thin gap | LS SERIES FRAMELESS MOTOR KIT

HIGH TORQUE-TO-WEIGHT RATIO | LIGHT-WEIGHT AND LOW-INERTIA | HIGHLY EFFICIENT RING ARCHITECTURE | ZERO COGGING FOR PRECISION MOVEMENT | SCALABLE IN SIZE AND POWER

Data Sheet Model Number: LSO 225-51

ThinGap's LS Line includes numerous high performance brushless permanent magnet motors. The LS line targets lower speed, high precision applications such as gimbals, optics, and precision robotics. The highest torque density with high power capability and low thermal resistance.

Motor Parameter Table

Continuous Parameters	Units	Value
Continuous Torque @ Max Speed	N-m	11.35
Max Continuous Speed	RPM	920
Max Continuous Power	W	1094
Required Motor Voltage @ Max Speed	V_{pkl-l}	312.2
Max Continuous Phase Current @ Max Speed	A_{RMS}	4.16
Peak Parameters@Max Speed	Units	Value
Peak Torque (3 sec)*	N-m	125
Peak Phase Current (3 sec)	A_{RMS}	36.6
Peak Power (3 sec)*	W	12,043
Motor Constants	Units	Value
Voltage Constant (l-l)	V_{pkl-l}/rad/s	2.936
Voltage Constant (l-l)	V_{pkl-l}/kRPM	307.4
Torque Constant	N-m/A_{RMS}	3.596
Motor Constant	N-m/√W	1.223
Electrical Parameters	Units	Value
Motor Resistance @ 20°C	Ω	5.766
Motor Resistance @ Max Temperature	Ω	8.090
Inductance	µH	486 ± 10%
Number of Magnetic Poles	ea	42
Electrical Frequency @ Max Speed	Hz	322
Mechanical Parameters	Units	Value
Rotor Inertia	kg-m^2	1.621E-02
Outer Diameter	mm	224.79
Through Hole Diameter	mm	198.02
Axial Height	mm	54.96
Rotor Mass	kg	1.365
Stator Mass	kg	1.057
Part Set Mass	kg	2.422
Temperature Parameters	Units	Value
Max Stator Temperature	°C	130
Max Rotor Temperature	°C	85
Thermal Resistance	°C/W	0.53

All motor parameters calculated assuming 20° C ambient temperature and the motor kit not being installed into a housing. Thermal resistance can drop by 30% when mounted.

*Includes temperature effects and losses from speed

ThinGap's LS Line of Brushless Motors
For low speed, high precision applications such as gimbals, optics, and precision robotics. Highest torque density with high power capability. Available in sizes 25mm to 267mm.

Torque and Mechanical Speed:

Continuous rated torque of up to 11.35 N-m and rated speed of up to 920 RPM.

Motor Controller Recommendation:

Standard 3-Phase Controller
High frequency PWM recommended

Custom Variants Available:

Alternative winding design options
Higher speed options
High temperature option
Two Phase Winding

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