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: LSI 25-16

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.

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.

Winding Independent Parameter Table

Continuous Parameters	Units	Value
Continuous Torque @ Max Speed	mN-m	25.6
Max Continuous Speed	RPM	8,400
Max Continuous Power	W	23
Peak Parameters @ Max Speed	**Units**	**Value**
Peak Torque (1 sec)	mN-m	70.7
Peak Power (1 sec)	W	62
Peak Torque (3 sec)	mN-m	45.6
Peak Power (3 sec)	W	40
Mechanical Parameters	**Units**	**Value**
Number of Magnetic Poles	ea	6
Outer Diameter	mm	25
Through Hole Diameter	mm	14.6
Axial Height	mm	16
Rotor Inertia	$kg\text{-}m^2$	7.79E-07
Rotor Mass	kg	0.010
Stator Mass	kg	0.016
Part Set Mass	kg	0.026
Temperature Parameters	**Units**	**Value**
Max Stator Temperature	°C	130
Max Rotor Temperature	°C	85
Thermal Resistance	°C/W	7.958

Torque and Mechanical Speed

Continuous rated torque of up to 25.6 N-m and a rated speed of up to 8400 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

Electrical Parameters	Units	WYE SERIES Value	WYE PARALLEL* Value	DELTA PARALLEL* Value
Required Motor Voltage @ Max Speed	$V_{pkl\text{-}l}$	13.2	6.6	3.81
Max Continuous Phase Current	A_{RMS}	2.2	4.4	7.6
Peak Phase Current (1 sec)	A_{RMS}	5.6	11.1	19.2
Peak Phase Current (3 sec)	A_{RMS}	3.7	7.3	12.7
Motor Resistance @ 20°C	Ω	1.36	0.34	0.11
Motor Resistance @ Max Temperature	Ω	1.90	0.48	0.16
Terminal Inductance	µH	18.4 ± 20%	4.6 ± 20%	1.5 ± 20%
Electrical Frequency @ Max Speed	Hz	420	420	420
Motor Constants	**Units**	**Value**	**Value**	**Value**
Voltage Constant (l-l)	$V_{pkl\text{-}l}$/rad/s	0.011	0.005	0.003
Voltage Constant (l-l)	$V_{pkl\text{-}l}$/kRPM	1.142	0.571	0.330
Torque Constant	$N\text{-}m/A_{RMS}$	0.013	0.007	0.004
Motor Constant	$N\text{-}m/\sqrt{W}$	0.009	0.009	0.009

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