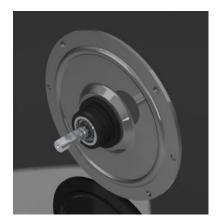
GPM12

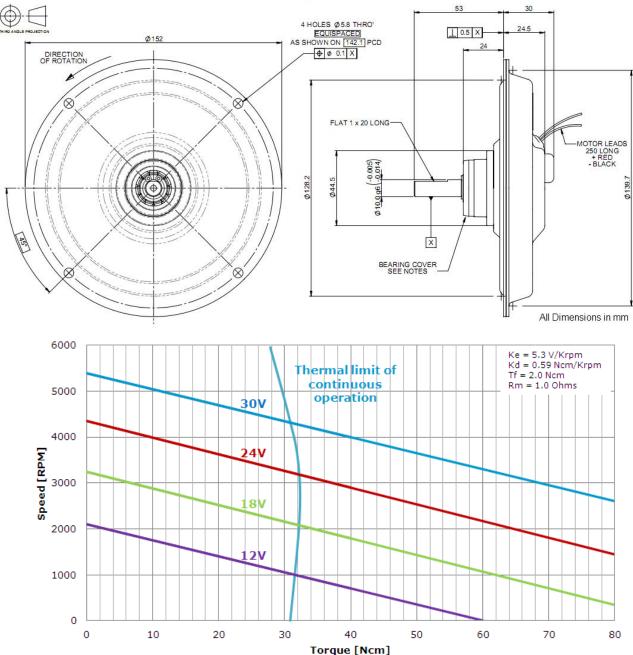


The Printed Motor Works *GP*M12 is a totally enclosed dc motor in an ultra slim pancake profile. This pancake motor can provide a cost effective servo capability either direct drive or combined with a timing pulley/gearbox.

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.

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GPM12



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

Peak Torque	Performance Specifications	Symbol	Units	GPM12
Rated Speed N RPM 3000				
Rated Continuous Torque @ 25°C Rated Power Output		The second secon		
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) Electrical Specifications 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 Winding Specifications Terminal Resistance ± 10% Ra Ohms 1.0 Armature Resistance ± 10% Ra Ohms 0.61 VlxPM 5.3 Torque Constant ± 5% Ke N-cm/Amp (oz-in/Amp) 5.1 (7.22) Vixcous Damping Constant Kd N-cm/KRPM (oz-in/KRPM) 0.59 (0.84) Viscous Damping Constant Kd N-cm/KRPM (oz-in/KRPM) 0.59 (0.84) 1.1 Armature Inductance L µH <0.05		T ₂₅	N-cm (oz-in)	32 (45.32)
Continuous Stall Torque	Rated Power Output			
Cogging Torque	Maximum Recommended Speed	Nmax	RPM	6000
Rated Terminal Voltage	Continuous Stall Torque	Ts	N-cm (oz-in)	29 (41)
Rated Terminal Voltage Rated Continuous Current Rated Continuous Current Ip Amps Rated Continuous Stall Current Ip Amps Rated Continuous Stall Current Is Amps Rated Continuous Rate Rat	Cogging Torque	Tc	N-cm (oz-in)	0 (0)
Rated Terminal Voltage Rated Continuous Current Rated Continuous Current Ip Amps Rated Continuous Stall Current Ip Amps Rated Continuous Stall Current Is Amps Rated Terminal Resistance Rated Continuous Current Ip Amps Rated Terminal Rates Rated Continuous Rate Rated Continuous Rated Rated Continuous Rate Rated Con	Electrical Specifications			
Rated Continuous Current Peak Current Ip Amps 81 Continuous Stall Current Is Amps 5.0 Winding Specifications Terminal 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 Armature Inductance I		Е	Volts	23.5
Continuous Stall Current S		I	Amps	7.6
Winding Specifications Terminal Resistance ± 10% Armature Resistance ± 10% Back EMF Constant ± 5% Torque Constant ± 5% Viscous Damping Constant Kd Armature Inductance L PH Co.05 Temperature Coefficient of KE Number of Commutation Bars Moment of Inertia Average Friction Torque Diameter D D D Mechanical Specification Weight Permitted Radial Load Permitted Radial Load Permitted Axial Load Figure of Merit Mechanical Specifications Thermal Specifications Thermal Specifications Temperature Constant Tre Nem Ohms Ohms Ohms Ohms Ohms Ohms Ohms Ohm	Peak Current	Ip	Amps	81
Terminal Resistance ± 10%	Continuous Stall Current	İs	Amps	5.0
Terminal Resistance ± 10%	Winding Specifications			
Back EMF Constant ± 5% Kt V/kRPM 5.3 Torque Constant ± 5% Kt Nt N-cm/Amp (oz-in/Amp) 5.1 (7.22) Viscous Damping Constant Kd (oz-in/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 Mechanical Specifications Moment of Inertia Jm Kg-cm² (oz-in-sec²) 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) Figure of Merit Mechanical Time Constant Tm ms 35.4 Electrical Time Constant Te ms <0.07		Rm	Ohms	1.0
Torque Constant ± 5% Viscous Damping Constant Kd N-cm/Amp (oz-in/Amp) N-cm/KRPM (oz-in/KRPM) N-cm/KRPM) N-cm/KRPM (oz-in/KRPM) N-cm/KRPM) N-cm/KRPM (oz-in/KRPM) N-cm/KRPM) N-cm/KRPM N-cm/KRPM (oz-in/KRPM) N-cm/C Rise N-cn/C Rise N-cn/O Rise N-cn/O Rise N-cn/O Rise N-cn/O Rise N-cn/O Rise N-cn/O Rise N-cm/O Rise N-cn/O Rise N-cm/O Rise N-cn/O Rise N	Armature Resistance ± 10%	Ra	Ohms	0.61
Viscous Damping Constant Kd N-cm/KRPM (oz-in/KRPM) Armature Inductance L Temperature Coefficient of KE Number of Commutation Bars Mechanical Specifications Moment of Inertia Average Friction Torque Weight Diameter Length Permitted Radial Load Permitted Axial Load Permitted Axial Load Permitted Axial Load Time Constant Time Electrical Time Constant Thermal Specifications N-cm/KRPM (oz-in/KRPM) 0.59 (0.84) N-cm (oz-in/KRPM) (oz-in/KRPM) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0.84) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0.84) 141 Kg-cm² (oz-in-sec²) 1.624 (0.023) N-cm (oz-in) 2.0 (2.83) N-cm (oz-in) 2.0 (2.83) N-cm (oz-in/Sec²) 1.624 (0.023) N-cm (oz-in/Sec²) N-cm (oz-in/Sec²) N-cm (oz-in/Sec²) 1.624 (0.023) N-cm (oz-in/Sec²) N-cm	Back EMF Constant ± 5%	Ke	V/kRPM	5.3
Viscous Damping Constant Kd N-cm/KRPM (oz-in/KRPM) Armature Inductance L Temperature Coefficient of KE Number of Commutation Bars Mechanical Specifications Moment of Inertia Average Friction Torque Weight Diameter Length Permitted Radial Load Permitted Axial Load Permitted Axial Load Permitted Axial Load Time Constant Time Electrical Time Constant Thermal Specifications N-cm/KRPM (oz-in/KRPM) 0.59 (0.84) N-cm (oz-in/KRPM) (oz-in/KRPM) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.59 (0.84) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0.84) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0z-in/KRPM) 0.69 (0.84) 141 Kg-cm² (oz-in-sec²) 1.624 (0.023) N-cm (oz-in) 2.0 (2.83) N-cm (oz-in) 2.0 (2.83) N-cm (oz-in/Sec²) 1.624 (0.023) N-cm (oz-in/Sec²) N-cm (oz-in/Sec²) N-cm (oz-in/Sec²) 1.624 (0.023) N-cm (oz-in/Sec²) N-cm	Torque Constant ± 5%	Kt	N-cm/Amp (oz-in/Amp)	5.1 (7.22)
Armature Inductance Temperature Coefficient of KE Number of Commutation Bars Moment of Inertia Average Friction Torque Weight Diameter Length Permitted Radial Load Permitted Axial Load Figure of Merit Mechanical Time Constant Mechanical Specifications Thermal Specifications Radial Load Temperature Coefficient of KE C W/°C Rise -0.19 W/°C Rise -0.19 Kg-cm² (oz-in-sec²) 1.624 (0.023) Reg-cm² (oz-in-sec²) 1.624 (0.023)	Viscous Damping Constant	Kd	N-cm/KRPM	0.59 (0.84)
Temperature Coefficient of KE Number of Commutation Bars Mechanical Specifications Moment of Inertia Average Friction Torque Weight Weight Diameter Length Permitted Radial Load Permitted Axial Load Figure of Merit Mechanical Time Constant Thermal Specifications Thermal Resistance at Rated Speed Mechanical Specifications Thermal Resistance at Rated Speed Mechanical Specifications Thermal Specifications Thermal Resistance at Rated Speed Mechanical Constant Te Mechanical Constan	Armatura Industance			, ,
Number of Commutation BarsZ141Mechanical Specifications Moment of Inertia Average Friction TorqueJm Tf Weight Diameter Length Permitted Radial Load Permitted Axial LoadKg-cm² (oz-in-sec²) N-cm (oz-in) kg (Ibs) mm (In) Kg (Ibs) Kg (Ibs)1.624 (0.023) 2.0 (2.83) 1 (2.2) mm (In) Kg (Ibs) Kg (Ibs) 3.5 (7.72)Figure of Merit Mechanical Time Constant Electrical Time Constant Thermal Specifications Thermal Resistance at Rated SpeedRAAR°C/Watt PC/Watt				
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Average Friction Torque Weight Weight Would have the sign of th				
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) Figure of Merit Mechanical Time Constant Tm ms 35.4 Electrical Time Constant Te ms <0.07 Thermal Specifications Thermal Resistance at Rated Speed RAAR °C/Watt 1.7				
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Figure of Merit Mechanical Time Constant Electrical Time Constant Te ms 35.4 <0.07 Thermal Specifications Thermal Resistance at Rated Speed RAAR °C/Watt 1.7				
Mechanical Time Constant Electrical Time Constant Te ms <0.07 Thermal Specifications Thermal Resistance at Rated Speed RAAR °C/Watt 1.7	Permitted Axiai Load		Kg (IDS)	3.5 (7.72)
Electrical Time ConstantTems<0.07Thermal SpecificationsThermal Resistance at Rated SpeedRAAR°C/Watt1.7		_		
Thermal Specifications Thermal Resistance at Rated Speed RAAR °C/Watt 1.7				
Thermal Resistance at Rated Speed RAAR °C/Watt 1.7	Electrical Time Constant	Te	ms	<0.07
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