



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:

LSI 224-67

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.

Winding Independent Parameter Table

Continuous Parameters	Units	Value
Continuous Torque @ Max Speed	N-m	25.5
Max Continuous Speed	RPM	1,300
Max Continuous Power	W	3,471
Peak Parameters @ Max Speed	Units	Value
Peak Torque (1 sec)	N-m	218
Peak Power (1 sec)	W	29,678
Peak Torque (3 sec)	N-m	129
Peak Power (3 sec)	W	17,562
Mechanical Parameters	Units	Value
Number of Magnetic Poles	ea	38
Outer Diameter	mm	224
Through Hole Diameter	mm	184
Axial Height	mm	67
Rotor Inertia	kg-m ²	2.69E-02
Rotor Mass	kg	2.823
Stator Mass	kg	2.052
Part Set Mass	kg	4.875
Temperature Parameters	Units	Value
Max Stator Temperature	°C	130
Max Rotor Temperature	°C	85
Thermal Resistance	°C/W	0.476



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 25.5 N-m and a rated speed of up to 1300 RPM.

Motor Controller Recommendation

Standard 3-Phase Controller
High Frequency PWM power input

Resources for Integration

Space-claim CAD files at:
www.thingap.com

Complete Mechanical drawings available upon request

Winding dependent Parameter Table

		WYE SERIES	WYE PARALLEL*	DELTA PARALLEL
Electrical Parameters	Units	Value	Value	Value
Required Motor Voltage @ Max Speed	V _{pkl-l}	1135	567	328
Max Continuous Phase Current	A _{RMS}	2.7	5.3	9.2
Peak Phase Current (1 sec)	A _{RMS}	23.0	46.0	79.7
Peak Phase Current (3 sec)	A _{RMS}	13.4	26.8	46.4
Motor Resistance @ 20°C	Ω	15.5	3.9	1.3
Motor Resistance @ Max Temperature	Ω	21.8	5.5	1.8
Terminal Inductance	μH	3,100 ± 20%	775 ± 20%	258.3 ± 20%
Electrical Frequency @ Max Speed	Hz	412	412	412
Motor Constants	Units	Value	Value	Value
Voltage Constant (l-l)	V _{pkl-l} /rad/s	7.96	3.98	2.30
Voltage Constant (l-l)	V _{pkl-l} /kRPM	834	417	241
Torque Constant	N-m/A _{RMS}	9.75	4.87	2.81
Motor Constant	N-m/√W	2.02	2.02	2.02

*WYE Parallel winding option not available off-the-shelf; may be ordered as a special configuration.