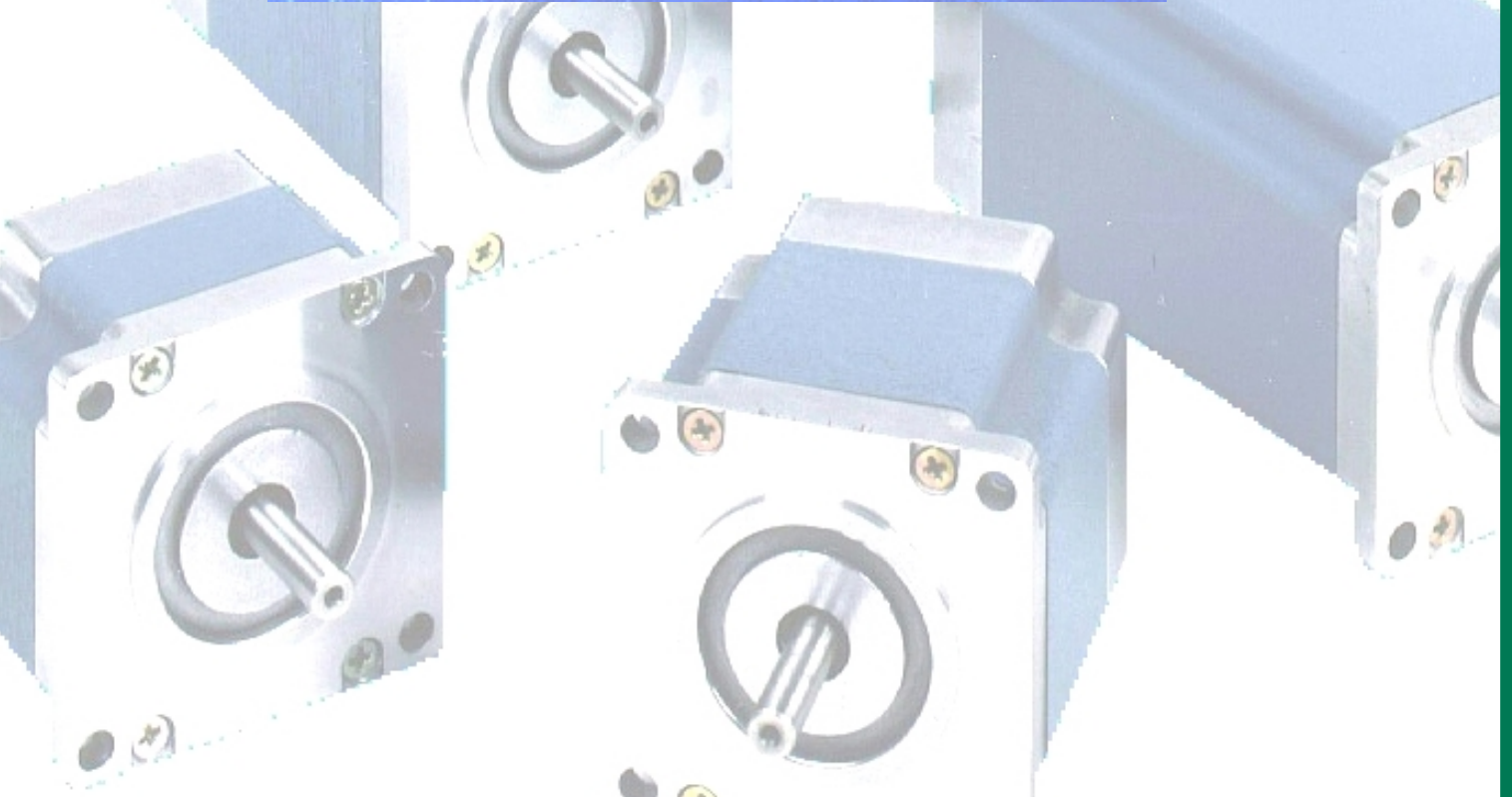


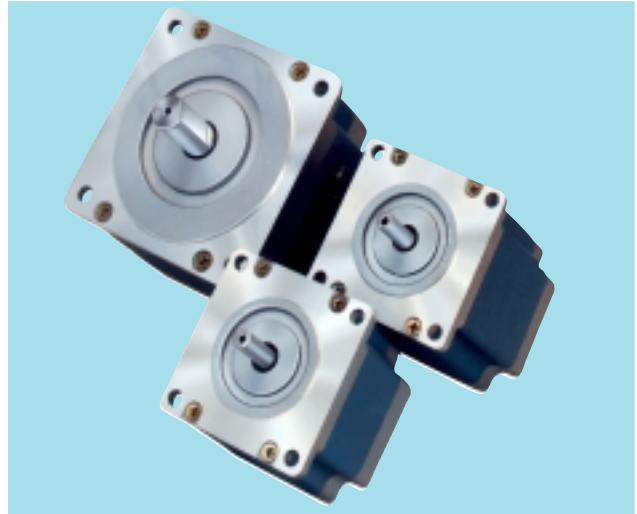
**SLO-SYN®  
KM SERIES HIGH TORQUE STEP MOTORS**





Superior Electric SLO-SYN — long recognized as the leader in step motor technology, has achieved new levels of performance with its high energy KM Series of stepping motors.

Utilizing the latest in design and magnetic technologies, KM Series motors produce double the torque of their predecessors. This achievement allows the user to reduce the size and weight of the motor, increase system performance, improve productivity and reduce cost.



The KM Series is available with a variety of windings and is compatible with nearly all available step motor drives. Specific winding configurations provide a perfect match to Superior's full, half, and micro step drive packages.

Produced in an ISO9001 environment, these high technology steppers are backed with the quality and reliability of a company known for performance and value since 1938.

**Mounting Holes For  
Encoder in Rear Endbell,  
Ground  
Screw Included**

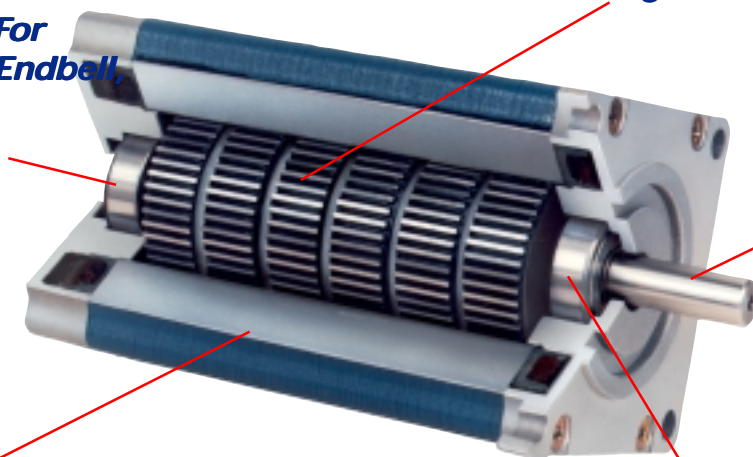
**Brushless  
Robust  
Design**

**Rugged Square-Frame  
Construction**

**Permanent Magnet Rotor**

**303  
Stainless  
Steel Shaft**

**Double Shielded  
Ball Bearings**



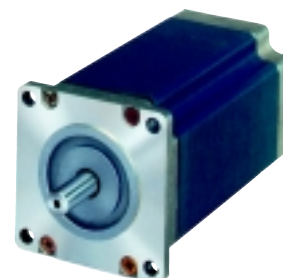
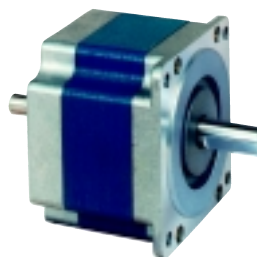
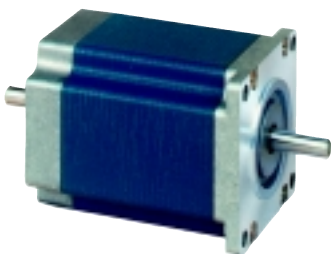
# HIGH TORQUE STEP MOTORS

## FEATURES

- 7 sizes with holding torque ratings from 68 to 1155 oz-in (48 to 816 Ncm)
- NEMA 23 and 34 frame sizes available
- $\pm 2\%$  typical step accuracy
- Operate in full-step ( $1.8^\circ$ ) or half-step ( $0.9^\circ$ ) increments
- Can be microstepped to achieve increments as small as  $.0072^\circ$
- Can operate at rates to 20,000 steps per second (6000 rpm)
- UL and Canadian Recognized
- CE compliant motors available
- Up to 200% rated torque reserve capacity for peak performance (limited duty cycle)
- Can withstand over 2 times rated current without demagnetization
- Motors with double end shafts are provided with holes in rear end bell for encoder mounting
- Wide range of windings available with 4 or 6 connections for use with bipolar or unipolar drives
- Rugged construction to provide long life
- Standard terminal box, encoders, and precision gearheads available

## SPECIFICATIONS

MOTOR TYPE	HOLDING TORQUE 2-ON AT RATED CURRENT (minimum) oz-in (Ncm)		ROTOR INERTIA oz-in-sec <sup>2</sup> (kg-cm <sup>2</sup> )	MAXIMUM OVERHANG LOAD lbs (kg)	MAXIMUM THRUST LOAD lbs (kg)	RESIDUAL TORQUE (typical) oz-in (Ncm)	TYPICAL MOTOR WEIGHT lbs (kg)
	Unipolar	Bipolar					
KML060	54 (38)	68 (48)	.00154 (.108)	15 (6.81)	25 (11.35)	2 (1.41)	1.03 (.47)
KML061	128 (90.4)	170 (120)	.0034 (.24)	15 (6.81)	25 (11.35)	3 (2.11)	1.6 (0.73)
KML062	188 (134)	250 (177)	.0056 (.395)	15 (6.81)	25 (11.35)	6 (4.24)	2.3 (1.04)
KML063	263 (186)	350 (247)	.0084 (.593)	15 (6.81)	25 (11.35)	7 (4.94)	3.2 (1.45)
KML091	305 (215)	385 (272)	.016 (1.13)	25 (11.35)	50 (22.7)	10 (7.06)	3.8 (1.73)
KML092	610 (431)	770 (544)	.031 (2.19)	25 (11.35)	50 (22.7)	15 (10.6)	6.2 (2.82)
KML093	915 (646)	1155 (816)	.047 (3.32)	25 (11.35)	50 (22.7)	23 (16.2)	8.7 (3.95)





# SPECIFICATIONS

Motor Type	No. of Leads	Current (amps)	Voltage (Vdc)	Resistance (ohms)	Inductance (mH)
KML060F02	4	1.05	3.76	3.58	15.8
KML060F05	4	2.7	1.71	.636	2.53
KML060F08	4	4.0	1.11	.277	1.0
KML060F11	4	5.3	0.986	.186	.632
KML060S03	6	1.48	2.85	1.93	3.95
KML060S08	6	3.8	1.28	.336	.632
KML061F02	4	1.05	5.19	4.94	30.1
KML061F03	4	1.4	4.19	3.0	15.5
KML061F05	4	2.7	2.3	.851	4.56
KML061F11	4	5.4	1.24	.23	1.14
KML061S02	6	1.0	6.44	6.44	17.45
KML061S04	6	2.06	3.0	1.46	3.50
KML061S08	6	3.8	1.74	.459	1.10
KML062F03	4	1.5	4.40	2.93	16.9
KML062F05	4	2.5	3.13	1.25	7.14
KML062F07	4	3.3	2.48	.75	3.38
KML062F13	4	6.6	1.33	.202	.847
KML062S04	6	2.12	3.11	1.47	4.22
KML062S06	6	3.0	2.81	.936	2.51
KML062S09	6	4.67	1.75	.375	.845
KML063F03	4	1.5	6.07	4.05	23.9
KML063F04	4	1.8	4.95	2.75	17.0
KML063F07	4	3.3	3.43	1.04	6.16
KML063F13	4	6.6	1.85	.280	1.54
KML063S04	6	2.12	4.28	2.02	5.97
KML063S09	6	4.67	2.52	.540	1.57
KML091F05	4	2.7	3.0	1.11	11.4
KML091F07	4	3.3	2.52	.764	7.52
KML091F13	4	6.6	1.26	.191	1.88
KML091S02	6	1.0	9.28	9.28	47.45
KML091S06	6	3.1	2.91	.94	4.70
KML091S08	6	3.8	2.1	.553	2.85
KML091S09	6	4.67	1.78	.382	1.88
KML092F07	4	3.25	3.48	1.07	11.2
KML092F13	4	6.5	1.74	.268	2.86
KML092S09	6	4.6	2.46	.535	2.80
KML093F07	4	3.4	4.9	1.44	17.9
KML093F08	4	4.0	3.95	.988	12.8
KML093F10	4	5.1	3.21	.629	8.31
KML093F14	4	6.8	2.45	.36	4.48
KML093S07	6	3.5	4.41	1.26	8.31
KML093S10	6	4.8	3.46	.72	4.48

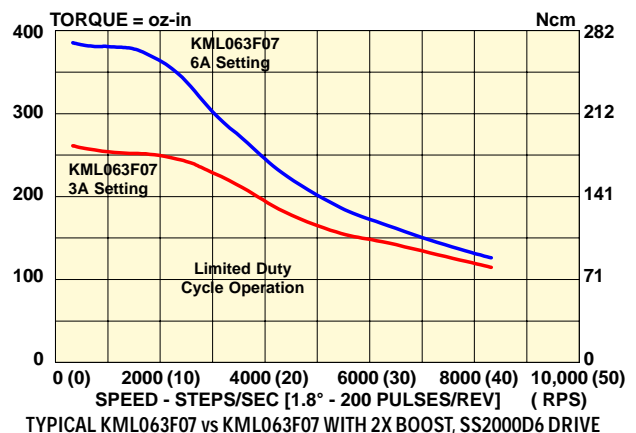
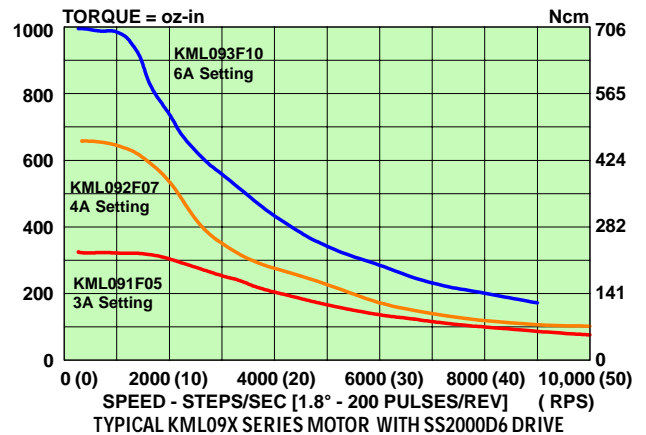
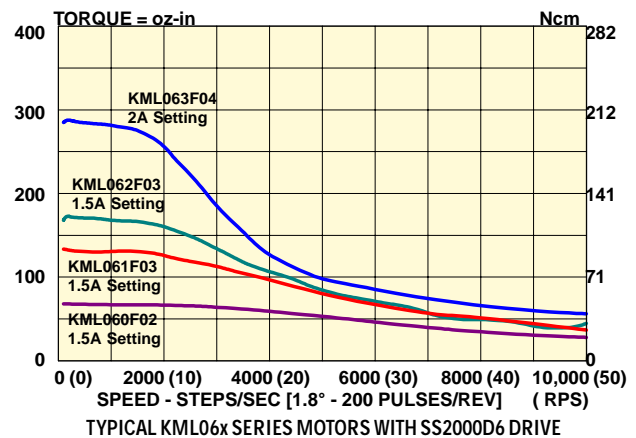
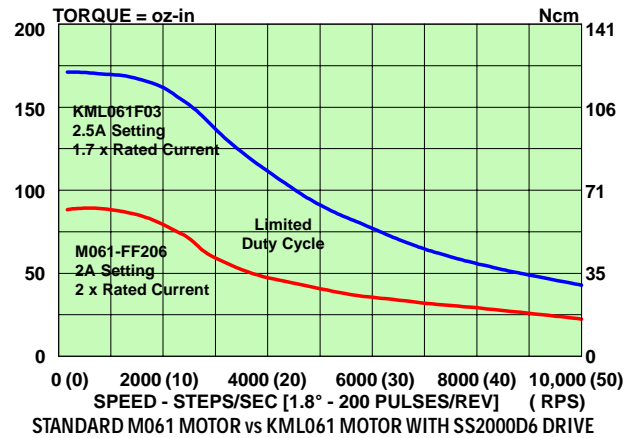
Temperature Rise: ..... 80°C (176°F) or less as measured by the change in resistance method when both phases are energized with constant rated current

Motor Case Temperature: ..... 100°C (212°F) max.

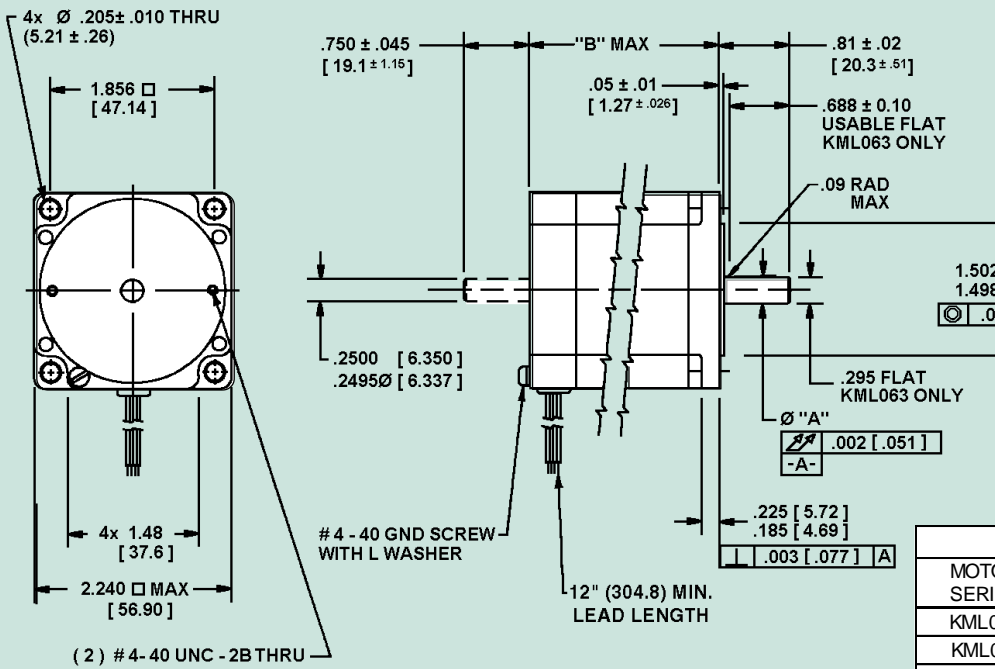
Ambient Temperature Range: ..... -40°C to +65°C (-40°F to +149°F)

Dielectric Strength: ..... Sufficient to withstand 500 Vrms, @60 Hz applied winding to winding and 1200 Vrms applied winding to frame for 1 second min.

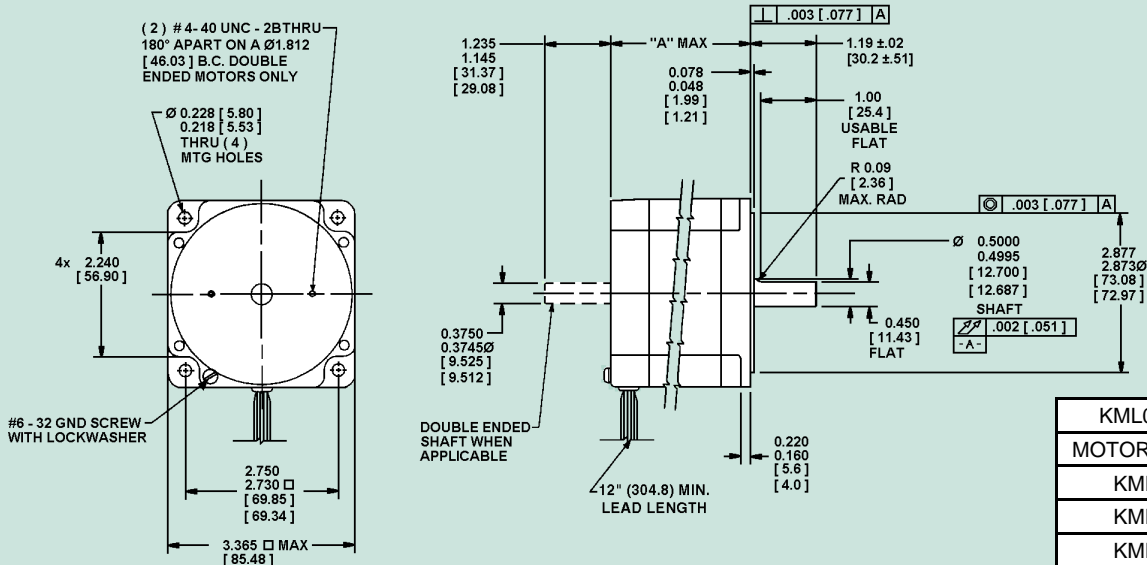
Insulation Resistance: ..... 100 megohms or more with 500 Vdc applied between the winding and frame.



# DIMENSIONAL DRAWINGS



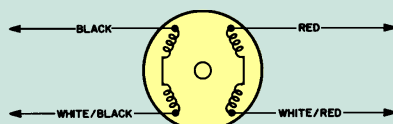
KML06 SERIES DIMENSIONS		
MOTOR SERIES	A (max)	B (max)
KML060	.2500/.2495 (6.350/6.337)	1.64 (44.7)
KML061	.2500/.2495 (6.350/6.337)	2.21 (56.2)
KML062	.2500/.2495 (6.350/6.337)	3.06 (77.8)
KML063	.3125/.3120 (7.938/7.924)	4.06 (103.2)



KML09 SERIES DIMENSIONS	
MOTOR SERIES	A (max)
KML091	2.57 (65.3)
KML092	3.77 (95.8)
KML093	4.97 (126.3)

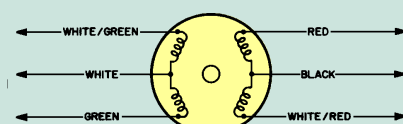
Dimensions in brackets are in millimeters.

# WIRING DIAGRAMS



4-LEAD MOTORS - F STYLE

**Bipolar Configuration**



6-LEAD MOTORS, S STYLE

**Unipolar Configuration**

# Distribution Coast-To-Coast and International

Superior Electric, part of the Colfax Automation Group, is a global leader in the engineering, manufacturing, and marketing of precision motion and control products for industrial applications. All SLO-SYN® step motors, servo motors and controls are backed by highly specialized engineers and service people who can help solve your production challenges. Superior Electric's capabilities and products have improved operations for companies around the world.

Through an extensive authorized distributor network, Superior Electric products are available worldwide. These distributors provide convenient services by offering technical support, replacement parts, and literature, as well as an extensive inventory of models off-the-shelf for the fastest possible delivery. Call Superior Electric customer service for ordering and application information or for the address of the nearest authorized distributor for Superior Electric products.

## In U.S.A. and Canada

Customer Service: 1-800-787-3532 x4753  
Product Application: 1-800-787-3532 x4751  
Product Literature Request: 1-800-787-3532 x4517  
Fax: 1-800-766-6366

## In Europe

**Warner Electric (Int.) Inc.**  
La Pierreire  
CH-1029 Villars-Ste-Croix, Switzerland  
Tel: 41 21 631 33 55  
Fax: 41 21 636 07 04

### Colfax Automation Brand names:

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<b>Superior Electric</b>	<b>SLO-SYN®</b> Step/Servo Motors and Controls <b>POWERSTAT®</b> Variable Transformers <b>SUPERCON®</b> Electrical Connectors	<b>LUXTROL®</b> Lighting Controls <b>STABILINE®</b> Power Protection Products <b>5-WAY®</b> Binding Posts
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<b>Fincor Electronics</b>	<b>FINCOR®</b> Adjustable Speed Drives <b>SECO®</b> Adjustable Speed Drives	<b>BRONCO®</b> AC and DC Drives <b>NEXTDRIVE™</b> Adjustable Frequency Drives
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**Warner Engineered Systems** Integrator of **Superior Electric**, **Fincor Electronics**, and **Warner Linear** components as well as components of other manufacturers into complete motion control/drive system solutions.

Web Site: [www.superiorelectric.com](http://www.superiorelectric.com)



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