

UNIT: mm

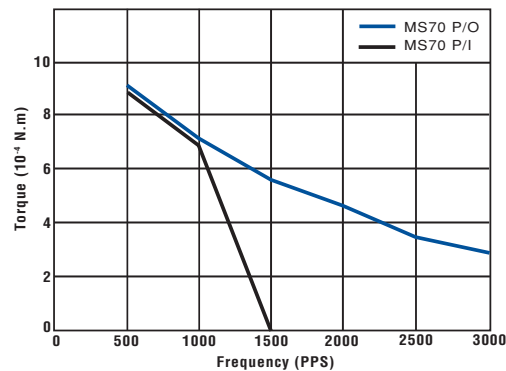
Model Specifications

Reference Characteristics

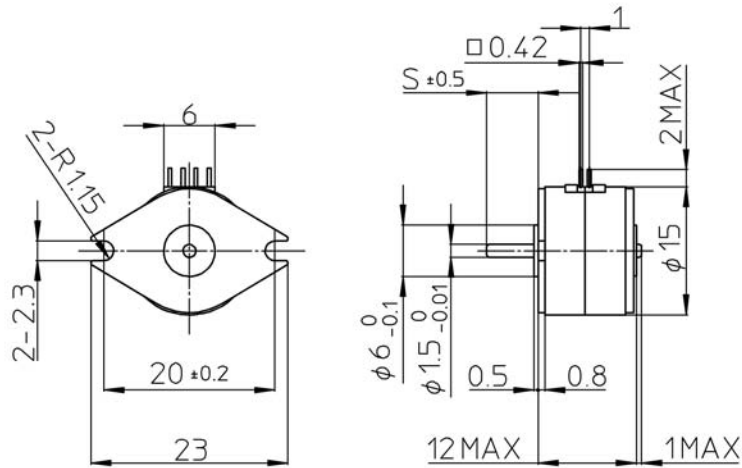
Motor Size	PM10S-020
No. of Steps per Rotation	20 (18° / Step)
Drive Method	2-2 PHASE
Drive Circuit	BIPOLAR CONST. VOLT.
Drive Voltage	5 [V]
Current / PHASE	
Coil Resistance / PHASE	20 [Ω]
Drive IC	L293D
Magnet Material	Nd-Fe-B bonded magnet

Torque/Speed Characteristics

PM10S-020 BI-CONST. V (at 5 [V], 20 [Ω])



PM15S-020



UNIT: mm

Note: See page 38 for options on pin exit angle (θ).

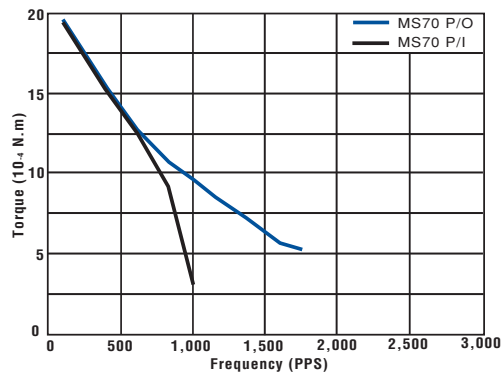
Model Specifications

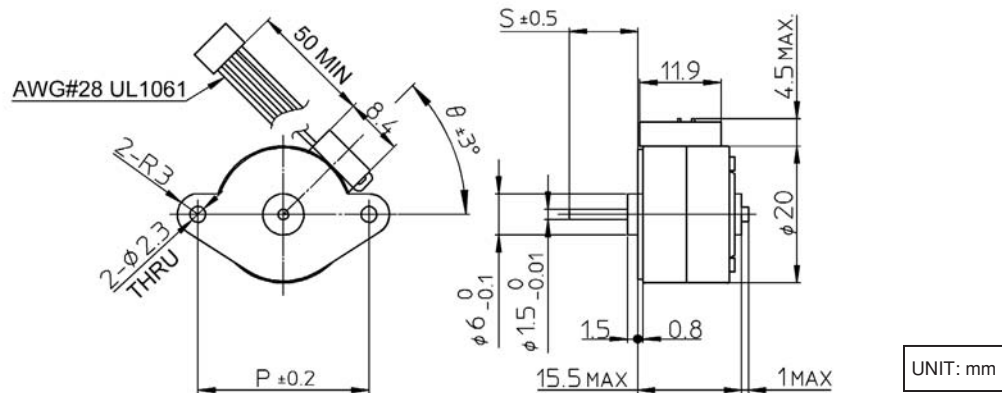
Reference Characteristics

Motor Size	PM15S-020
No. of Steps per Rotation	20 (18° / Step)
Drive Method	2-2 PHASE
Drive Circuit	BIPOLAR CONST. VOLT.
Drive Voltage	12 [V]
Current / PHASE	
Coil Resistance / PHASE	100 [Ω]
Drive IC	L293D
Magnet Material	Nd-Fe-B bonded magnet

Torque/Speed Characteristics

PM15S-020 BI-CONST. V (at 12 [V], 100 [Ω])





Note: See page 38 for options on pitch (P), mounting holes (H) and lead wire exit angle (θ).

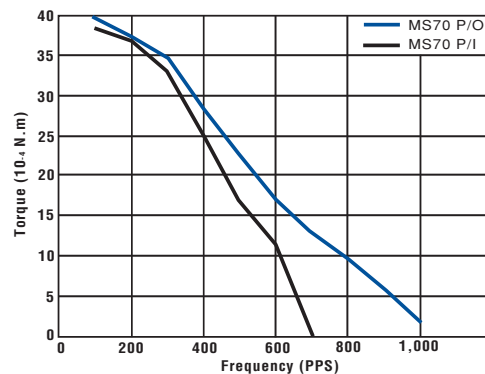
Model Specifications

Reference Characteristics

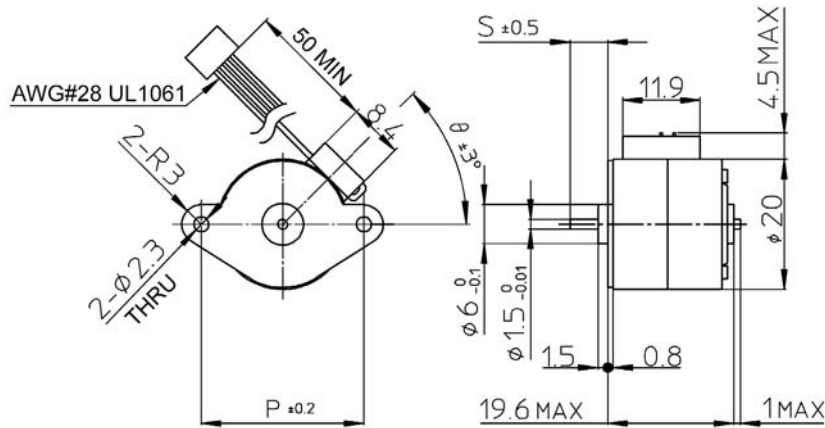
Motor Size	PM20S-020
No. of Steps per Rotation	20 (18° / Step)
Drive Method	2-2 PHASE
Drive Circuit	UNIPOLAR CONST. VOLT.
Drive Voltage	12 [V]
Current / PHASE	
Coil Resistance / PHASE	50 [Ω]
Drive IC	SMDT - 002
Magnet Material	Nd-Fe-B bonded magnet

Torque/Speed Characteristics

PM20S-020 UNI-CONST. V (at 12 [V], 50 [Ω])



PM20L-020



UNIT: mm

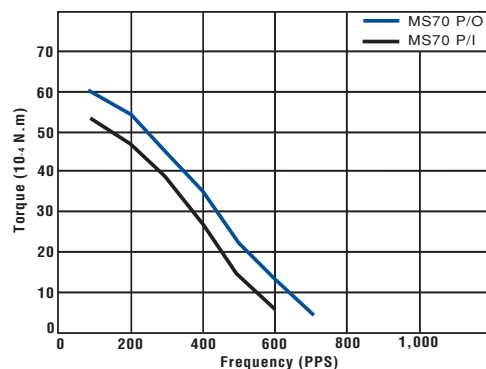
Note: See page 38 for options on pitch (P), mounting holes (H) and lead wire exit angle (θ).

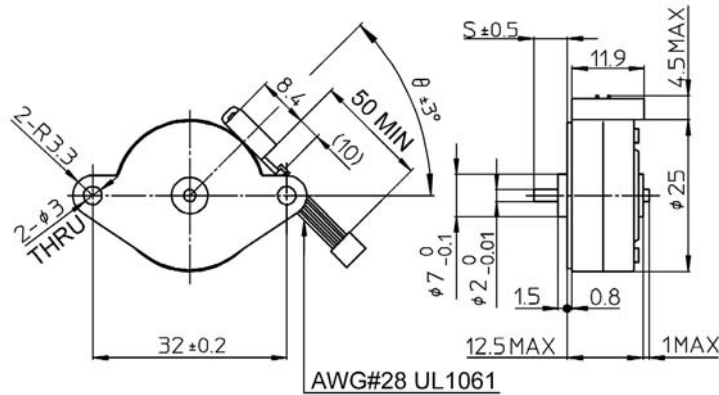
Model Specifications

Reference Characteristics	
Motor Size	PM20L-020
No. of Steps per Rotation	20 (18° / Step)
Drive Method	2-2 PHASE
Drive Circuit	UNIPOLAR CONST. VOLT.
Drive Voltage	12 [V]
Current / PHASE	
Coil Resistance / PHASE	100 [Ω]
Drive IC	SMDT - 002
Magnet Material	Nd-Fe-B bonded magnet

Torque/Speed Characteristics

PM20L-020 UNI-CONST. V (at 12 [V], 100 [Ω])





Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

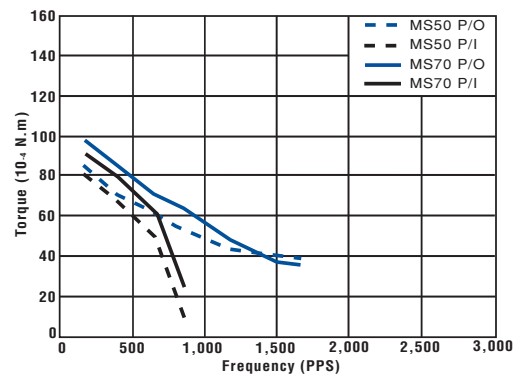
Model Specifications

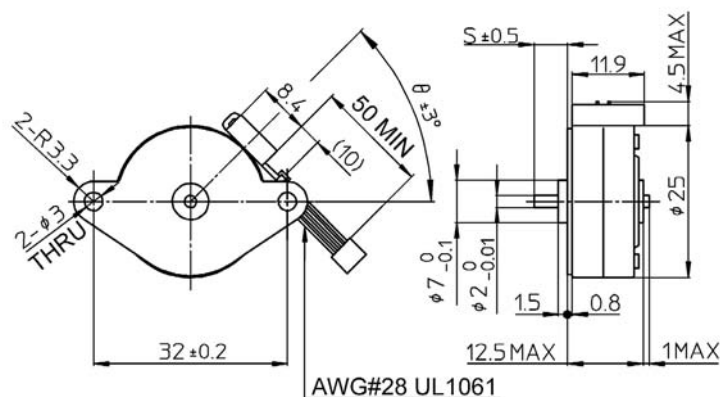
Reference Characteristics

Motor Size	PM25S-024
No. of Steps per Rotation	24 (15° / Step)
Drive Method	2-2 PHASE
Drive Circuit	UNIPOLAR CONST. VOLT.
Drive Voltage	24 [V]
Current / PHASE	
Coil Resistance / PHASE	70 [Ω]
Drive IC	SMDT - 002
Magnet Material	Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet

Torque/Speed Characteristics

PM25S-024 UNI-CONST. V (at 24 [V], 70 [Ω])

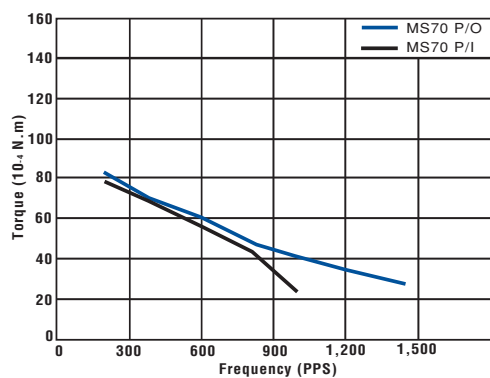
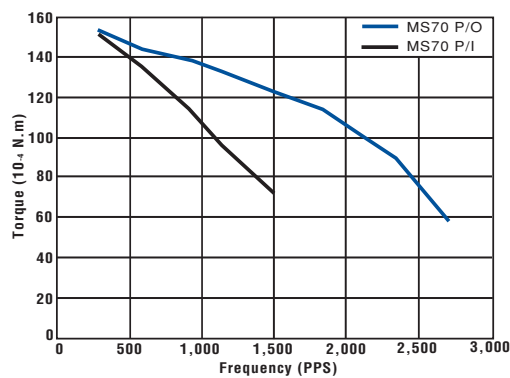


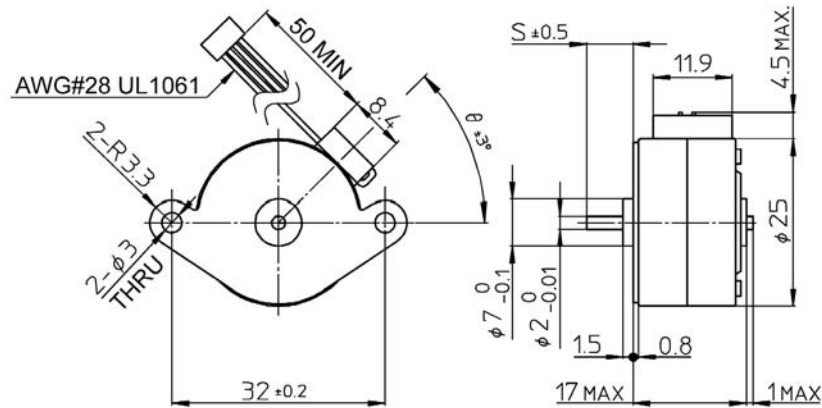


Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

Reference Characteristics

Motor Size	PM25S-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	12 [V]	24 [V]
Current / PHASE		600 [mA]
Coil Resistance / PHASE	65 [Ω]	14 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Nd-Fe-B bonded magnet	

PM25S-048 UNI-CONST. V (at 12 [V], 65 [Ω])PM25S-048 BI-CHOPPER (at 24 [V], 14 [Ω], 600 [mA])



UNIT: mm

Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

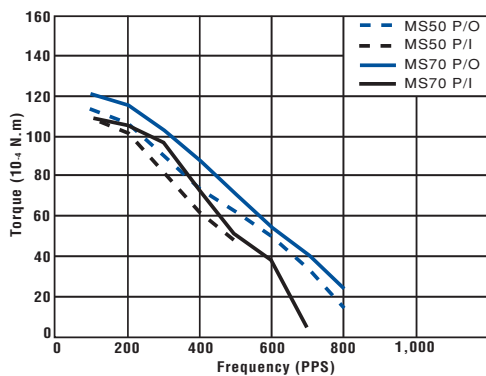
Model Specifications

Reference Characteristics

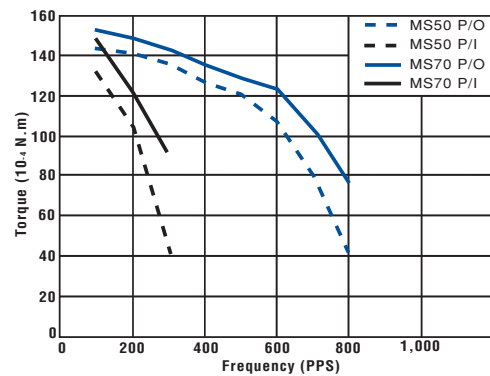
Motor Size	PM25L-024	
No. of Steps per Rotation	24 (15° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	12 [V]	24 [V]
Current / PHASE	600 [mA]	
Coil Resistance / PHASE	50 [Ω]	8 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

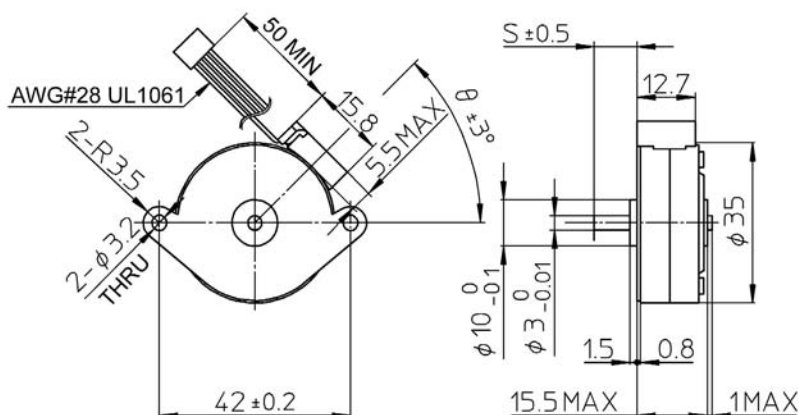
Torque/Speed Characteristics

PM25L-024 UNI-CONST. V (at 12 [V], 50 [Ω])



PM25L-024 BI-CHOPPER (at 24 [V], 8 [Ω], 600 [mA])





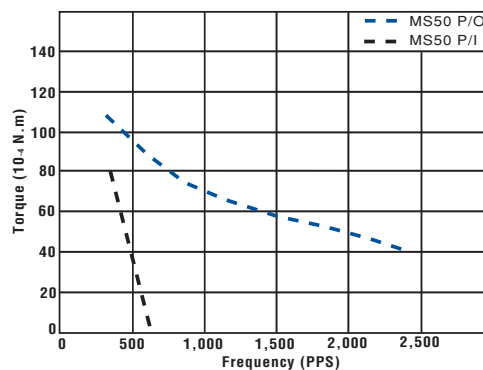
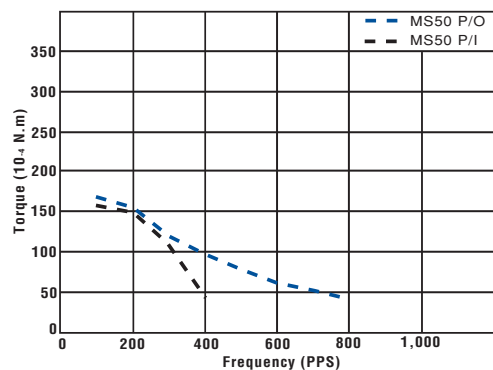
UNIT: mm

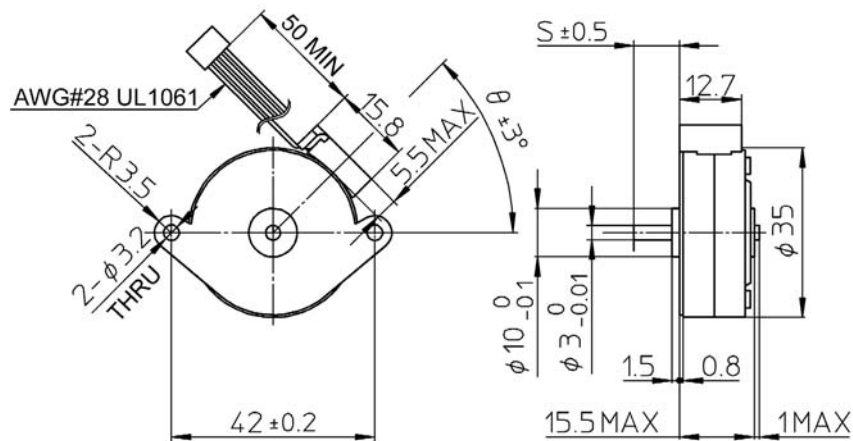
Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

Model Specifications

Reference Characteristics		
Motor Size	PM35S-024	
No. of Steps per Rotation	24 (15° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	12 [V]	24 [V]
Current / PHASE		500 [mA]
Coil Resistance / PHASE	28 [Ω]	4.7 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Polar anisotropy ferrite sintered magnet	

Torque/Speed Characteristics

PM35S-024 UNI-CONST. V (at 12 [V], 28 [Ω])PM35S-024 BI-CHOPPER (at 24 [V], 4.7 [Ω], 500 [mA])



Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

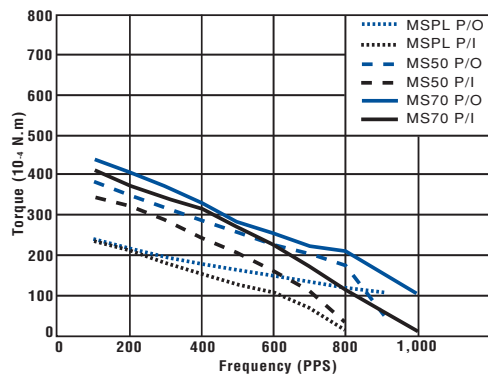
Model Specifications

Reference Characteristics

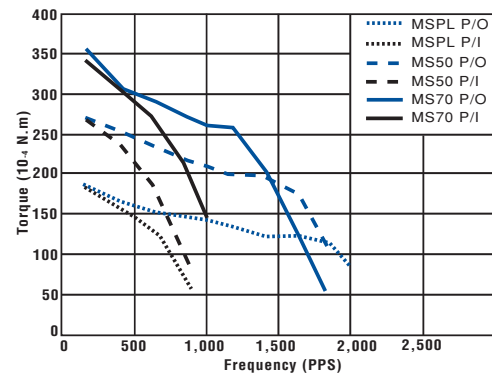
Motor Size	PM35S-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	500 [mA]	
Coil Resistance / PHASE	50 [Ω]	15 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

Torque/Speed Characteristics

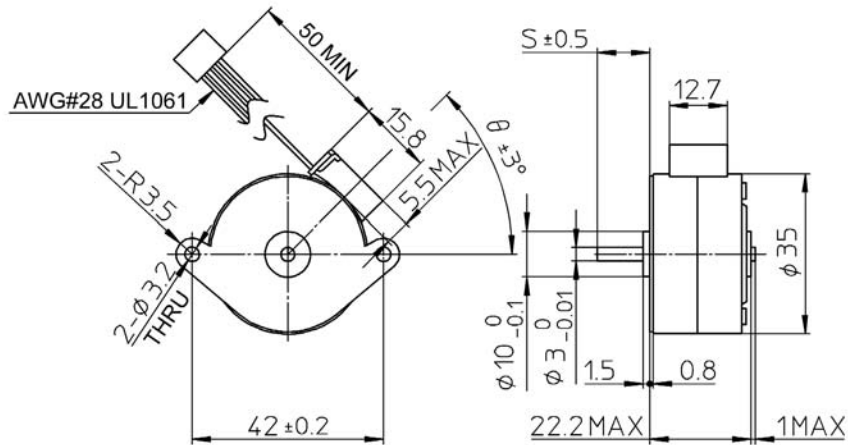
PM35S-048 UNI-CONST. V (at 24 [V], 50 [Ω])



PM35S-048 BI-CHOPPER (at 24 [V], 15 [Ω], 500 [mA])



PM35L-024



UNIT: mm

Note: See page 38 for options on mounting holes (H) and lead wire exit angles (θ).

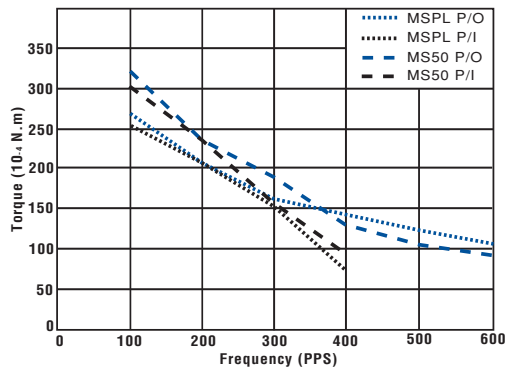
Model Specifications

Reference Characteristics

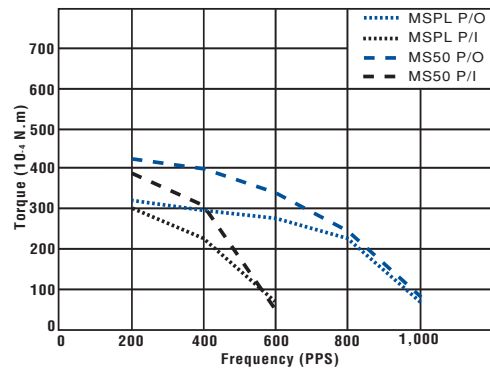
Motor Size	PM35L-024	
No. of Steps per Rotation	24 (15° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	500 [mA]	
Coil Resistance / PHASE	100 [Ω]	15 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet	

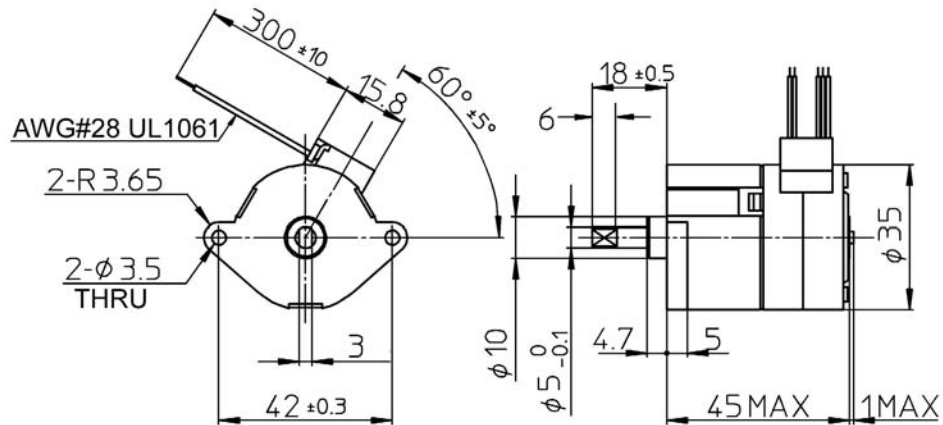
Torque/Speed Characteristics

PM35L-024 UNI-CONST. V (at 24 [V], 100 [Ω])



PM35L-024 BI-CHOPPER (at 24 [V], 15 [Ω], 500 [mA])





UNIT: mm

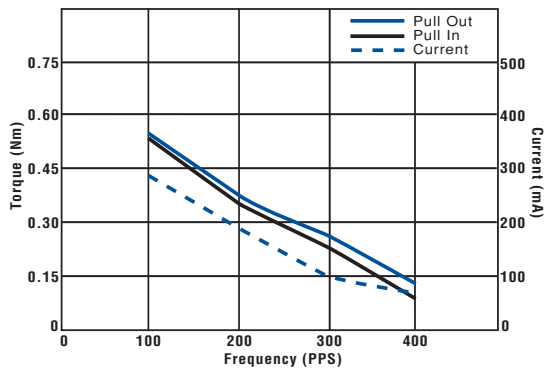
Model Specifications

Reference Characteristics

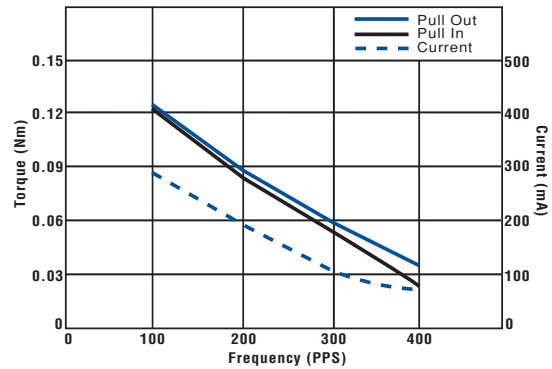
Reduction Ratio	1/35.4	1/89.8
Drive Characteristics	Unipolar Constant Voltage	
Drive Voltage	12 [V]	
Drive Method	2-2 Phase	
Step Angle (2 phase drive)	0.2118°	0.0835°
DC Resistance	70 [Ω]	
Insulation Resistance	100M [Ω] Min.	
Dielectric Strength	AC 500 [V] 1[min]	
Class of Insulation	CLASS B	
Operating Temperature	-10° C to +50° C	
Storage Temperature	-30° C to +80° C	
Operating Humidity	20% RH to 90% RH	

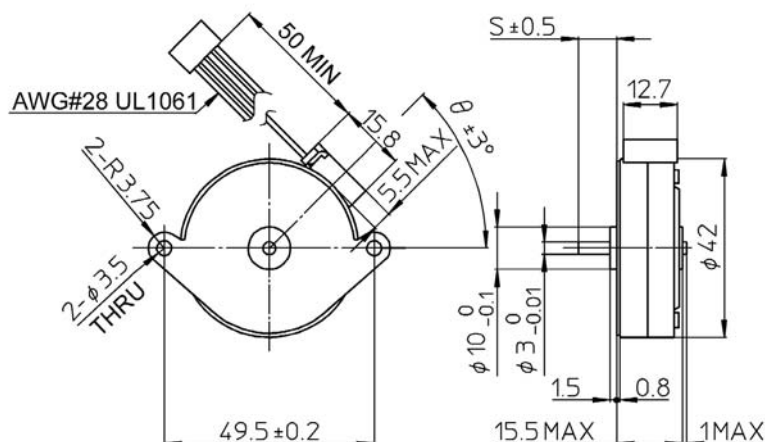
Torque/Speed Characteristics

PG35L-048 Reduction Ratio 1/35.4



PG35L-048 Reduction Ratio 1/89.8

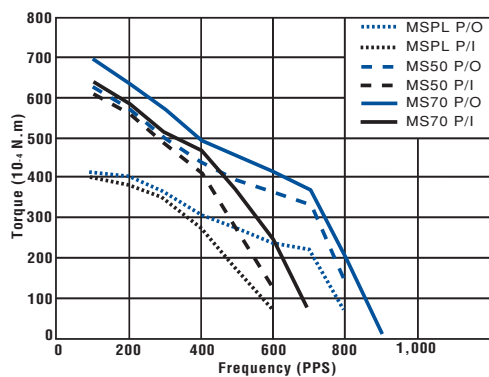
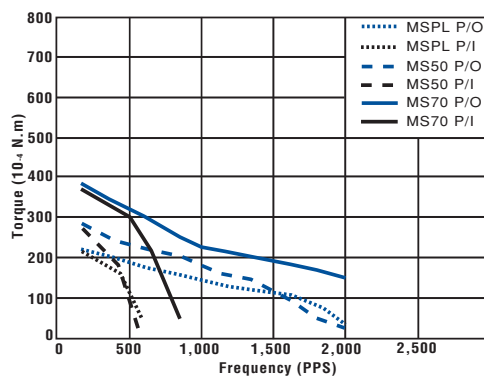


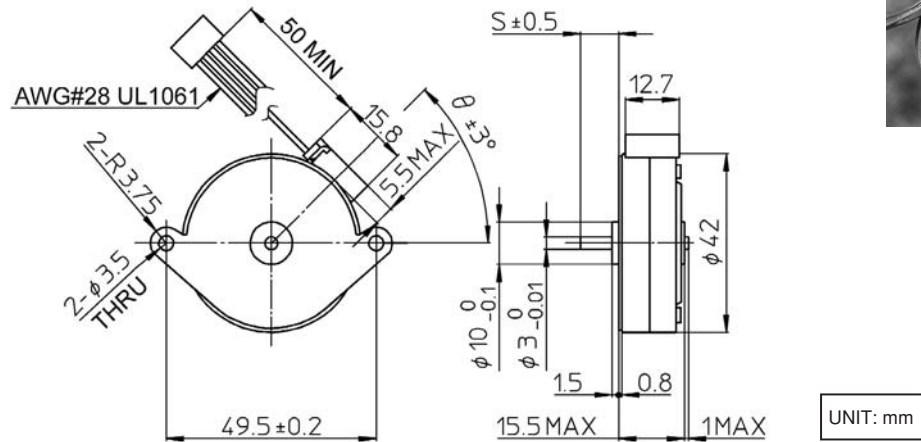


Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

Reference Characteristics

Motor Size	PM42S-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE		500 [mA]
Coil Resistance / PHASE	45 [Ω]	7 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

PM42S-048 UNI-CONST. V (at 24 [V], 45 [Ω])PM42S-048 BI-CHOPPER (at 24 [V], 7 [Ω], 500 [mA])



Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

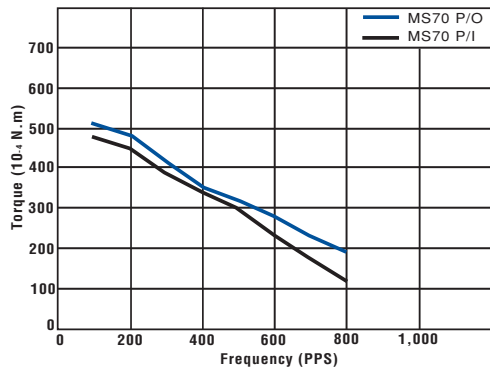
Model Specifications

Reference Characteristics

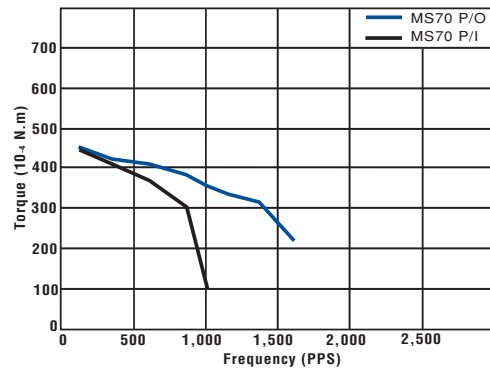
Motor Size	PM42S-096	
No. of Steps per Rotation	96 (3.75° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	500 [mA]	
Coil Resistance / PHASE	90 [Ω]	10 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Nd-Fe-B bonded magnet	

Torque/Speed Characteristics

PM42S-096 UNI-CONST. V (at 24 [V], 90 [Ω])



PM42S-096 BI-CHOPPER (at 24 [V], 10 [Ω], 500 [mA])

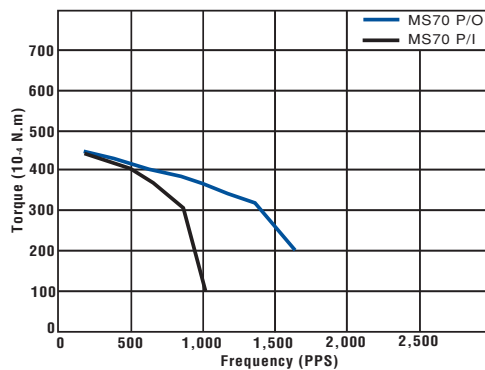
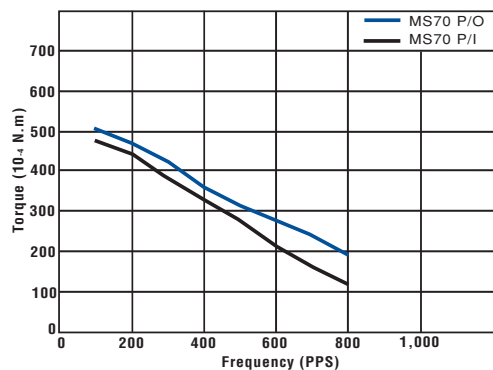


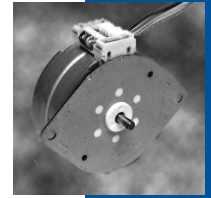
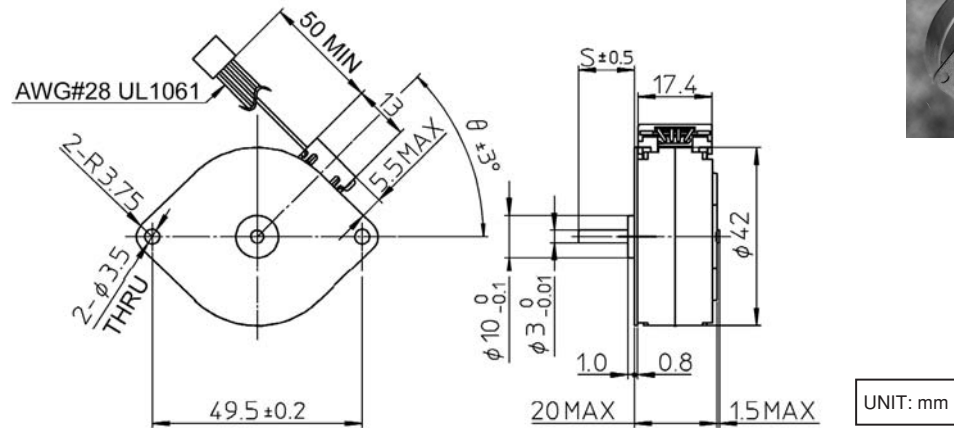


Model Specifications

Reference Characteristics		
Motor Size	PM42S-100	
No. of Steps per Rotation	100 (3.6° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	12 [V]	24 [V]
Current / PHASE		500 [mA]
Coil Resistance / PHASE	12 [Ω]	5.8 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Nd-Fe-B bonded magnet	

Torque/Speed Characteristics

PM42S-100 BI-CHOPPER (at 24 [V], 5.8 [Ω], 500 [mA])



Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

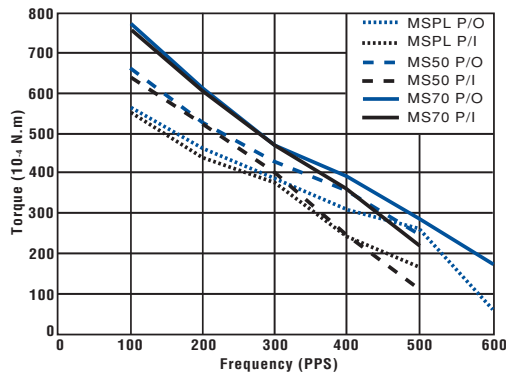
Model Specifications

Reference Characteristics

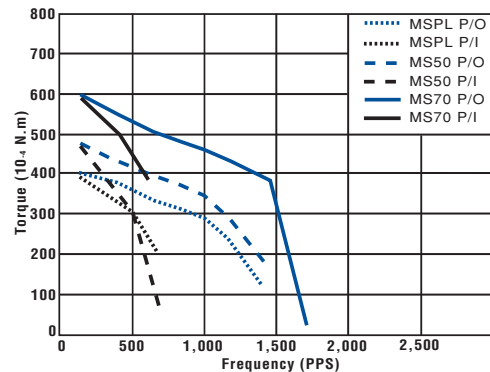
Motor Size	PM42M-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	500 [mA]	
Coil Resistance / PHASE	80 [Ω]	6 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

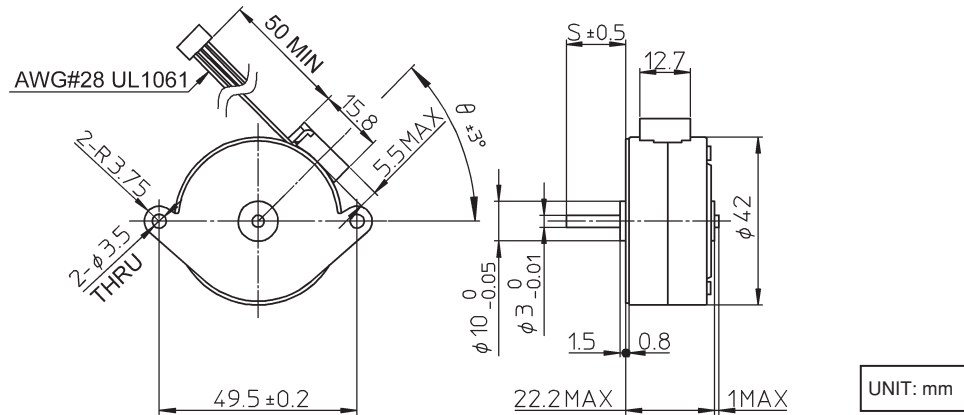
Torque/Speed Characteristics

PM42M-048 UNI-CONST. V (at 24 [V], 80 [Ω])



PM42M-048 BI-CHOPPER (at 24 [V], 6 [Ω], 500 [mA])





Note: See page 38 for options on mounting holes (H) and lead wire exit angle (θ).

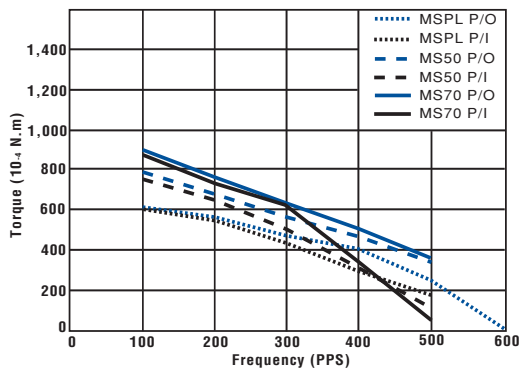
Model Specifications

Reference Characteristics

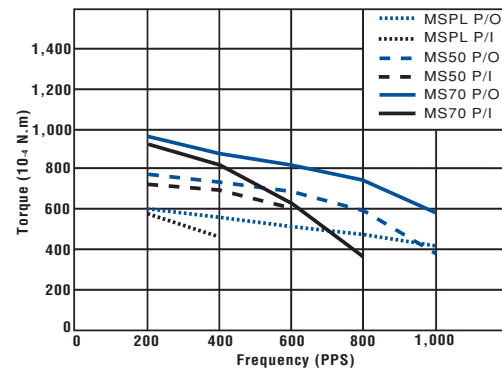
Motor Size	PM42L-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE		600 [mA]
Coil Resistance / PHASE	60 [Ω]	7 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

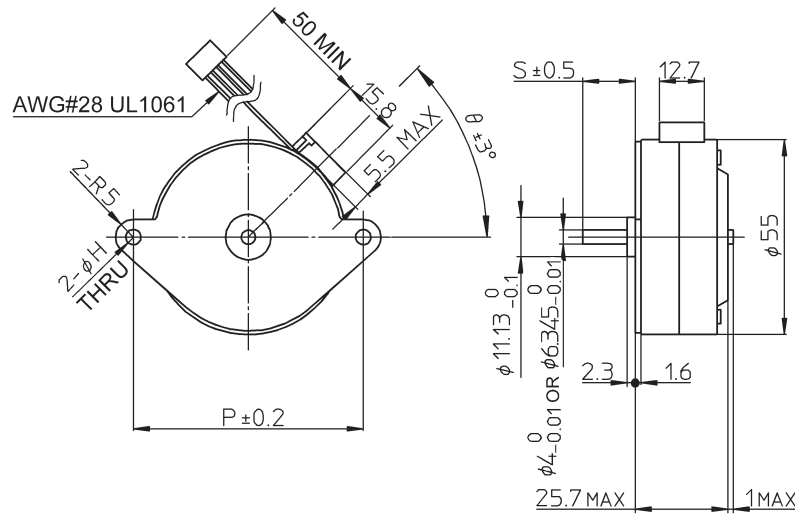
Torque/Speed Characteristics

PM42L-048 UNI-CONST. V (at 24 [V], 60 [Ω])



PM42L-048 BI-CHOPPER (at 24 [V], 7 [Ω], 600 [mA])





UNIT: mm

Note: See page 38 for options on pitch (P), mounting holes (H) and lead wire exit angle (θ).

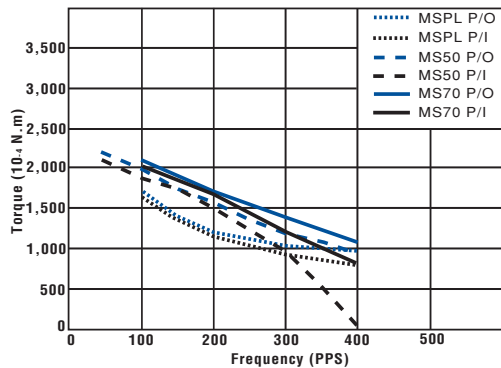
Model Specifications

Reference Characteristics

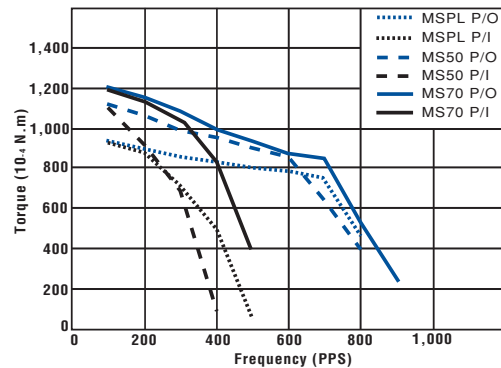
Motor Size	PM55L-048	
No. of Steps per Rotation	48 (7.5° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	600 [mA]	
Coil Resistance / PHASE	30 [Ω]	6 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Ferrite plastic magnet, Polar anisotropy ferrite sintered magnet, Nd-Fe-B bonded magnet	

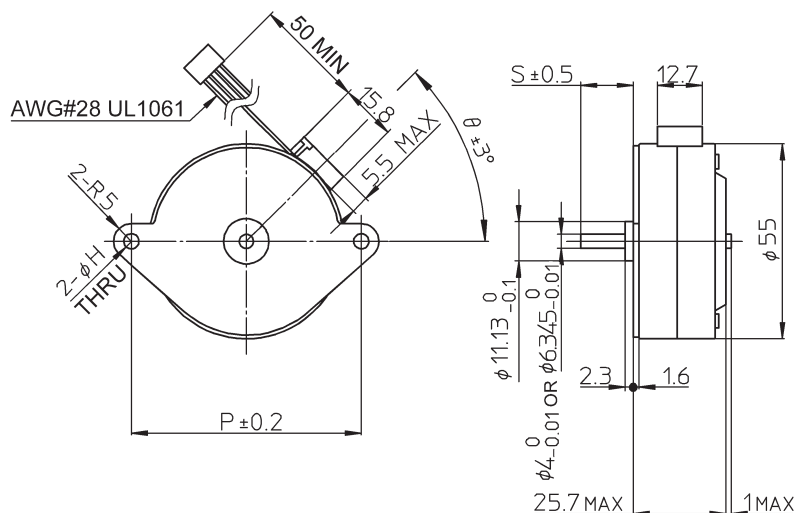
Torque/Speed Characteristics

PM55L-048 UNI-CONST. V (at 24 [V], 30 [Ω])



PM55L-048 BI-CHOPPER (at 24 [V], 6 [Ω], 600 [mA])



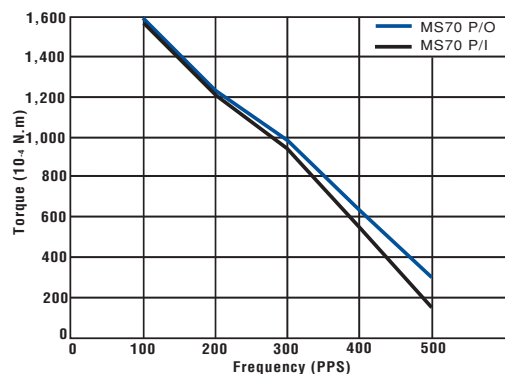
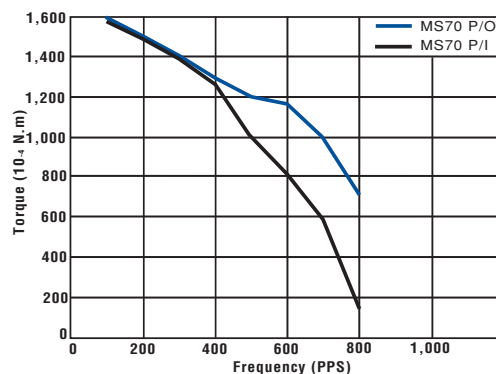


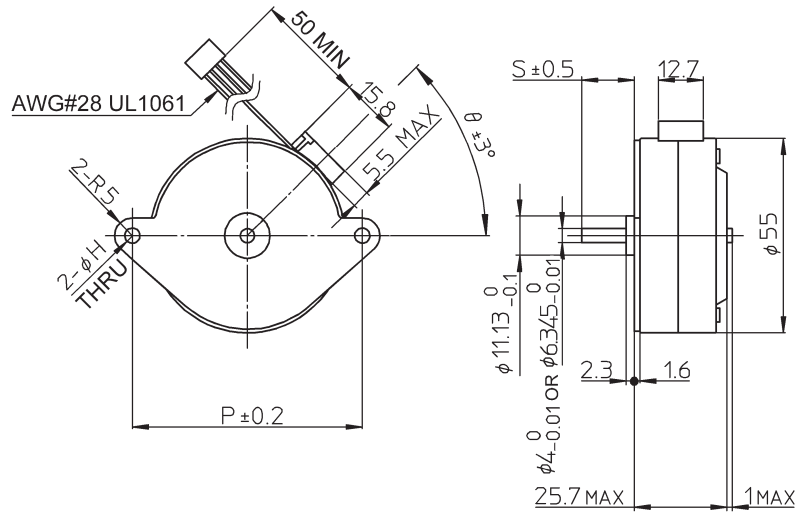
Note: See page 38 for options on pitch (p), mounting holes (H) and lead wire exit angle (θ).

Model Specifications

Reference Characteristics		
Motor Size	PM55L-096	
No. of Steps per Rotation	96 (3.75° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE		500 [mA]
Coil Resistance / PHASE	60 [Ω]	7.1 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Nd-Fe-B bonded magnet	

Torque/Speed Characteristics

PM55L-096 UNI-CONST. V (at 24 [V], 60 [Ω])PM55L-096 BI-CHOPPER (at 24 [V], 7.1 [Ω], 500 [mA])



UNIT: mm

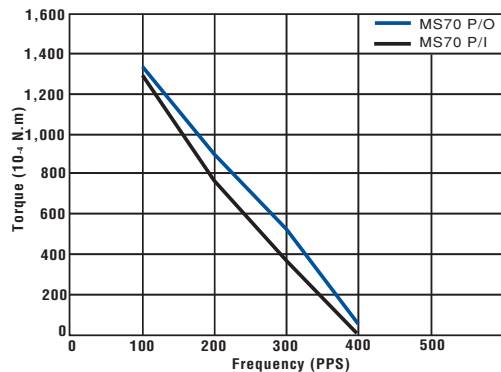
Note: See page 38 for options on pitch (p), mounting holes (H) and lead wire exit angle (θ).

Model Specifications

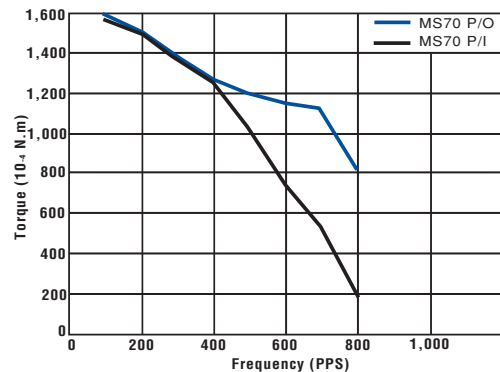
Reference Characteristics		
Motor Size	PM55L-100	
No. of Steps per Rotation	100 (3.6° / Step)	
Drive Method	2-2 PHASE	
Drive Circuit	UNIPOLAR CONST. VOLT.	BIPOLAR CHOPPER
Drive Voltage	24 [V]	24 [V]
Current / PHASE	500 [mA]	
Coil Resistance / PHASE	130 [Ω]	7.1 [Ω]
Drive IC	SMDT - 002	UDN2916B-V
Magnet Material	Nd-Fe-B bonded magnet	

Torque/Speed Characteristics

PM55L-100 UNI-CONST. V (at 24 [V], 130 [Ω])

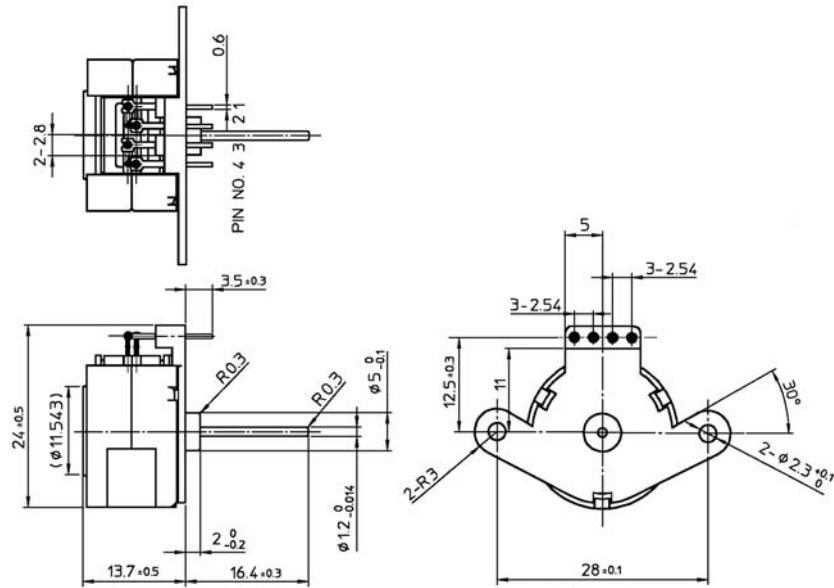


PM55L-100 BI-CHOPPER (at 24 [V], 7.1 [Ω], 500 [mA])



PM20T-036

SPECIAL FOR INSTRUMENTATION



UNIT: mm

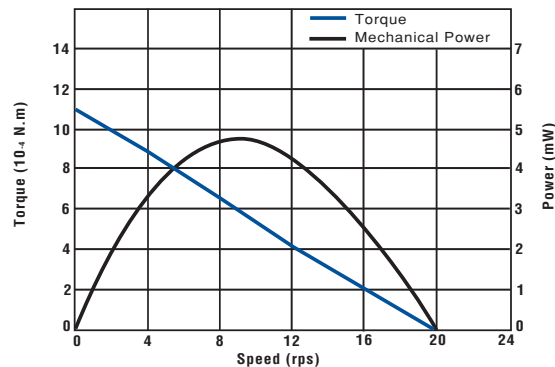
Model Specifications

Reference Characteristics

Motor Size	PM20T-036
No. of Steps per Rotation	36 (10° / Step)
Drive Method	Microstep (1/32 ~)
Drive Circuit	Bipolar chopper
Drive Voltage	5 [V]
Current / PHASE	30 [mA]
Coil Resistance / PHASE	180 [Ω]
Magnet Material	Ferrite plastic magnet
Operating Angle	320 [$^\circ$]
Operating Temp.	-40 ~ +85 [$^\circ\text{C}$]

Torque/Speed Characteristics

PM20T-036 BI-CHOPPER (at 5 [V], 180 [Ω], 30 [mA])



Specification Requirements for Customized Permanent Magnet (PM) and Geared (PG) Motors

NMB can provide custom windings and other features for your PM and PG type motors. The following form will help you gather the specifications that will be required in order to request a customized PM or PG type motor. If you have any questions, or require immediate engineering help, please call motor engineering at 818-341-3355, or e-mail us at motors@nmbtc.com.

Type

Size/step* _____

☐ PM _____ Gear ratio _____

☐ PG _____

Torque

☐ g-cm @ ☐ pps

☐ oz-in @ ☐ rpm

☐ mN-m

Holding Torque _____

Detent Torque _____

Pull Out Torque _____ @ _____

Pull Out Torque _____ @ _____

Pull In Torque _____ @ _____

Electrical Specs

Drive Mode: ☐ Bipolar ☐ Unipolar

Stepping:

☐ Dual Phase Full Step (2-2) ☐ Half Step (1-2)

☐ Single Phase Full Step (1-1) ☐ Microstepping

Drive Type:

☐ Chopper (Constant current)

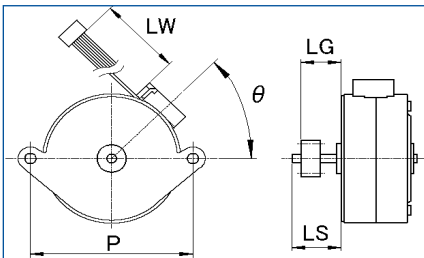
☐ L/R (Constant voltage)

Drive Voltage _____ V

Drive Current _____ A/phase

Coil Resistance _____ Ω (If known)

Which Is Priority ☐ Force ☐ Resistance



Project Information

Customer Name: _____

Customer PN: _____

Engineer/Contact: _____

Phone Number: _____

Project Name: _____

Application: _____

Function: _____

Target Price: _____

Production Start: _____

EAU: _____

Mechanical Specs

Front Plate Type

☐ FPH (Through hole)

☐ FPT (Threaded hole)

☐ FPL (Slot hole)

Shaft Length (LS); ($LS \geq LG + 0.5$)

_____ mm ☐ in

Rear Shaft

☐ None (Single shaft)

☐ Length _____ mm ☐ in

Gear/Pulley or D-Cut

☐ Yes (Customer drawing required)

☐ No

Gear Position (LG)

_____ mm ☐ in

Lead Wire Exit Angle (θ)

_____ Degrees (15 degree increments)

Lead Wire Length (LW); (50mm minimum)

_____ mm ☐ in

Connector Direction

☐ Left (Wire holder - can't use for 25S)

☐ Right (Wire holder)

☐ Other (Pin, PCB connector, FPC)

Cable End Connector

☐ No (Just fly leads)

☐ Yes (Switching sequence required)

Maker _____

Houseing PN _____

Pin PN _____

* For PM55L, choose:

P ☐ 65mm ☐ 66.7mm

Shaft Diameter ☐ 4mm ☐ 6.345mm