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 393-31

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	14.47
Max Continuous Speed	RPM	235
Max Continuous Power	W	356
Required Motor Voltage @ Max Speed	V_{pkl-l}	31.0
Max Continuous Phase Current @ Max Speed	A_{RMS}	13.04
Peak Parameters@Max Speed	Units	Value
Peak Torque (1 sec)*	N-m	93
Peak Phase Current (1 sec)	A_{RMS}	84.9
Peak Power (1 sec)*	W	2,279
Motor Constants	Units	Value
Voltage Constant (l-l)	V_{pkl-l}/rad/s	0.931
Voltage Constant (l-l)	V_{pkl-l}/kRPM	97.5
Torque Constant	N-m/A_{RMS}	1.141
Motor Constant	N-m/√W	1.311
Electrical Parameters	Units	Value
Motor Resistance @ 20°C	Ω	0.505
Motor Resistance @ Max Temperature	Ω	0.708
Inductance	µH	27.17 ± 10%
Number of Magnetic Poles	ea	56
Electrical Frequency @ Max Speed	Hz	110
Mechanical Parameters	Units	Value
Rotor Inertia	kg-m^2	3.707E-02
Outer Diameter	mm	392.99
Through Hole Diameter	mm	361.96
Axial Height	mm	31.02
Rotor Mass	kg	0.998
Stator Mass	kg	1.069
Part Set Mass	kg	2.067
Temperature Parameters	Units	Value
Max Stator Temperature	°C	130
Max Rotor Temperature	°C	85
Thermal Resistance	°C/W	0.05

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 14.47 N-m and rated speed of up to 235 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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