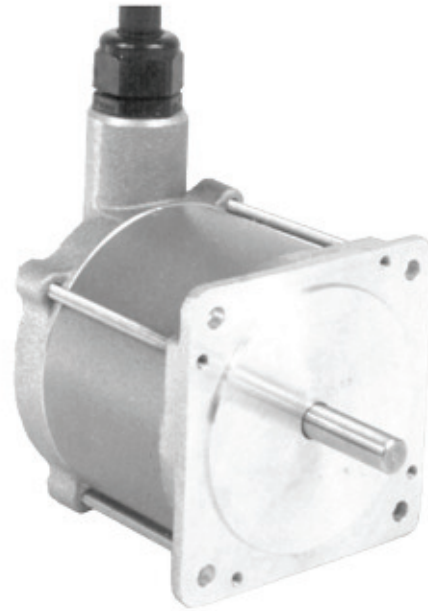


# MX9 Series Stepper Motors

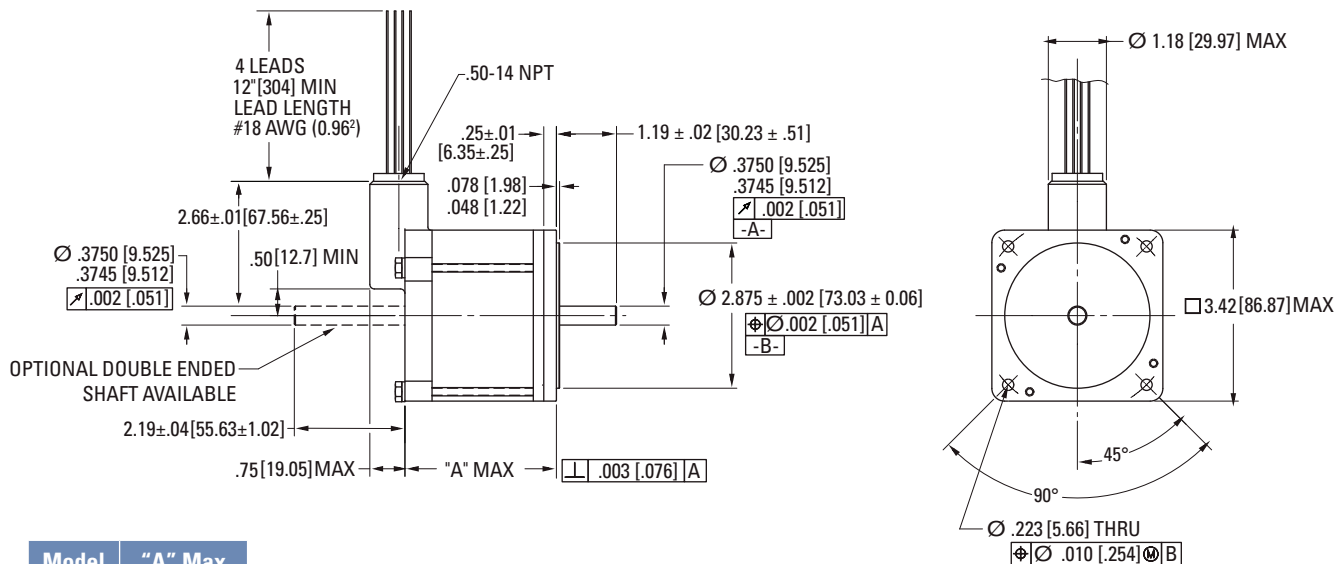
## General Specifications

- NEMA 34 (90 mm)
- Conventional hybrid stepper motor
- Hazardous duty, UL Class 1, Division 1, Group D
- Unipolar or Bipolar windings
- Features: leadwire connection
- Options: rear shaft extension

Phases	2
Full Steps per Revolution	200
Step Angle	1.8°
Step Accuracy (of one full step, no load)	± 3 %
Operating Temperature	-20°C to +40°C
Insulation Class	Class A, 105°C
Insulation Voltage Rating	340 Vdc
Insulation Resistance	100 Megohms



## MX09 Outline Drawings



Model	"A" Max
MX91	308 (78.24)
MX92	4.33 (110.0)
MX93	5.70 (144.8)

Dimensions in inches [mm]

## MX09 Performance Data

Motor Model Number	Config.			Holding Torque (2 phases on) oz-in (Nm) +/-10%	Rated Current/ Phase Amps DC	Phase Resistance Ohms +/-10%	Phase Inductance mH Typical	Detent Torque oz-in (Nm)	Thermal Resistance Mounted °C/Watt	Rotor Inertia oz-in-s <sup>2</sup> (kg-m <sup>2</sup> x 10 <sup>-3</sup> )	Weight lb (kg)	Shaft Loading	
	Parallel	Series	Unipolar									Radial Force lb (N)	Axial Force lb (N)
MX91-FF-206U	•			180 (1.27)	3.0	1.0	10	2.0	2.9	0.0095 (0.067)	6.0 (2.7)	25 (111)	50 (222)
MX91-FF-402U	•				4.0	0.72	6.0						
MX91-FF-403U	•				6.0	0.18	1.5						
MX92-FF-206U	•			370 (2.61)	4.0	1.0	11	4.0	1.7	0.0174 (0.123)	9.0 (4.1)	25 (111)	50 (222)
MX92-FF-401U	•				7.0	0.28	2.8						
MX93-FF-206U	•			550 (3.88)	4.0	0.90	13	7.0	2.1	0.0265 (0.187)	11 (5.0)	25 (111)	50 (222)
MX93-FF-401U	•				5.0	0.65	8.0						
MX93-FF-402U	•				7.0	0.16	2.0						

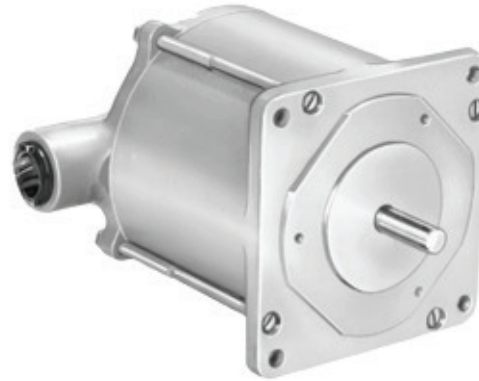
Note: See page 88 for MX series connection diagrams and switching information.

# MX11 Series Stepper Motors

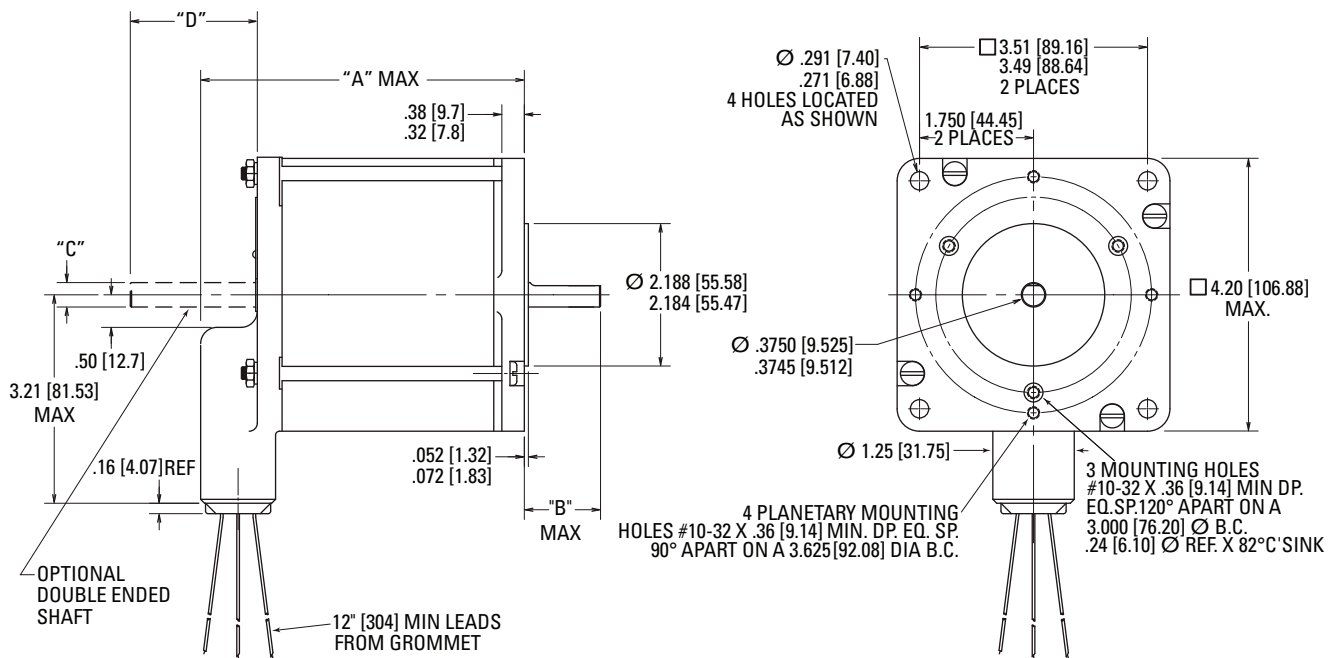
## General Specifications

- NEMA 42 (110 mm)
- Conventional hybrid step motor
- Hazardous duty, UL Class 1, Division 1, Group D
- Unipolar or Bipolar windings
- Features: leadwire connection
- Options: rear shaft extension

Phases	2
Full Steps per Revolution	200
Step Angle	1.8°
Step Accuracy (of one full step, no load)	± 5 %
Operating Temperature	-20°C to +40°C
Insulation Class	Class B, 130°C
Insulation Voltage Rating	340 Vdc
Insulation Resistance	100 Megohms



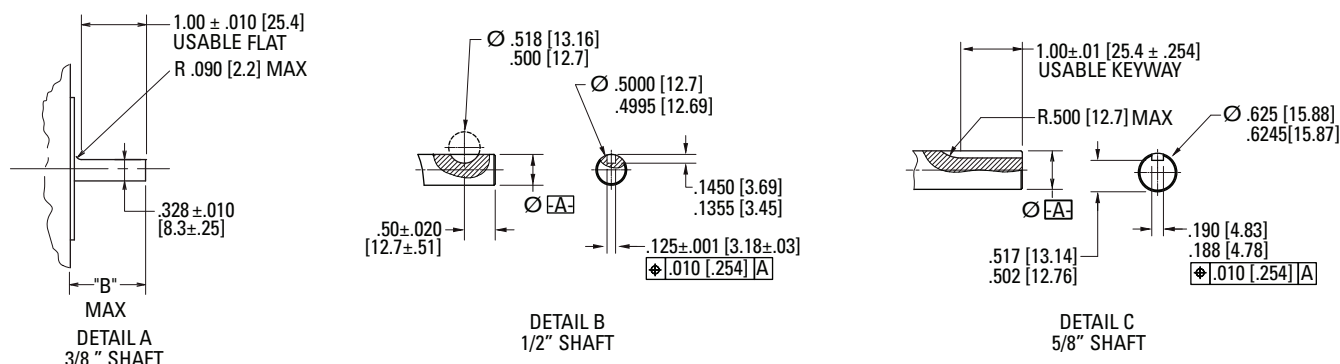
## MX11 Outline Drawings



See next page for dimensions table and shaft details.

Dimensions in inches [mm]

## MX11 Outline Drawings (continued)



Dimensions in inches [mm]

### Dimensions and Shaft Details

Model	"A" Max	"B" Max	"C"	"D"	Shaft Detail
MX111-FD/FF	5.06 (128.6)	1.25 (31.8)	Ø 0.375/0.3745 (9.525/9.512)	2.18 +/- 0.04 (55.3)	A
MX112-FD	7.45 (189.2)	1.38 (35.1)		Ø 0.5000/0.4995 (12.70/12.69)	1.25 +/- 0.04 (31.55)
MX112-FJ			C		
MX112-FF					

### MX11 Performance Data

Motor Model Number	Config.			Holding Torque (2 phases on) oz-in (Nm) +/-10%	Rated Current/ Phase Amps DC	Phase Resistance Ohms +/-10%	Phase Inductance mH Typical	Detent Torque oz-in (Nm)	Thermal Resistance Mounted °C/Watt	Rotor Inertia oz-in-s <sup>2</sup> (kg-m <sup>2</sup> x 10 <sup>-3</sup> )	Weight lb (kg)	Shaft Loading	
	Parallel	Series	Unipolar									Radial Load lb (N)	Axial Load lb (N)
MX111	•			850 (6.0)	1.1	3.6	16	6.0 (4.24)	7.4	0.55 (393)	10 (4.5)	25 (111)	50 (222)
MX112	•			1390 (9.82)	2.7	2.5	2.5	12 (8.47)	1.8	0.114 (806)	18 (8.2)	25 (111)	50 (222)

Note: See page 88 for MX series connection diagrams and switching information.