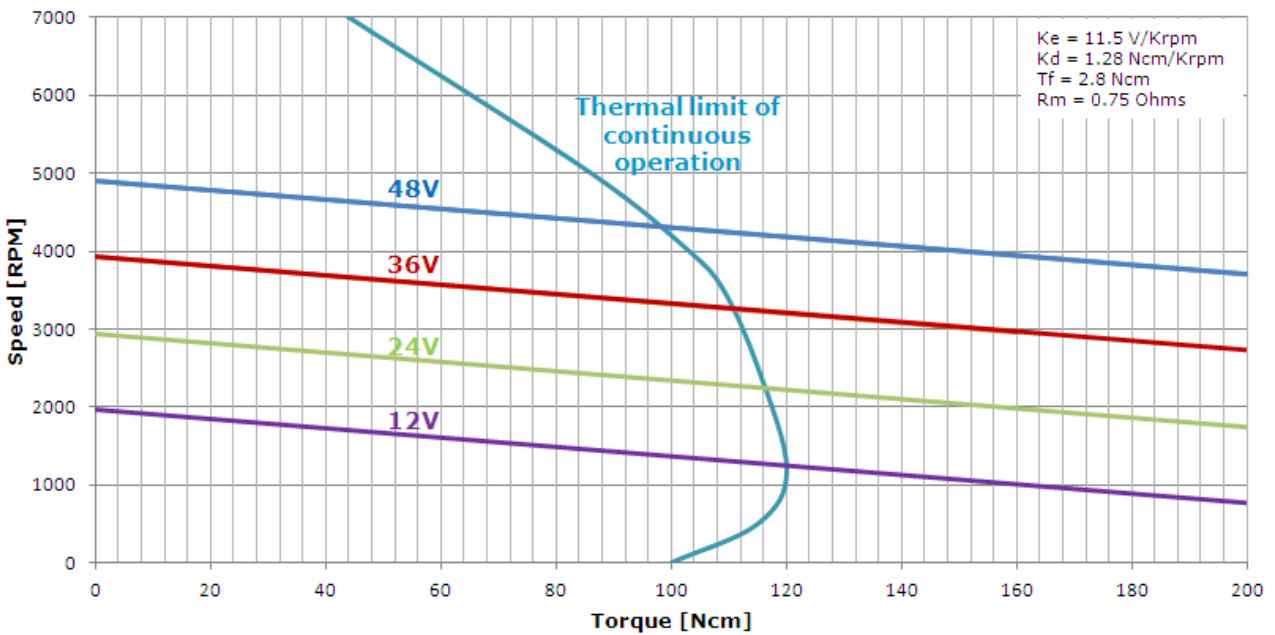
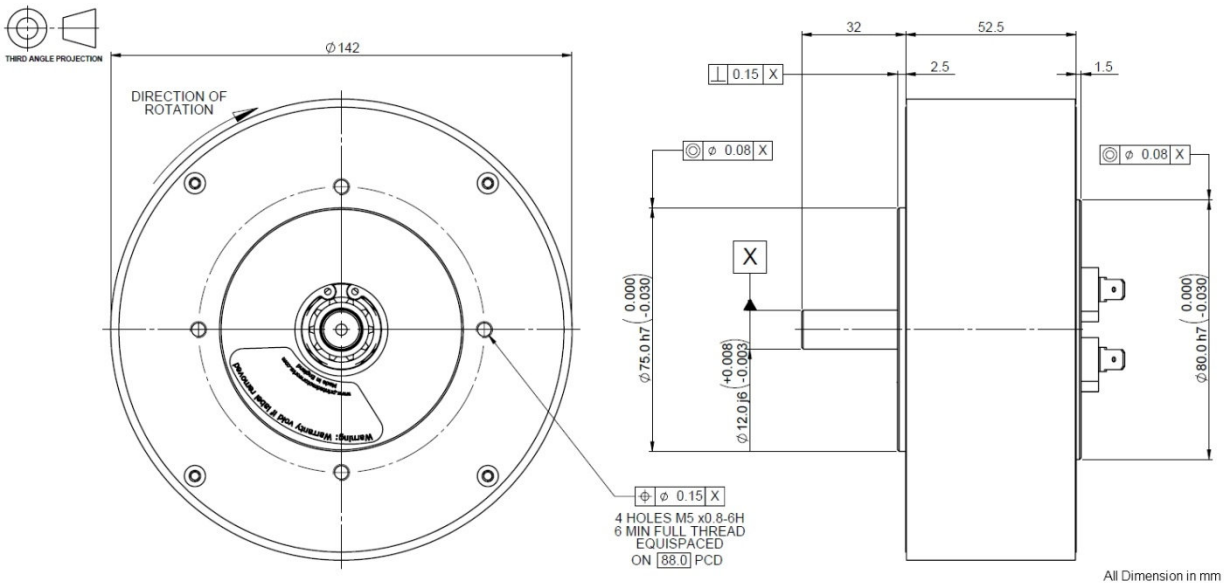
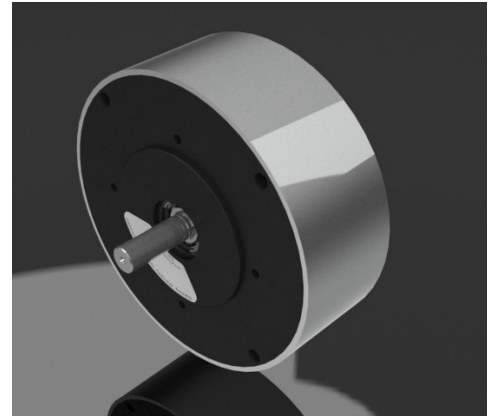


# GM12

The Printed Motor Works GM12 is a precision DC servo motor with high power magnets. The motors are fitted with thermally stable AlNiCo magnets and can be tuned using the charge coils for optimum performance to customer's applications. The GM range is the original pancake motor type and has been successfully used in a variety of applications for decades.



NOTE: The above voltages are examples, not a predefined maximum or minimum. Due to ongoing product improvements data is subject to change without notice.

**Applications:** Servo mechanisms, motion control, industrial robots, CNC machining, printing machinery, logistics solutions, medical mobility, medical scanners, flight simulators, marine autopilots and high ambient temperature ventilation.

**Markets:** Industrial automation, automotive, medical, life sciences, aerospace, printing, logistics, instrumentation, test and measurement, oil & gas and offshore marine.

### Design Modifications

- Encoders
- Timing pulleys
- Long leads
- Tri-rated cable
- US mounting customisation
- Customised shafts
- EMC suppression
- Connectors
- Rated for operation in 150°C ambient

Performance Specifications	Symbol	Units	GM12
Peak Torque	Tp	N/cm (oz/in)	929 (1316)
Rated Speed	N	RPM	3000
Rated Continuous Torque @ 25°C	T <sub>25</sub>	N/cm (oz/in)	120 (169.9)
Rated Power Output	P	Watts	284
Maximum Recommended Speed	Nmax	RPM	6000
Continuous Stall Torque	Ts	N/cm (oz/in)	86 (122)
Cogging Torque	Tc	N/cm (oz/in)	0 (0)
<b>Electrical Specifications</b>			
Rated Terminal Voltage	E	Volts	43
Rated Continuous Current	I	Amps	8.8
Peak Current	Ip	Amps	85
Continuous Stall Current	Is	Amps	8.0
<b>Winding Specifications</b>			
Terminal Resistance ± 10%	Rm	Ohms	0.75
Armature Resistance ± 10%	Ra	Ohms	0.61
Back EMF Constant ± 5%	Ke	V/kRPM	11.5
Torque Constant ± 5%	Kt	N/cm/Amp (oz/in/Amp)	11.04 (15.63)
Viscous Damping Constant	Kd	N/cm/KRPM (oz/in/KRPM)	1.28 (1.8)
Armature Inductance	L	µH	<100
Temperature Coefficient of KE	C	%/°C Rise	-0.02
Number of Commutation Bars	Z		141
<b>Mechanical Specifications</b>			
Moment of Inertia	Jm	kg/cm <sup>2</sup> (oz/in/sec <sup>2</sup> )	1.41 (0.01997)
Average Friction Torque	Tf	N/cm (oz/in)	2.8 (3.97)
Weight	W	kg (Ibs)	3.6 (8.0)
Diameter	D	mm (In)	142 (5.59)
Length	LG	mm (In)	52.5 (2.07)
Permitted Radial Load		Kg (Ibs)	11.34 (25)
Permitted Axial Load		Kg (Ibs)	4.99 (11)
<b>Figure of Merit</b>			
Mechanical Time Constant	Tm	ms	6.68
Electrical Time Constant	Te	ms	<0.16
<b>Thermal Specifications</b>			
Thermal Resistance at Rated Speed	RAAR	°C/Watt	1.27
Thermal Resistance at Stall	RAAS	°C/Watt	1.9
Forced Air Thermal Resistance With 2.0Ibs/min Forced Air	RAA3	°C/Watt	0.23