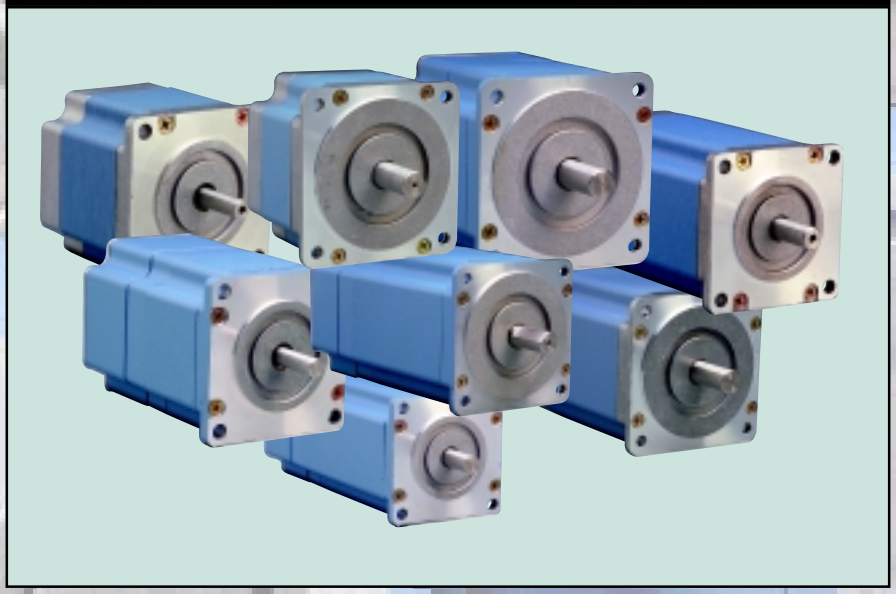
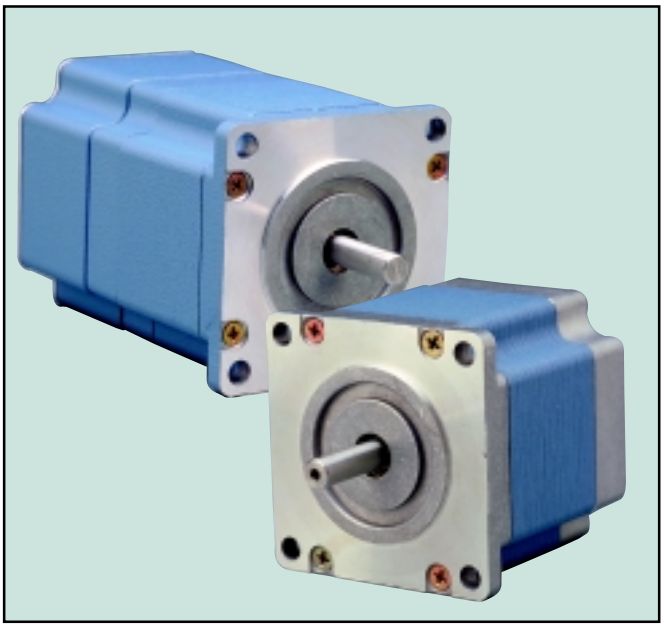
Superior Electric

SLO-SYN® KS Series High Torque AC Synchronous Motors



SERVO CONTROLS STEPPER CONTROLS VOLTAGE CONDITIONING ENGINEERING SYSTEMS AC/DC DRIVES

SLO-SYN® KS Series High To



Superior Electric **SLO-SYN** — long recognized as the leader in slow speed synchronous motor technology, has achieved new levels of performance with its **KS Series** of AC Synchronous Motors.

Utilizing the latest in design and magnetic technologies, the **KS Series** produces 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 **KS Series** is available with 12 inch leads or a terminal box in six sizes to meet all or your AC Synchronous Motor System needs.

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

Features

- NEMA 23 torque rating 80-185 ounce-inches (56 to 131 Ncm)
- NEMA 34 torque rating 240-700 ounce-inches (169 to 494 Ncm)
- High power - allows use of a smaller motor
- Smooth, quiet operation
- Rugged construction to provide long life
- Start, stop or reverse within 1½ cycles of the applied frequency
- Operated from single-phase power sources using phase-shifting network
- Impedance protected, can be stalled without damage
- Starts higher inertial loads
- Offered with leads or terminal box
- Rear shafts available
- Gearmotors available
- CE compliant motors available

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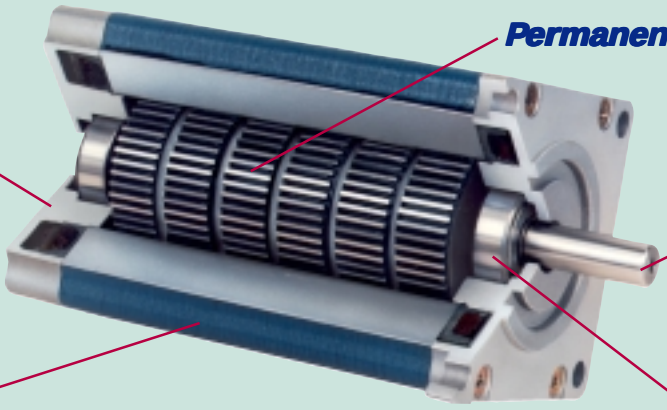


que AC Synchronous Motors

120 Volt, 60 Hz, Single Phase, 72 RPM

		Torque (min)		†Load Inertia				Phase Shifting Components				
								Resistor Kit			Capacitor (240 VAC)	
	*Type Number	oz-in	Ncm	Lb-In^2	Kg-cm^2	Amps	Wiring Diagram	Kit Number	Ohm	Watt	Kit Number	µF
60 Series	**KSL061T1Y**	80	56	0.5	1.5	0.25	R/C	201052-033	1,000	12	201053-038	2
	KSL062T1Y	140	99	2.0	5.9	0.35	R/C	201052-035	600	25	201053-044	3
	KSL063T1Y	185	131	4.0	12	0.40	R/C	201052-049	400	50	201053-076	5
90 Series	**KSL091T1Y**	240	169	4.0	12	0.50	R/C	201052-037	300	50	201053-076	5
	KSL092T1Y	450	318	8.0	23	0.60	R/C	201052-041	250	50	201053-069	6
	KSL093T1Y	700	494	13	38	1.00	R/C	201052-027	150	100	201053-074	11

240 Volt, 60 Hz, Single Phase, 72 RPM

		Torque (min)		†Load Inertia				Phase Shifting Components				
								Resistor Kit (includes 2 if required)			Capacitor (370 VAC)	
	*Type Number	oz-in	Ncm	Lb-In^2	Kg-cm^2	Amps	Wiring Diagram	Kit Number	Ohm	Watt	Kit Number	µF
60 Series	**KSL062T2Y**	140	99	2.3	6.7	0.15	R/R/C	201052-036	1,100	25	201053-063	0.75
	KSL063T2Y	185	131	2.6	7.6	0.20	R/R/C	201052-050	1000	25	201053-063	0.75
90 Series	**KSL091T2Y**	240	169	4	12	0.25	R/R/C	201052-039	900	50	201053-070	1.0
	KSL092T2Y	450	318	9	26	0.35	R/C	201052-045	1,000	100	201053-072	2.0
	KSL093T2Y	700	494	14	41	0.50	R/C	201052-047	600	100	201053-073	3.0

240 Volt, 50 Hz, Single Phase, 60 RPM

		Torque (min)		†Load Inertia				Phase Shifting Components				
								Resistor Kit (includes 2 Resistors)			Capacitor (370 VAC)	
	*Type Number	oz-in	Ncm	Lb-In^2	Kg-cm^2	Amps	Wiring Diagram	Kit Number	Ohm	Watt	Kit Number	µF
60 Series	**KSL062T2Y**	140	99	2.3	6.7	0.15	R/R/C	201052-036	1,100	25	201053-063	0.75
	KSL063T2Y	185	131	2.6	7.6	0.20	R/R/C	201052-050	1000	25	201053-070	1.0
90 Series	**KSL091T2Y**	240	169	4.5	13	0.25	R/R/C	201052-039	900	50	201053-075	1.5
	KSL092T2Y	450	318	8	23	0.35	R/R/C	201052-043	600	50	201053-071	1.75
	KSL093T2Y	700	494	14	41	0.50	R/R/C	201052-046	400	100	201053-073	3.0

* To order a motor with a rear shaft extension, add E to the end of the type number. Example: KSL061T1YE.
To order a motor with a terminal box, change KSL to KST. Example: KST061T1Y
To order a gearmotor (90 series only), add G and desired ratio to the end of the type number. Example: KST091T2YG20.
To order a motor that is CE compliant insert C after L or T. Example KSTC091T2Y.

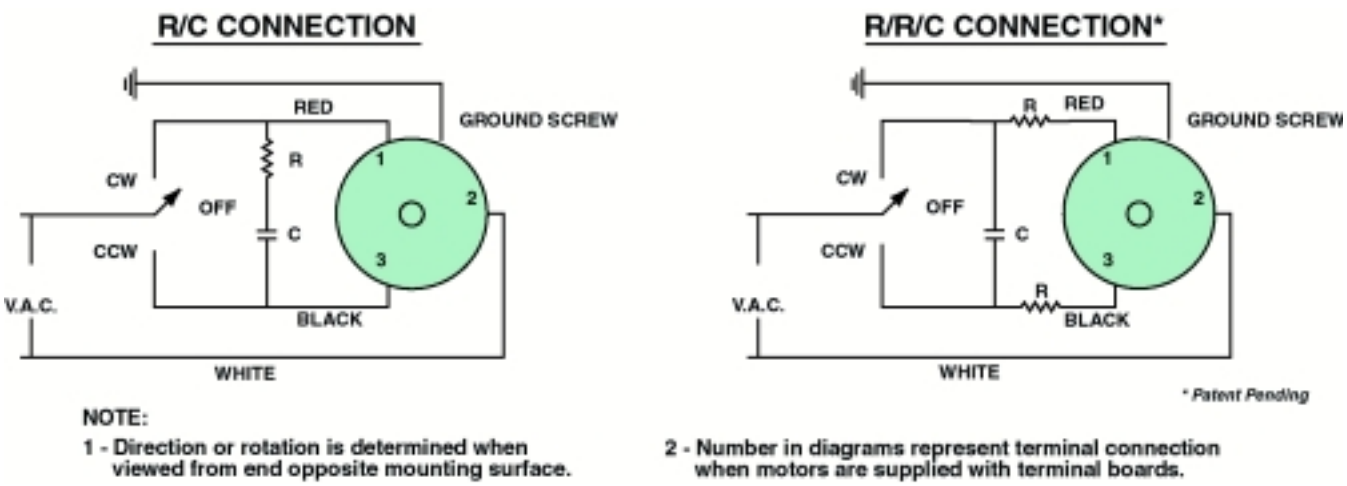
† This is the maximum rigidly attached load inertia the motor will reliably start. If the load is attached to the motor with a coupling that has a 5° flex, the motor can start loads up to seven times listed.

Specifications

Voltage: ---------- 120VAC or 240VAC ± 5%
Enclosure Rating: ---------- IP42
Insulation Rating: ---------- Class B

Temperature:
Operating: ---- -40 to 140°F (-40 to 60°C)
Storage: ----- -40 to 266°F (-40 to 130°C)
Humidity: ---------- 5-95% non-condensing
Altitude: ---------- 30,000 ft. (9100m)

Wiring Diagrams



NOTE:

1 - Direction or rotation is determined when viewed from end opposite mounting surface.

2 - Number in diagrams represent terminal connection when motors are supplied with terminal boards.

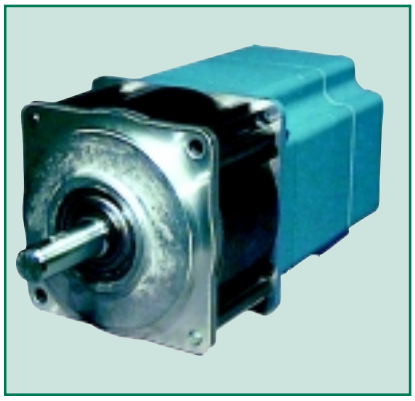
Gearmotors

SLO-SYN AC Gearmotors mate SLO-SYN 90 series Synchronous Motors with step-down gearboxes for applications where slow shaft speeds or high torque are needed.

The rugged gearbox developed for SLO-SYN AC Gearmotors has been designed to allow high output torque ratings, while providing long life. The gearmotors are permanently lubricated and no scheduled maintenance is needed. The gearbox is rated for 5000 ounce-inches (3531 Ncm) maximum output torque. Gearbox efficiency is 68% to 88%, depending on the number of stages. The output shaft of the gear assembly is slotted to accept a standard Woodruff key (supplied) for easy and positive coupling to the load. Nineteen ratios from 3:1 to 125:1 are offered.

Gearbox Data

- Up to 5000 ounce-inches (3531 Ncm) torque
- Ratios from 3:1 to 125:1
- Efficiency to 88%
- Maintenance free
- Long operating life
- 150 lb (68 kg) radial load capacity
- 100 lb (45.4 kg) axial load capacity
- Typical output shaft backlash is 2°

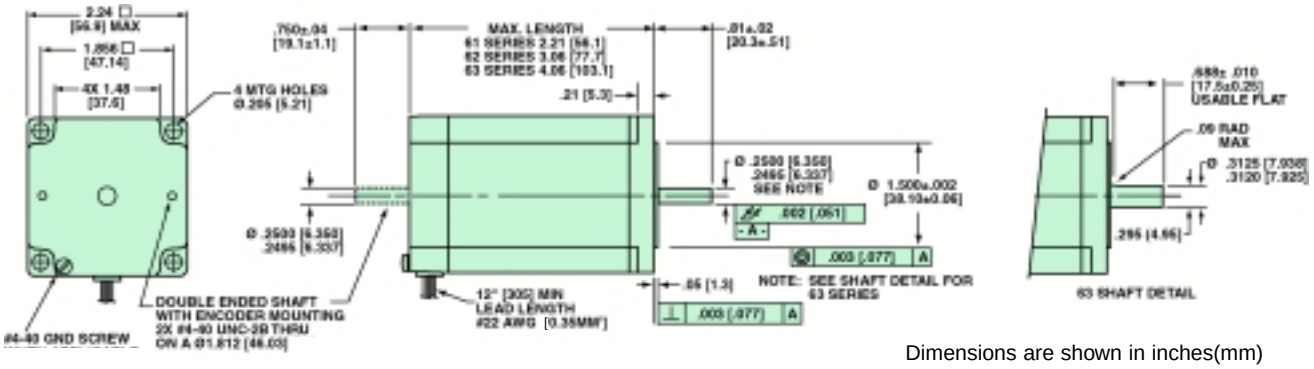


Note: Gearboxes for 93 motors must be installed at the factory.

Gearbox "G" Ratio	Part Number	Efficiency	Torque Multiplier (Max Torque 5000 oz-in)	Typical Input Shaft Lost Motion	Reflected Moment Of Inertia Lb-In^2 (kg-cm^2)
3:1	220763-003	88%	2.64	6°	0.105 (3.09 x 10^{-5})
4:1	220763-004	88%	3.52	7°	0.035 (1.02 x 10^{-5})
5:1	220763-005	88%	4.4	8°	0.021 (6.2 x 10^{-6})
9:1	220763-009	88%	6.93	43°	0.115 (3.37 x 10^{-5})
12:1	220763-012	77%	9.24	61°	0.041 (1.19 x 10^{-5})
15:1	220763-015	77%	11.55	81°	0.024 (7.1 x 10^{-6})
16:1	220763-016	77%	12.32	58°	0.037 (1.08 x 10^{-5})
20:1	220763-020	77%	15.4	65°	0.023 (6.6 x 10^{-6})
25:1	220763-025	77%	19.25	73°	0.022 (6.4 x 10^{-6})
27:1	220763-027	68%	18.36	109°	0.114 (3.35 x 10^{-5})
36:1	220763-036	68%	24.48	110°	0.041 (1.19 x 10^{-5})
45:1	220763-045	68%	30.6	112°	0.024 (7.1 x 10^{-6})
48:1	220763-048	68%	32.64	113°	0.037 (1.08 x 10^{-5})
60:1	220763-060	68%	40.8	115°	0.023 (6.6 x 10^{-6})
64:1	220763-064	68%	43.52	116°	0.037 (1.08 x 10^{-5})
75:1	220763-075	68%	51	118°	0.022 (6.4 x 10^{-6})
80:1	220763-080	68%	54.4	119°	0.023 (6.6 x 10^{-6})
100:1	220763-100	68%	68	124°	0.022 (6.4 x 10^{-6})
125:1	220763-125	68%	85	130°	0.022 (6.4 x 10^{-6})

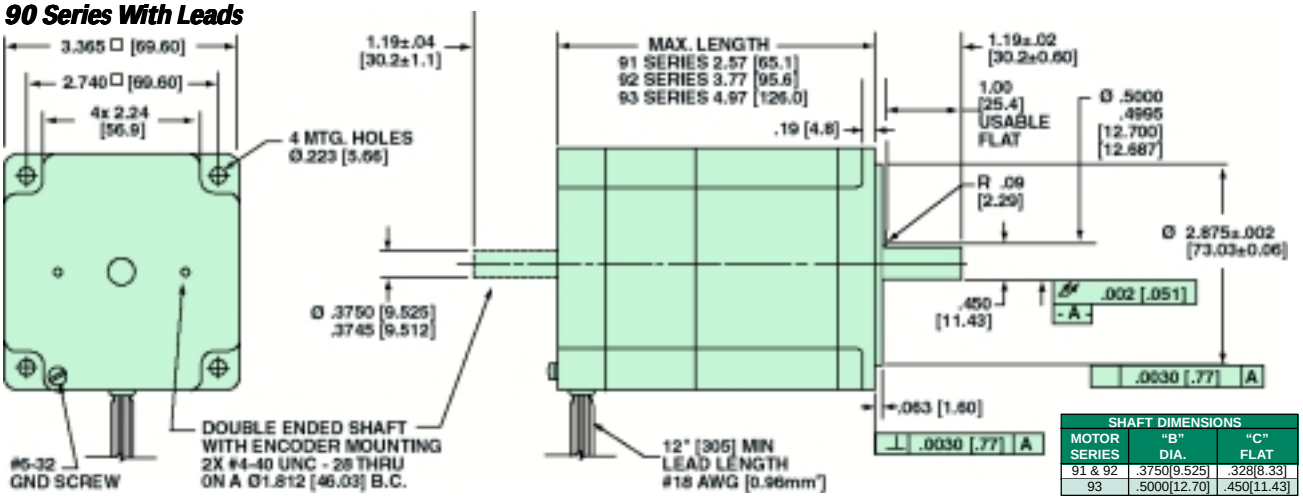
Dimensional Drawings

60 Series With Leads



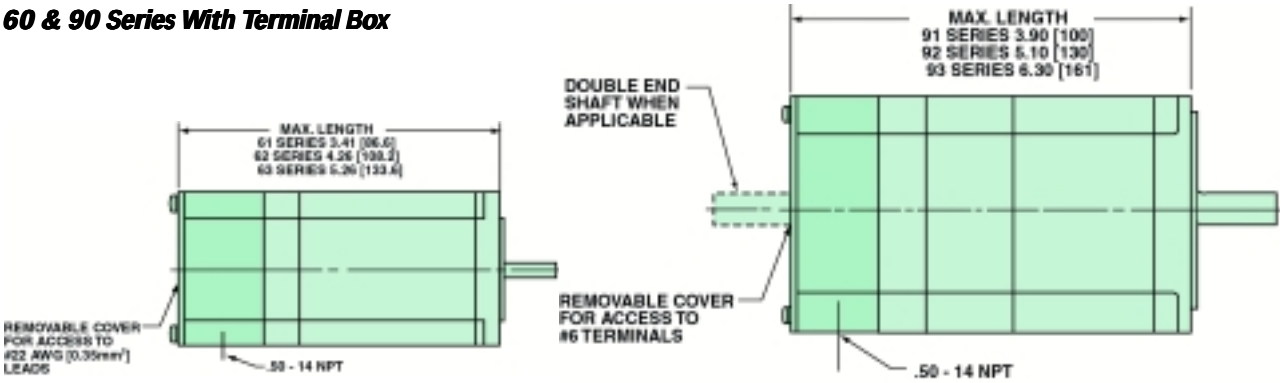
Dimensions are shown in inches(mm)

90 Series With Leads



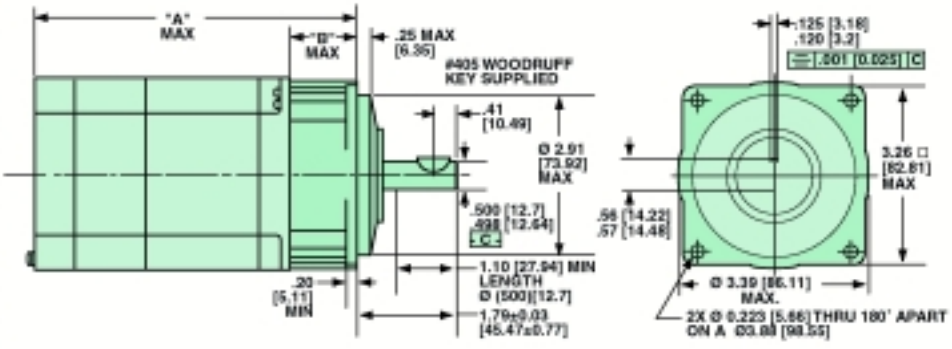
SHAFT DIMENSIONS		
MOTOR SERIES	"B" DIA.	"C" FLAT
91 & 92	.3750[9.525]	.328[8.33]
93	.5000[12.70]	.450[11.43]

60 & 90 Series With Terminal Box



Gearmotors (90 Series only)

90 SERIES MOTORS			
Motor	Ratio	A	B
KSL091	3:1 thru 5:1	3.76 [95.33]	1.19 [30.23]
KSL091	9:1 thru 25:1	4.38 [111.08]	1.81 [45.98]
KSL091	27:1 thru 125:1	4.95 [125.56]	2.38 [60.46]
KSL092	3:1 thru 5:1	4.96 [125.83]	1.19 [30.23]
KSL092	9:1 thru 25:1	5.56 [141.58]	1.81 [45.98]
KSL092	27:1 thru 125:1	6.15 [156.06]	2.38 [60.46]
KSL093	3:1 thru 5:1	6.16 [156.23]	1.19 [30.23]
KSL093	9:1 thru 25:1	6.78 [171.98]	1.81 [45.98]
KSL093	27:1 thru 125:1	7.35 [186.46]	2.38 [60.46]



* For KST series motors add 1.33 [33.79] to Dimenion "A".

Distribution Coast-To-Coast and International

Superior Electric, 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
Product Application: 1-800-787-3532
Product Literature Request: 1-800-787-3532
Fax: 1-800-766-6366

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

Superior Electric

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POWERSTAT® Variable Transformers
SUPERCON® Electrical Connectors
BRONCO® AC and DC Drives
NEXTDRIVE™ Adjustable Frequency Drives
LUXTROL® Lighting Controls
STABILINE® Power Protection Products
5-WAY® Binding Posts
SECO® Adjustable Speed Drives

Superior Engineered Systems

Integrator of **Superior Electric,** and **Warner Linear** components as well as components of other manufacturers into complete motion control/drive system solutions.

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