

# Datasheet

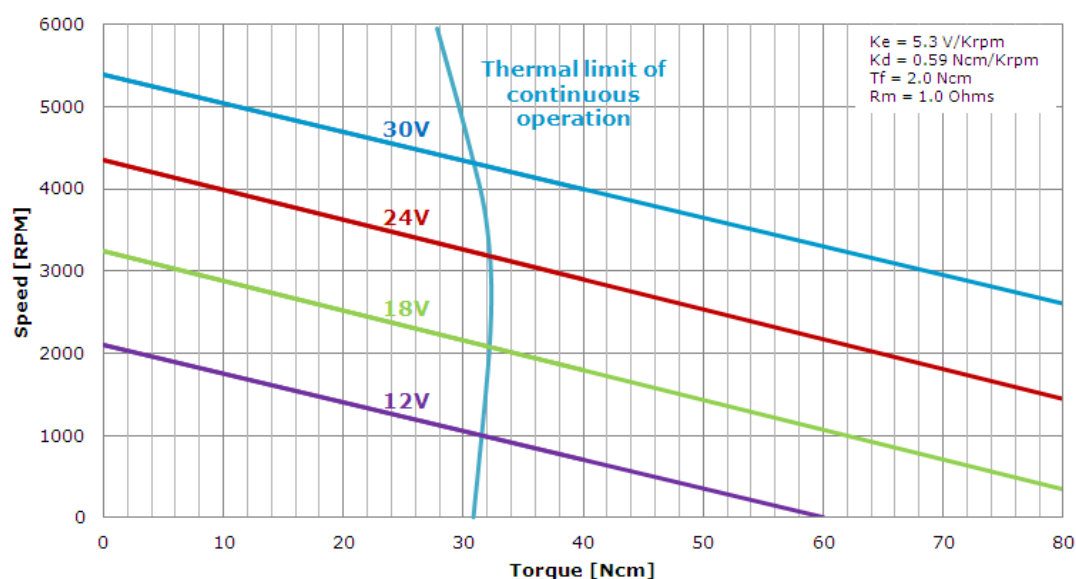
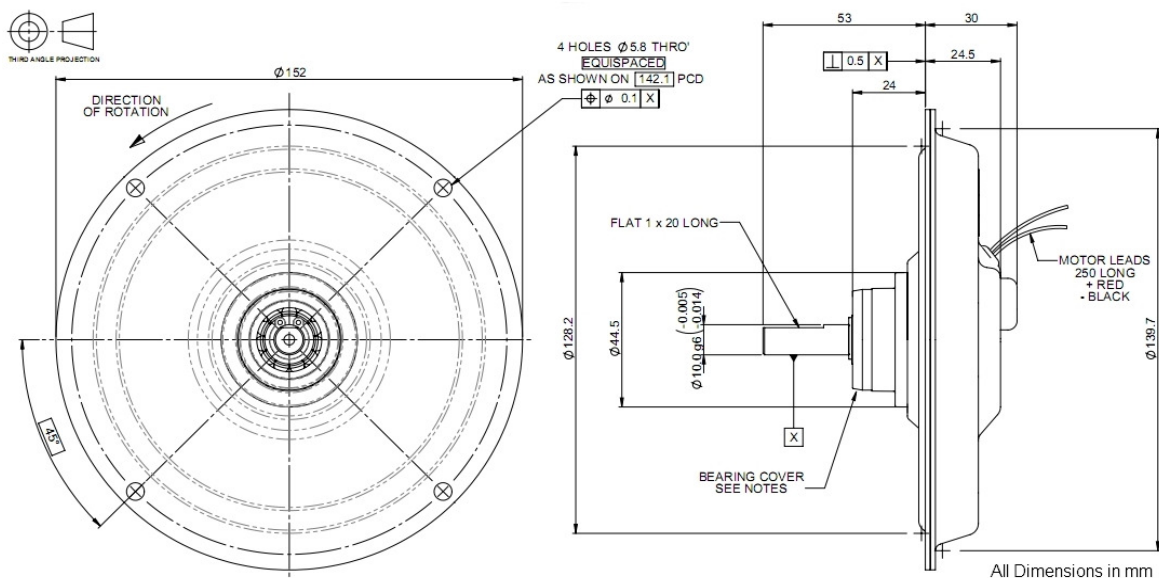
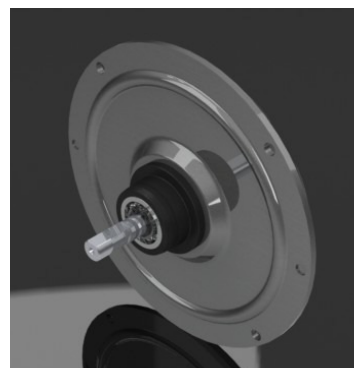
## GPM12

RS Pt No: 225 9579

The Printed Motor Works GPM12 is a totally enclosed dc motor in an ultra slim pancake profile. This pancake motor can provide a cost effective servo capability either direct drive or combined with a timing pulley/gearbox.

### Features & Benefits

- Ultra slim profile
- Minimum torque ripple
- Very low inertia
- High peak torques
- Zero cogging
- Ultra slow/creep capability
- Low inductance
- EMC compatible



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
- Open/kit option
- Customised shafts
- EMC suppression
- Connectors
- Rated for operation in 150°C ambient
- Mounting customisation

Performance Specifications	Symbol	Units	GPM12
Peak Torque	Tp	N-cm (oz-in)	338 (478)
Rated Speed	N	RPM	3000
Rated Continuous Torque @ 25°C	T <sub>25</sub>	N-cm (oz-in)	32 (45.32)
Rated Power Output	P	Watts	110
Maximum Recommended Speed	Nmax	RPM	6000
Continuous Stall Torque	Ts	N-cm (oz-in)	29 (41)
Cogging Torque	Tc	N-cm (oz-in)	0 (0)
<b>Electrical Specifications</b>			
Rated Terminal Voltage	E	Volts	23.5
Rated Continuous Current	I	Amps	7.6
Peak Current	Ip	Amps	81
Continuous Stall Current	Is	Amps	5.0
<b>Winding Specifications</b>			
Terminal Resistance ± 10%	Rm	Ohms	1.0
Armature Resistance ± 10%	Ra	Ohms	0.61
Back EMF Constant ± 5%	Ke	V/kRPM	5.3
Torque Constant ± 5%	Kt	N-cm/Amp (oz-in/Amp)	5.1 (7.22)
Viscous Damping Constant	Kd	N-cm/KRPM (oz-in/KRPM)	0.59 (0.84)
Armature Inductance	L	µH	<0.05
Temperature Coefficient of KE	C	%/°C Rise	-0.19
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> )	1.624 (0.023)
Average Friction Torque	Tf	N-cm (oz-in)	2.0 (2.83)
Weight	W	kg (Ibs)	1 (2.2)
Diameter	D	mm (In)	152 (5.984)
Length	LG	mm (In)	30 (1.181)
Permitted Radial Load		Kg (Ibs)	3.5 (7.72)
Permitted Axial Load		Kg (Ibs)	3.5 (7.72)
<b>Figure of Merit</b>			
Mechanical Time Constant	Tm	ms	35.4
Electrical Time Constant	Te	ms	<0.07
<b>Thermal Specifications</b>			
Thermal Resistance at Rated Speed	RAAR	°C/Watt	1.7
Thermal Resistance at Stall	RAAS	°C/Watt	2.03