



thin gap

TG SERIES MOTOR KIT

**ZERO COGGING | OPTIMIZED FOR POWER DENSITY | LIGHT-WEIGHT AND LARGE APERTURE
HIGHLY EFFICIENT ARCHITECTURE | IRONLESS COMPOSITE STATOR | SCALABLE SIZE AND POWER**

Data Sheet Model Number: **TG 303X-XXXX**

ThinGap's TG Series includes numerous high performance brushless permanent magnet motors. The TG Series targets higher speed, high-precision applications such as where a smooth motion and weight optimized solution is desired.



ThinGap's TG Line of Brushless motors designed for high speed, high power applications such as propulsion, reaction wheels, and precisions industrial. These motor kits are available in sizes ranging from 57mm to 190 mm

Model Number Nomenclature	TG 30 3 X -XXXX
Motor Series	TG 30
Rotor Configuration	3
Winding Configuration (0-WYE SERIES, 2-WYE PARALLEL, 3-DELTA PARALLEL)	X
Mounting (P010-Frameless, M010-Framed)	-XXXX
Example	TG 3033-P010

Winding Independent Parameter Table **TG 303X**

Performance Parameters	Units	Value
Continuous Torque @ Max Speed	N-m	0.14
Max Continuous Speed	RPM	30600
Max Continuous Power	W	103
Peak Parameters @ Max Speed	Units	Value
Peak Torque (1 sec)	N-m	0.41
Peak Torque (3 sec)	N-m	0.25
Mechanical Parameters	Units	Value
Rotor Inertia	kg-m ²	5.14E-05
Number of Magnetic Poles	ea	22
Outer Diameter	mm	71
Through Hole Diameter	mm	62
Axial Height	mm	16
Part Set Mass (Rotor and Stator)	kg	0.115
Total Motor Mass M1	kg	0.171
Temperature Parameters	Units	Value
Max Stator Temperature	°C	100

Torque and Mechanical Speed

Continuous rated torque of up to 0.14 N-m and a rated speed of up to 30600 RPM.

Motor Controller Recommendation

Standard 3-Phase Controller
High Frequency PWM power input

Resources for Integration

CAD files at: www.thingap.com

Complete Mechanical drawings available upon request

Winding dependent Parameter Table

Electrical Parameters	Units	TG 3030	TG 3032	TG 3033
		Value	Value	Value
Winding Configuration		WYE SERIES	WYE PARALLEL	DELTA PARALLEL
Required Motor Voltage @ Max Speed	V _{pk-l}	134.0	66.9	39.9
Max Continuous Phase Current @ Max Speed *	A _{RMS}	3.2	6.5	9.7
Voltage Constant (I-l)	V _{pk-l} /rad/s	0.04	0.02	0.012
Voltage Constant (I-l)	V _{pk-l} /kRPM	4.2	2.1	1.2
Torque Constant	N-m/A _{RMS}	0.049	0.025	0.016
Motor Constant	N-m/√W	0.028	0.028	0.028
Terminal Resistance	Ω	2.027	0.507	0.169
Terminal Inductance	μH	34.8	8.7	2.9

* Current value takes into account temperature losses during operation.

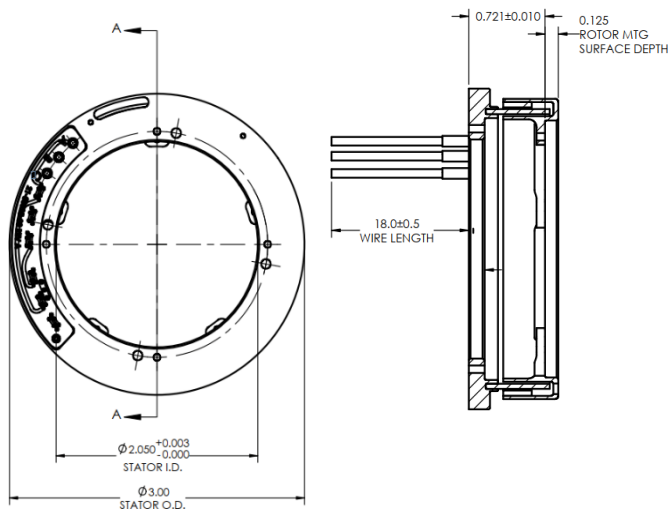


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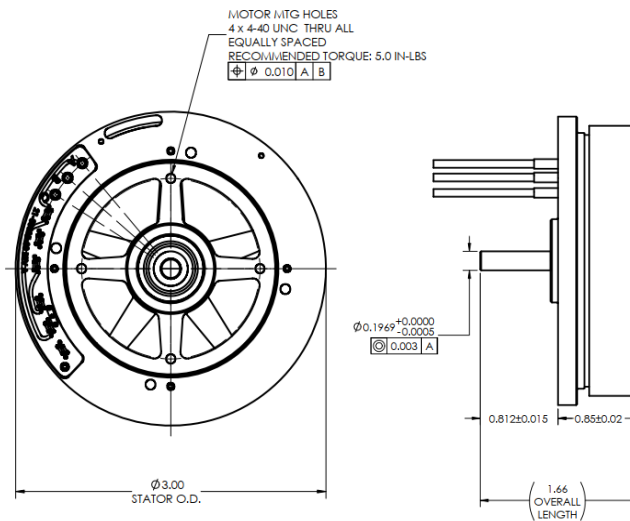
TG 303X-XXXX

TG 303X-XXXX Mechanical Information

TG 303X-P010



TG 303X-M010



General Mechanical Specifications

All values are inches and should be considered nominal. Please consult factory for up-to date mechanical drawing and ICD.

TG Series Options and Motor Capabilities

Basic Kit Sizes Available:				
TG Sub-Series	Motor Model	OD (inch/mm)	Con.Torque (N-m)	Max Speed (RPM)
2 Series (2" OD)	TGI 231X	2.2 / 57	0.74	6,500
	TGO 232X	2.2 / 57	0.35	16,000
	TGO 233X	2.2 / 57	0.69	16,000
	TGD 234X	2.2 / 57	1.02	6,500
	TGI 046	1.8 / 46	0.71	3,300
3 Series (3" OD)	TG 303X	2.8 / 71	0.14	30,600
	TG 304X	2.9 / 75	0.19	28,400
	TG 305X	3.0 / 76	0.21	17,900
4 Series (4" OD)	TGO 110	4.3 / 110	0.99	4,000
5 Series (5" OD)	TG 513X	5.2 / 131	1.68	18,400
	TG 514X	5.4 / 136	2.65	13,900
	TG 515X	5.5 / 138	3.57	10,300
7 Series (7" OD)	TG 713X	7.0 / 178	2.98	13,700
	TG 714X	7.2 / 182	4.26	10,800
	TG 715X	7.5 / 190	4.83	10,300
	TGO 190	7.5 / 190	9.46	6000

REGION OF OPERATION

