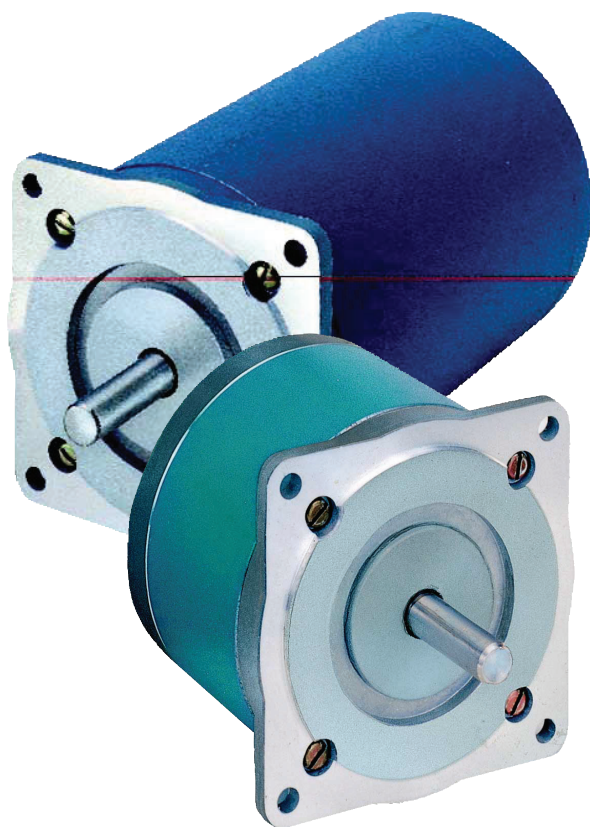


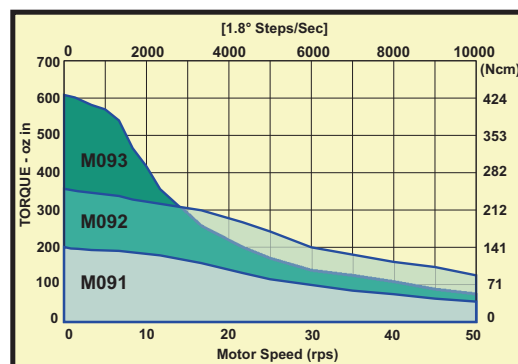
M09

Standard 90mm Frame Size (NEMA Size 34)



Performance Envelope

(see page DC21 for detailed torque-speed curves)

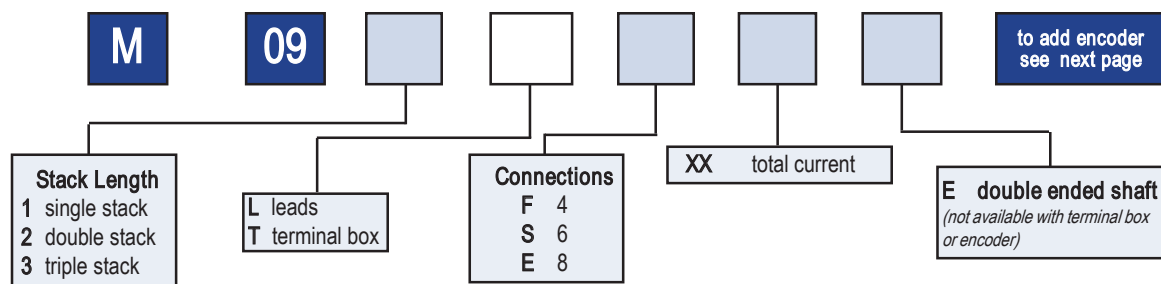


- ◆ Up to 150% rated torque reserve capacity
- ◆ $\pm 3\%$ typical step accuracy
- ◆ CE conforming motors available
- ◆ Standard terminal box, encoders, and precision gearheads available
- ◆ Available with four or six leads
- ◆ Customized configurations available

Motor Frame	Minimum Holding Torque		Rotor Inertia	Weight		Maximum Shaft Load		Minimum Residual Torque
	Unipolar 2Ø on	Bipolar 2Ø on		Net*	Ship*	Overhang	Thrust	
	oz-in (Ncm)	oz-in (Ncm)		lb (kg)	lb (kg)	lb (kg)	lb (kg)	
M091	150 (106)	180 (127)	0.0095 (0.67)	3.3 (1.5)	4.0 (1.8)	25 (11)	50 (23)	2.0 (1.4)
M092	300 (212)	370 (261)	0.0174 (1.23)	5.5 (2.5)	6.8 (3.1)	25 (11)	50 (23)	4.0 (2.8)
M093	450 (318)	550 (388)	0.0265 (1.87)	7.8 (3.5)	9.0 (4.1)	25 (11)	50 (23)	7.0 (4.9)

* Weight for motor with leads

SLO-SYN® DC STEP MOTORS



60M

See next page for detailed model number information

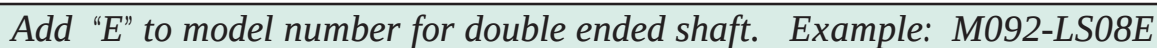
4-CONNECTION STEP MOTORS						
Model Number [◇]		Winding Specifications				
New	Old	Voltage VDC	Current Amperes	Resistance ohms	Inductance mH	
See next page for options						
M091-□F02	M091-FF-401*	6.8	1.0	6.8	52	
M091-□F06	M091-FF-206*	3.0	3.0	1.0	10	
M092-□F04	M092-FF-402*	3.4	2.0	1.7	17	
M092-□F08	M092-FF-206*	4.0	4.0	1.0	11	
M093-□F06	M093-FF-402*	4.5	3.0	1.5	17	
M093-□F08	M093-FF-206*	3.9	4.0	0.96	13	

6-CONNECTION STEP MOTORS									
Model Number [◇]		Winding Specifications							
New	Old (Leads)	Unipolar				Bipolar Series			
See next page for options		Voltage VDC	Current Amperes	Resistance ohms	Inductance mH	Voltage VDC	Current Amperes	Resistance ohms	Inductance mH
M091-□S03	M091-FD03	5.3	1.6	3.3	17	7.3	1.1	6.6	66
M091-□S06	M091-FD06	2.6	3.1	0.85	4.1	4.8	2.2	1.7	17
M091-□S09	M091-FD09	1.7	4.7	0.36	1.5	2.4	3.3	0.72	6.0
M092-□S08	M092-FD08	3.0	4.0	0.75	3.6	4.2	2.8	1.5	14
M092-□S09	M092-FD09	2.5	4.6	0.55	2.8	3.6	3.3	1.1	11
M093-□S07	M093-FD07	4.3	3.5	1.2	7.9	6.1	2.5	2.4	31
M093-□S11	M093-FD11	2.7	5.5	0.48	3.2	3.8	3.9	0.96	13
M093-□S14	M093-FD14	2.3	7.0	0.33	2.0	3.2	5.0	0.65	8.0

8-CONNECTION STEP MOTORS									
Model Number [◇]		Winding Specifications							
New	Old (Leads)	Unipolar				Bipolar Parallel*			
See next page for options		Voltage VDC	Current Amperes	Resistance ohms	Inductance mH	Voltage VDC	Current Amperes	Resistance ohms	Inductance mH
M091-□E06	M091-FD-8106	2.6	3.1	0.85	4.1	1.9	4.4	0.43	4.1
M091-□E09	M091-FD-8109	1.7	4.7	0.35	1.5	1.2	6.6	0.18	1.5
M092-□E08	M092-FD-8108	3.0	4.0	0.75	3.6	2.1	5.7	0.38	3.6
M092-□E09	M092-FD-8109	2.6	4.6	0.55	2.8	1.8	6.5	0.28	2.8
M093-□E11	M093-FD-8111	2.6	5.5	0.48	3.2	1.9	7.8	0.24	3.2
M093-□E14	M093-FD-8114	2.3	7.0	0.33	2.0	1.6	9.9	0.16	2.0

◇ Nameplate may reference old model number
 ♦ Terminal box motor
 * See 6-lead table for 8-lead bipolar ratings
 • Leaded motor

100



(consult factory for encoder with terminal box)

SLO-SYN® DC STEP MOTORS

60M

36 V Bipolar - Full Step

◆ 36 volt data measured with SS2000MD4 Modular Drive.

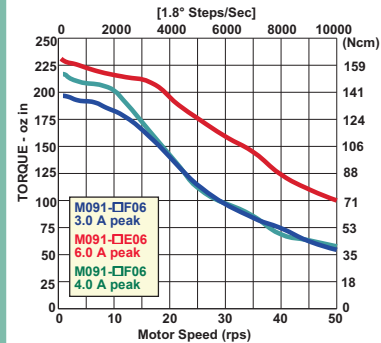
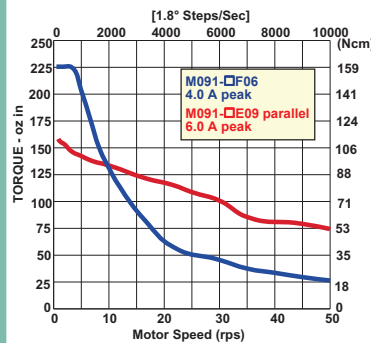
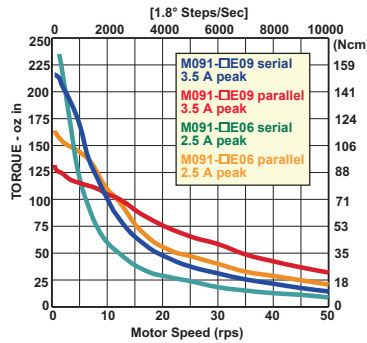
72 V Bipolar - Microstep

◆ 72 volt data measured with MD808 Modular Drive.

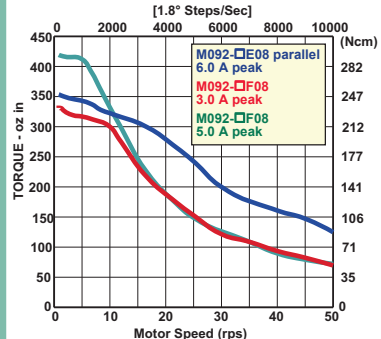
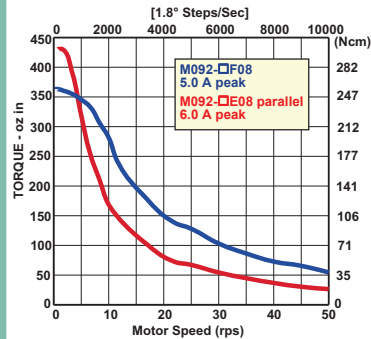
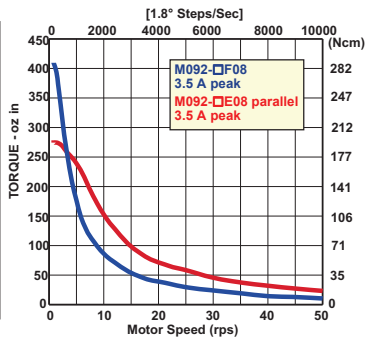
170 V Bipolar - Microstep

◆ 170 volt data measured with SS2000D3 or D6 Packaged Drive

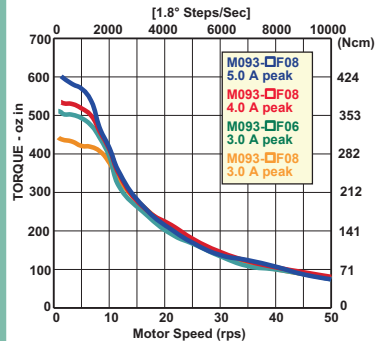
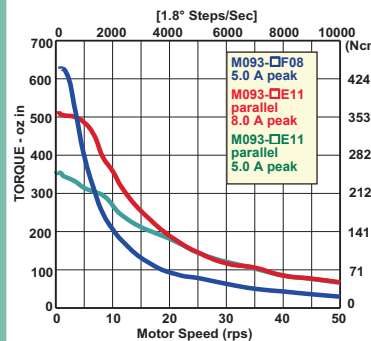
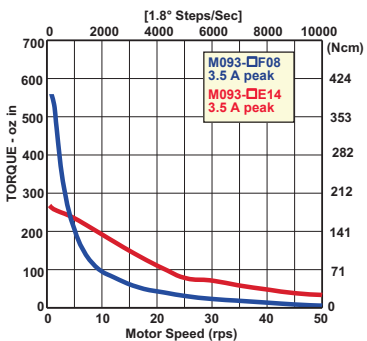
M091



M092



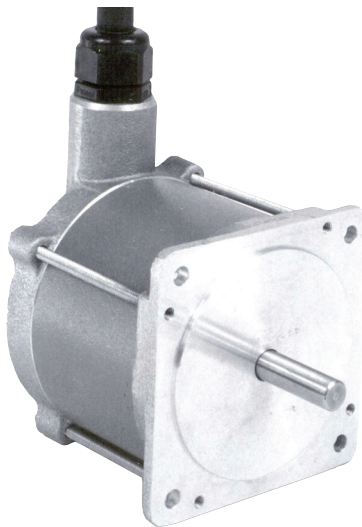
M093



- ◆ The curves do not show system resonances which will vary with system mechanical parameters.
- ◆ Duty cycle is dependent on torque, speed, Drive parameters, and heat sink conditions. Maximum case temperature is 100°C.

MX09

Hazardous Duty 90mm Frame Size

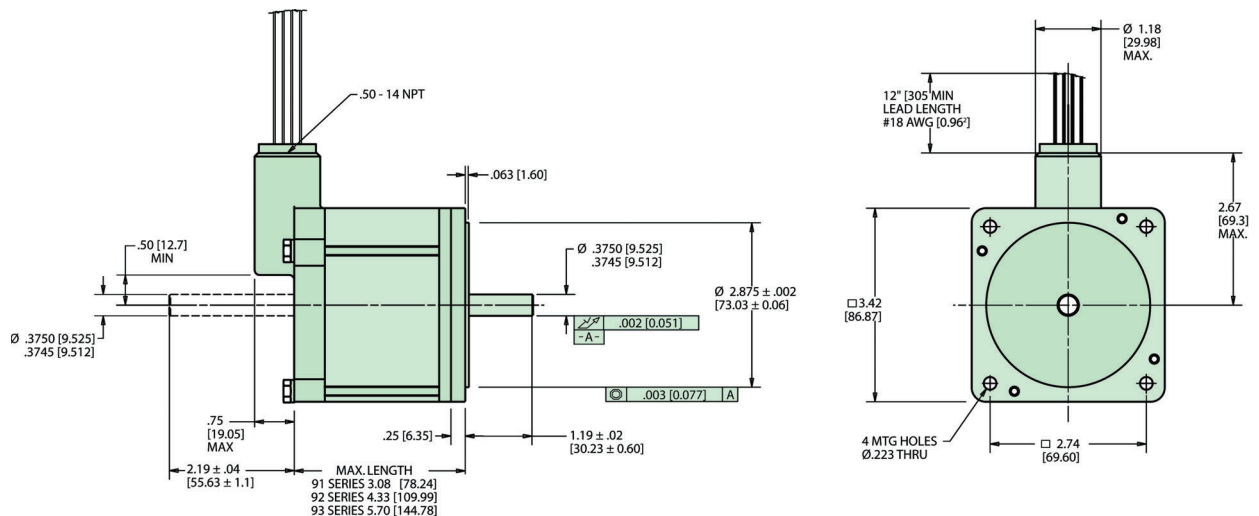


- Up to 150% rated torque reserve capacity
- ± 3% typical step accuracy
- Hazardous Duty
UL Class 1, Division 1, Group D

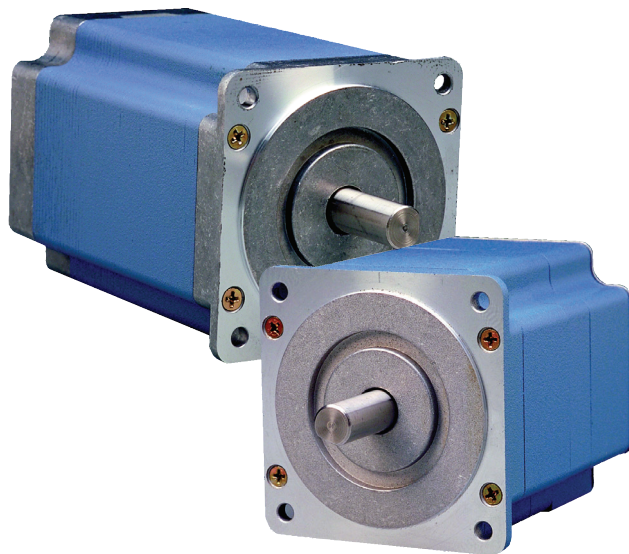


4-Connection Step Motors				
Model #	Voltage VDC	Current Amps	R Ω	L mH
MX91-FF-206U	3.0	3.0	1.0	10
MX91-FF-402U	2.9	4.0	0.72	6.0
MX91-FF-403U	1.1	6.0	0.18	1.5
MX92-FF-206U	4.0	4.0	1.0	11
MX92-FF-401U	1.9	7.0	0.28	2.8
MX93-FF-206U	3.9	4.0	0.90	13
MX93-FF-401U	3.2	5.0	0.65	8.0
MX93-FF-402U	1.1	7.0	0.16	2.0

Change U to EU for double ended shaft.

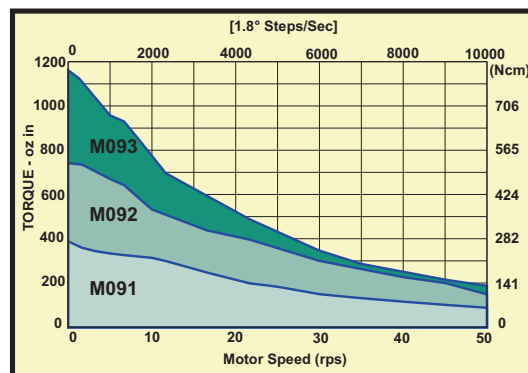


High Torque 90mm Frame Size (NEMA Size 34)



Performance Envelope

(see page DC27 for detailed torque-speed curves)



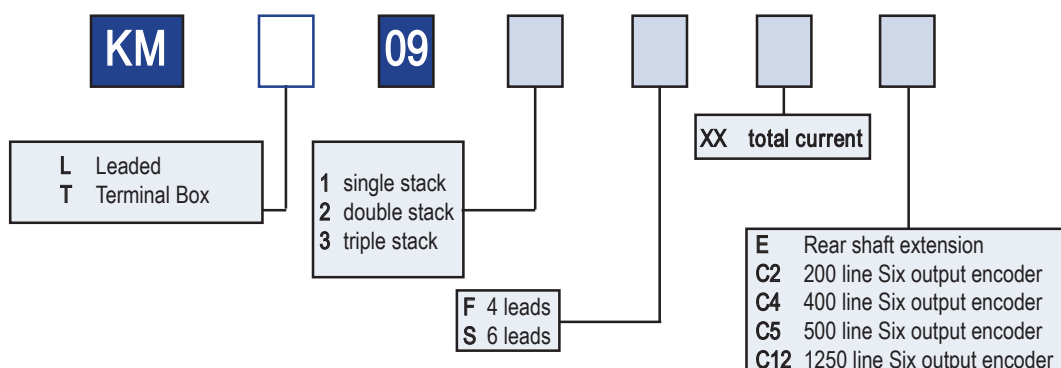
- ◆ Up to 200% rated torque reserve capacity
- ◆ $\pm 2\%$ typical step accuracy
- ◆ Standard terminal box, encoders, and precision gearheads available
- ◆ Available with four or six leads
- ◆ Customized configurations available

Washdown Motors Available see page DC 28



Motor Frame	Minimum Holding Torque		Rotor Inertia	Weight		Maximum Shaft Load		Minimum Residual Torque
	Unipolar 2Ø on	Bipolar 2Ø on		Net	Ship	Overhang	Thrust	
	oz-in (Ncm)	oz-in (Ncm)		lb (kg)	lb (kg)	lb (kg)	lb (kg)	
KM091	305 (215)	385 (272)	.016 (1.13)	3.8 (1.73)	4.0 (1.81)	25 (11)	50 (23)	10 (7.1)
KM092	610 (431)	770 (544)	.031 (2.19)	6.2 (2.82)	6.3 (2.82)	25 (11)	50 (23)	15 (11)
KM093	915 (646)	1155 (816)	.047 (3.32)	8.7 (3.95)	8.9 (3.95)	25 (11)	50 (23)	23 (16)

SLO-SYN® DC STEP MOTORS



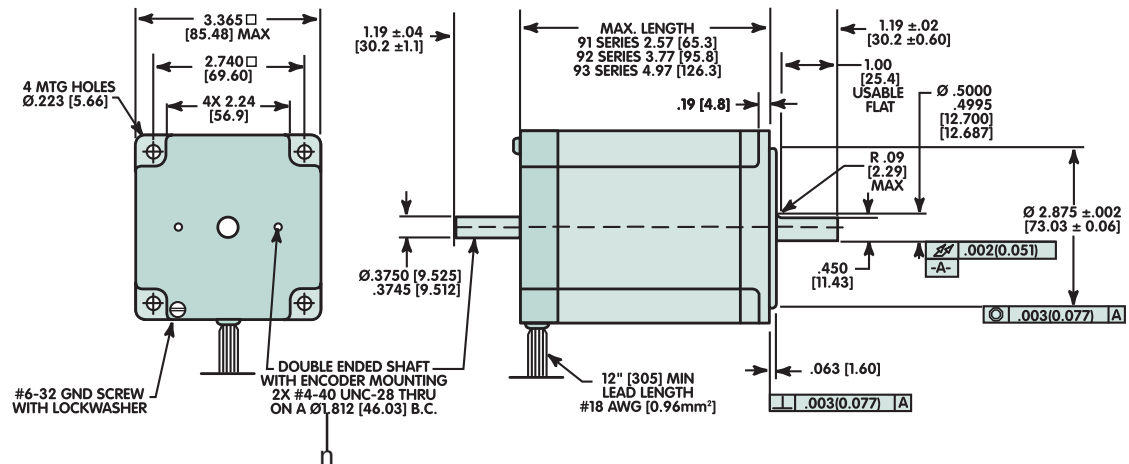
KM09

See next page for detailed model number information

4-CONNECTION STEP MOTORS				
Model Number	Winding Specifications			
	Voltage (VDC)	Current (Amperes)	Resistance (ohms)	Inductance (mH)
KM□091F05	3.0	2.7	1.1	11
KM□091F07	2.5	3.3	0.76	7.5
KM□091F13	1.3	6.6	0.19	1.9
KM□092F07	3.5	3.3	1.1	11
KM□092F13	1.7	6.5	0.27	2.9
KM□093F07	4.9	3.4	1.4	18
KM□093F08	4.0	4.0	0.99	13
KM□093F10	3.2	5.1	0.63	8.3
KM□093F14	2.5	6.8	0.36	4.5

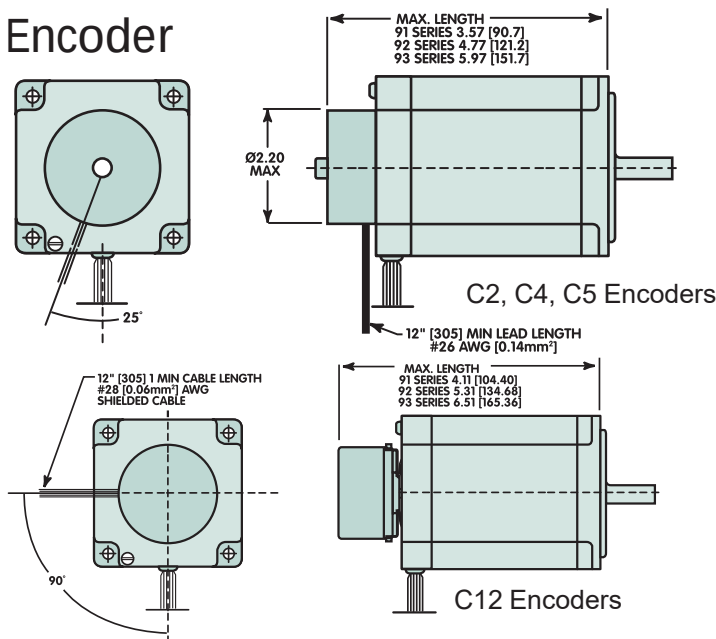
6-CONNECTION STEP MOTORS								
Model Number	Winding Specifications							
	Unipolar				Bipolar Series			
See next page for options	Voltage VDC	Current Amperes	Resistance ohms	Inductance mH	Voltage VDC	Current Amperes	Resistance ohms	Inductance mH
KM○091S02	9.3	1.0	9.3	47	13	0.70	19	190
KM○091S06	2.9	3.1	0.94	4.7	4.1	2.2	1.9	19
KM○091S08	2.1	3.8	0.55	2.9	2.9	2.7	1.1	11
KM○091S09	1.8	4.7	0.38	1.9	2.5	3.3	0.76	7.5
KM○092S09	2.5	4.6	0.54	2.8	3.4	3.2	1.1	11
KM○093S07	4.4	3.5	1.3	8.3	6.2	2.5	2.5	33
KM○093S10	3.5	4.8	0.72	4.5	4.8	3.4	1.4	18

Motor Dimensions



Add "E" to model number for double ended shaft. Example: KML092F07E

Encoder



Add to Model Number:

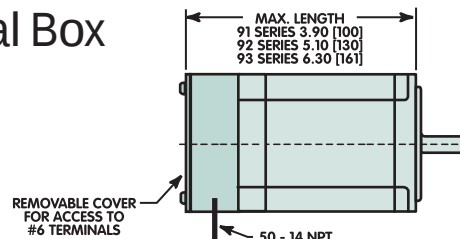
C2	200 lines per rev.
C4	400 lines per rev.
C5	500 lines per rev.
C12	1250 lines per rev.

Outputs: A, B, Index,
A, B, Index,

Differential Line Drivers supplied

Example: KML093S07C5

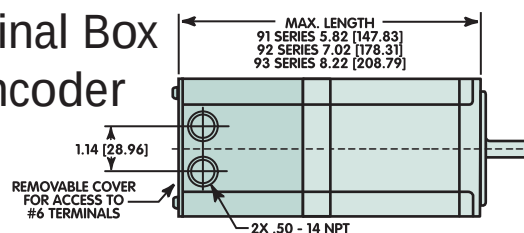
Terminal Box



Change Model Number:

Example: KMT093S07
 (triple stack, terminal box, six leads, 7 amp winding)

Terminal Box W/Encoder



Change Model Number:

Example: KMT092F07C12
 (double stack, terminal box, four leads, 7 amp winding, C12 encoder)

SLO-SYN® DC STEP MOTORS

36 V Bipolar - Full Step

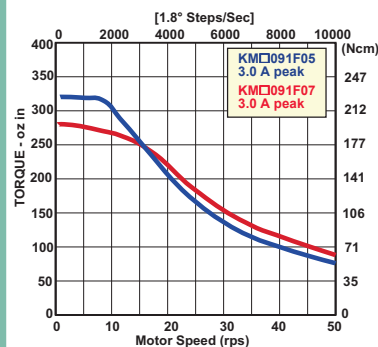
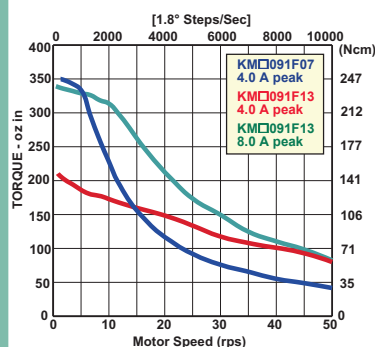
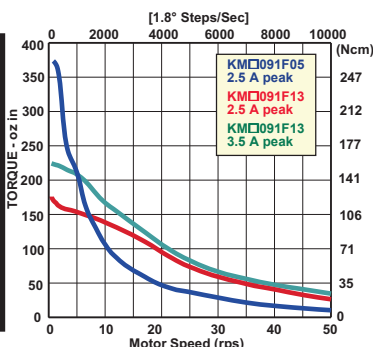
72 V Bipolar - Microstep

170 V Bipolar - Microstep

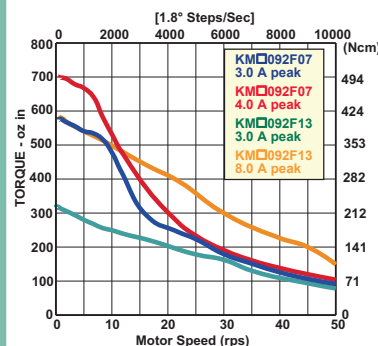
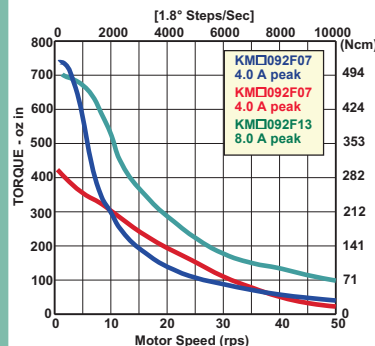
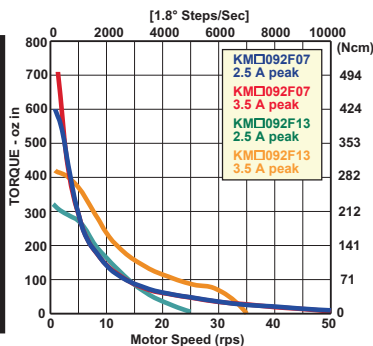
- ◆ 36 volt data measured with SS2000MD4 Modular Drive.
- ◆ 72 volt data measured with MD808 Modular Drive.
- ◆ 170 volt data measured with SS2000D3 or D6 Packaged Drive

KM09

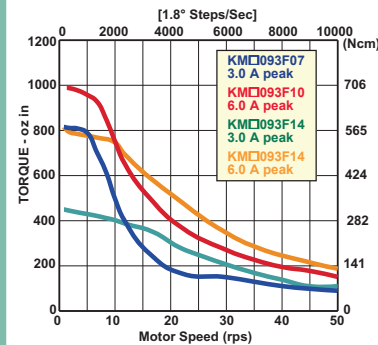
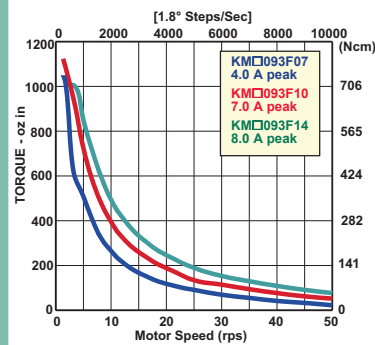
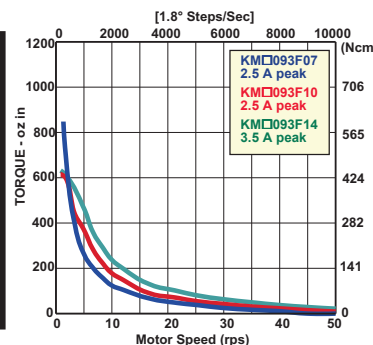
KM_n091



KM_n092



KM_n093



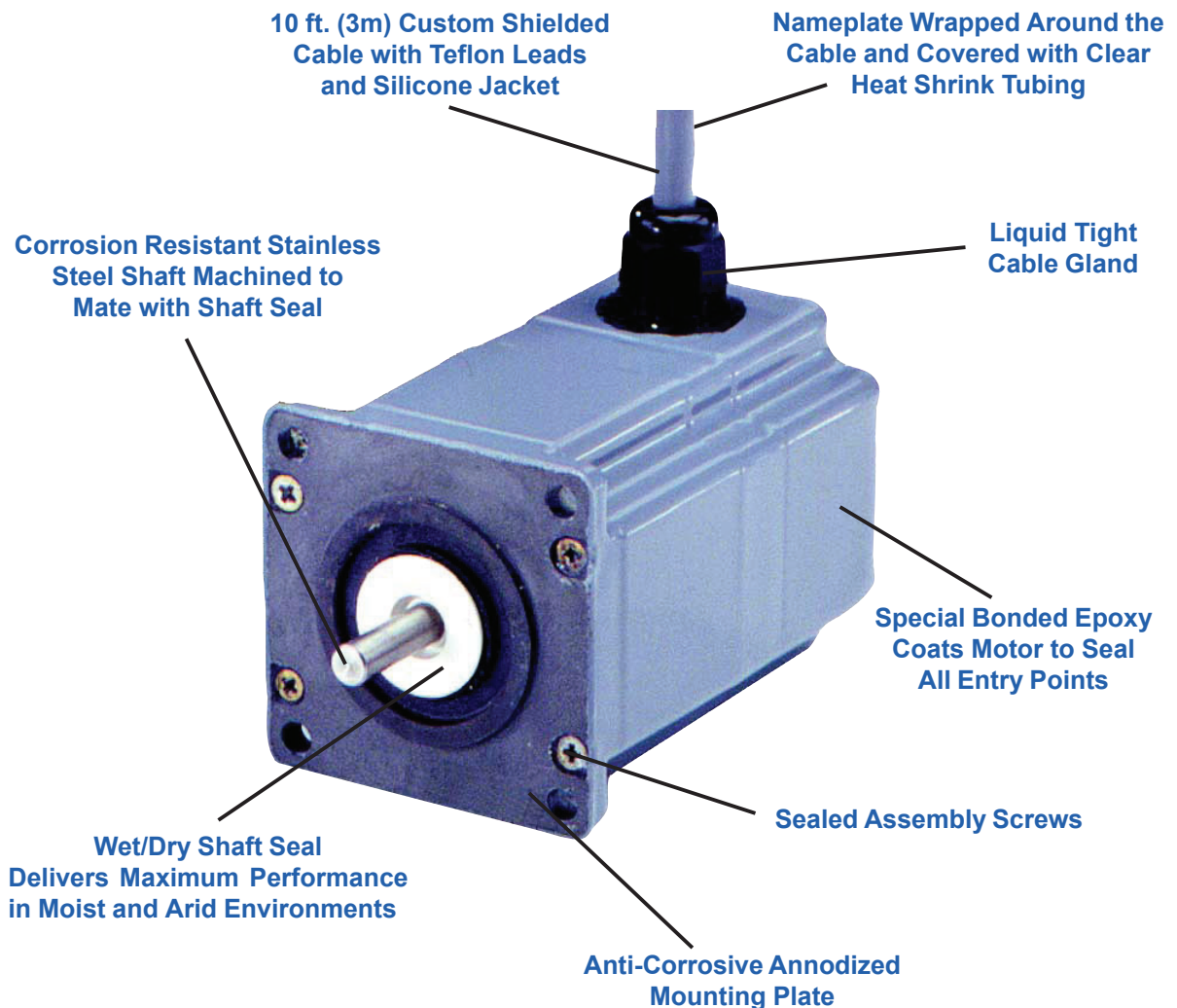
- ⌌ The curves do not show system resonances which will vary with system mechanical parameters.
- ⌌ Duty cycle is dependent on torque, speed, Drive parameters, and heat sink conditions. Maximum case temperature is 100°C.

High Torque 90mm Washdown Motors

SLO-SYN® washdown motors are designed to deliver flawless motion control in both wet and arid conditions. They are dust protected and withstand powerful jets of fluid.

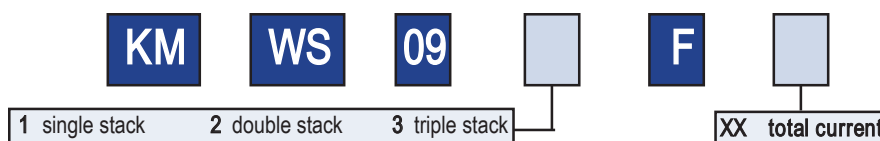
SLO-SYN® Washdown Motors Withstand IP 56 Conditions:

- | | |
|----------------------|-----------|
| ◆ Water & Salt Water | ◆ Alcohol |
| ◆ Oil | ◆ Dust |
| ◆ Grease | ◆ Lint |
| ◆ Common Solvents | ◆ Fibers |
| ◆ Weak Acids | |



[illegible]

Shaft Dimensions	"A"	"B"
KSW091	.3750 (9.525)	.328 (8.33)
KSW022	.3750 (9.525)	.328 (8.33)
KSW093	.5000 (12.700)	.450 (11.43)
KMW091	.5000 (12.700)	.450 (11.43)
KMW092	.5000 (12.700)	.450 (11.43)
KMW093	.5000 (12.700)	.450 (11.43)



(Refer to chart below to select winding)

4-CONNECTION STEP MOTORS				
Model Number	Winding Specifications			
	Voltage (VDC)	Current (Amperes)	Resistance (ohms)	Inductance (mH)
KMWS091F05	3.0	2.7	1.1	11
KMWS091F07	2.5	3.3	0.76	7.5
KMWS091F13	1.3	6.6	0.19	1.9
KMWS092F07	3.5	3.3	1.1	11
KMWS092F13	1.7	6.5	0.27	2.9
KMWS093F07	4.9	3.4	1.4	18
KMWS093F08	4.0	4.0	0.99	13
KMWS093F10	3.2	5.1	0.63	8.3
KMWS093F14	2.5	6.8	0.36	4.5