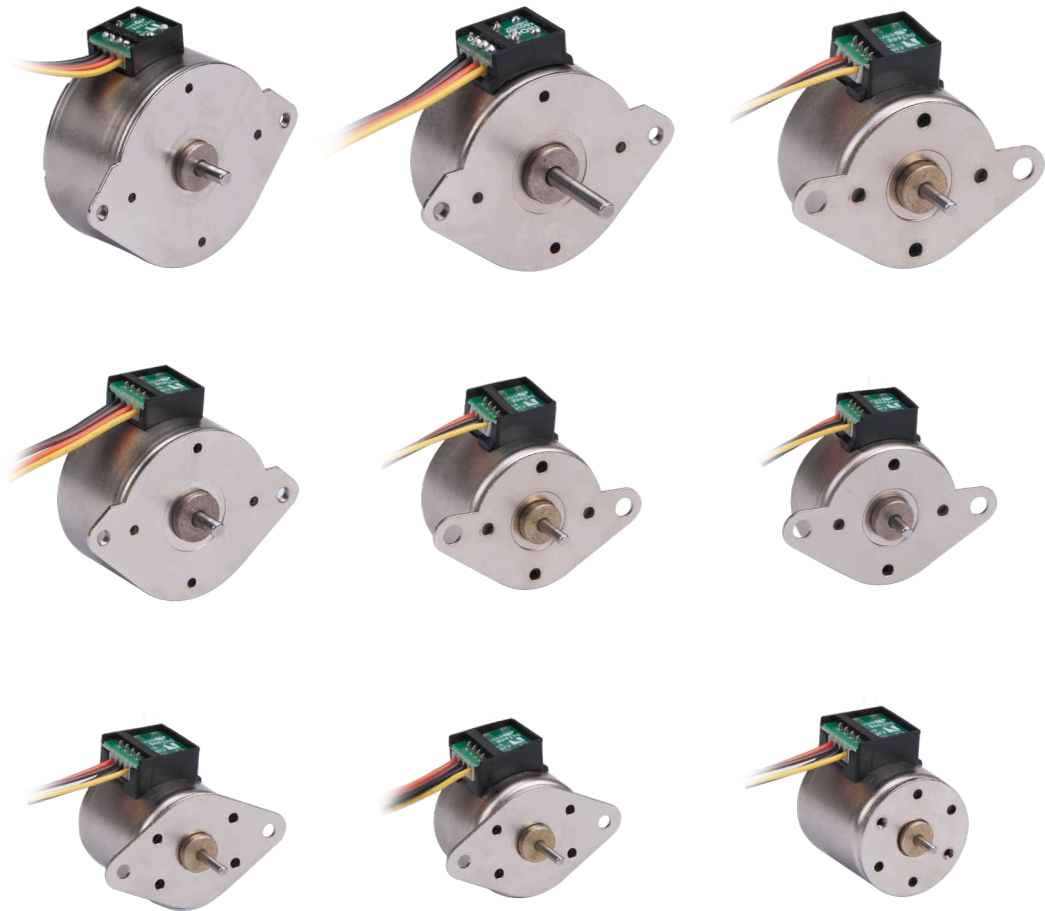


# PM STEP MOTORS



# PM STEP MOTORS

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# Model Numbering System

**42 PM 048 L 1 - 003 02**

Base frame code

Outer diameter size: 42mm diameter = 42

Motor type code

PM: permanent magnet step motor

Step code

020: 20 steps per rotation, 18° step angle

024: 24 steps per rotation, 15° step angle

048: 48 steps per rotation, 7.5° step angle

096: 96 steps per rotation, 3.75° step angle

Length code

S: short version

L: long version

Magnet grade code

Resistance code

Winding resistance: 30hm = 003

Mechanical code

## Product Line Up

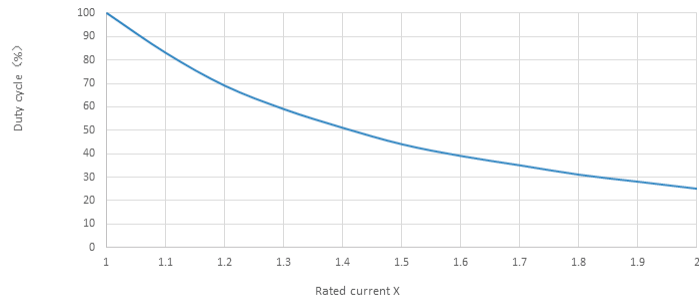
Series	Outer Diameter (mm)	Length (mm)	Step No.	Step Angle (°)
20PM020S	20	14.3	20	18
20PM020L	20	19.3	20	18
25PM024S	25	12.5	24	15
25PM048S	25	12.5	48	7.5
25PM024L	25	17.0	24	15
25PM048L	25	17.0	48	7.5
35PM024S	35	15.3	24	15
35PM048S	35	15.3	48	7.5
35PM024L	35	21.3	24	15
35PM048L	35	21.3	48	7.5
42PM048S	42	15.3	48	7.5
42PM096S	42	15.3	96	3.75
42PM048L	42	21.3	48	7.5
42PM096L	42	21.3	96	3.75

# About rated current

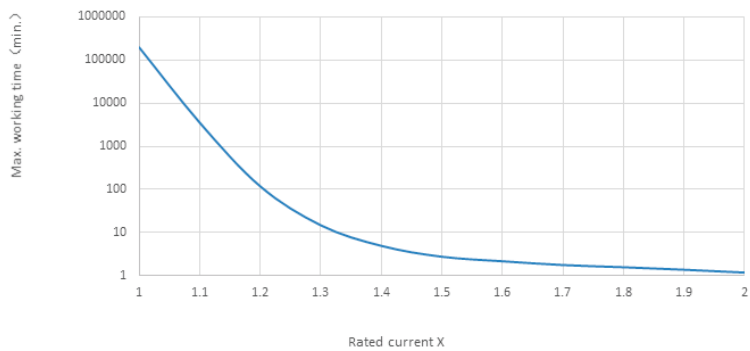
Rated current of PM stepper is limited by thermal characteristics.

In actual application, to get higher output torque we can supply with higher current, which extend rated value. In such case, the motor can't be in continuous working, otherwise the winding will be overheat even damage device. Duty cycle need to be not reach to 100%, also we must consider Max. working time - Ton Max.

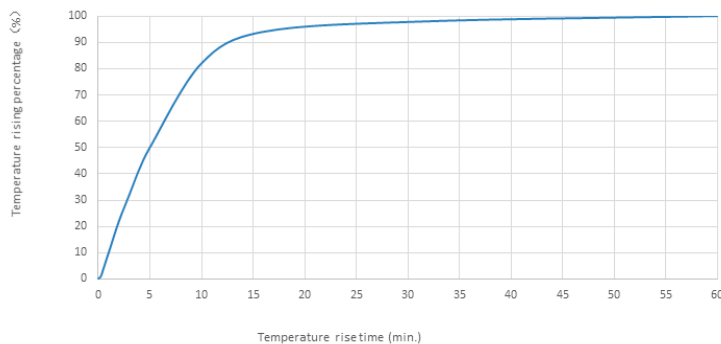
## How to define the duty cycle with multiple of rated current



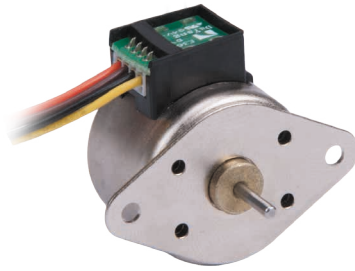
## How to calculate the max. Single working time with multiple of rated current



## Motor winding temperature rising curve



# 20PM020S - Ø20mm, S, 18°



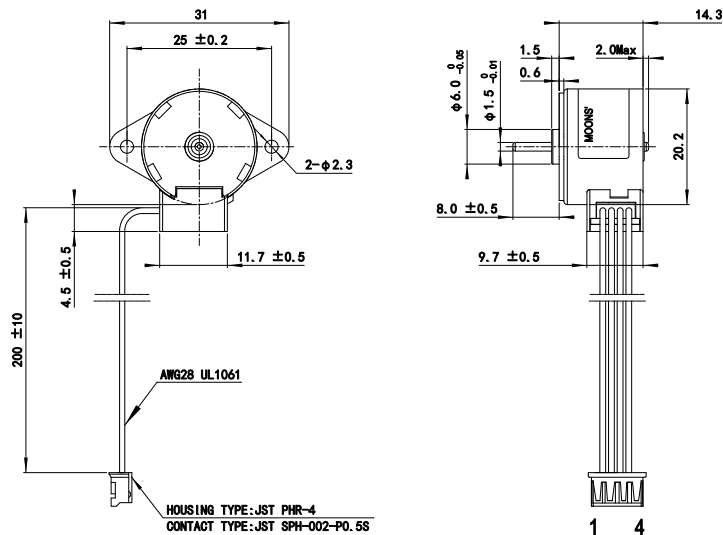
- Phases 2
- Steps / Revolution 20
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number		20PM020S0-01002	20PM020S0-02501
Length		14.3mm (0.56in.)	
Step Angle	°	18	
Rated Current	Amps	0.33	0.21
Holding Torque	10 <sup>-4</sup> Nm	90	100
	oz-in	1.3	1.4
Winding	Ohms	±10% @ 20°C	
	mH	4.6	10.6
Detent Torque	10 <sup>-4</sup> Nm	22	22
	oz-in	0.3	0.3
Rotor Inertia	gcm <sup>2</sup>	0.24	0.24
	10 <sup>-4</sup> oz-in <sup>2</sup>	13.1	13.1
Motor Weight	g	21	
	Lbs	0.05	

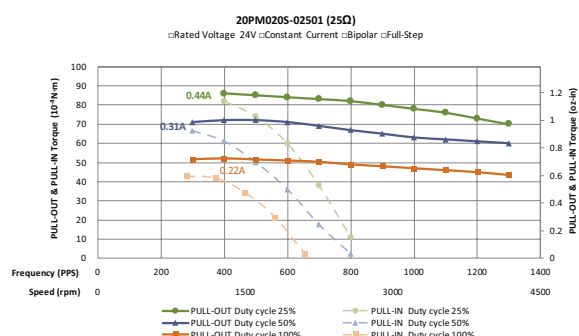
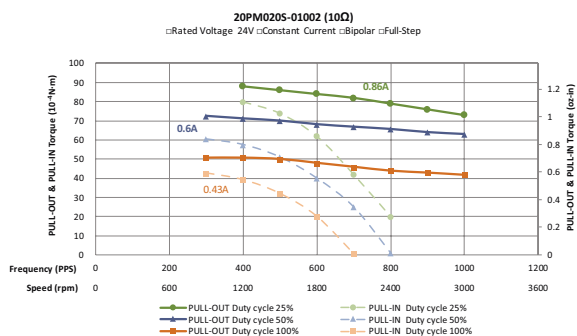
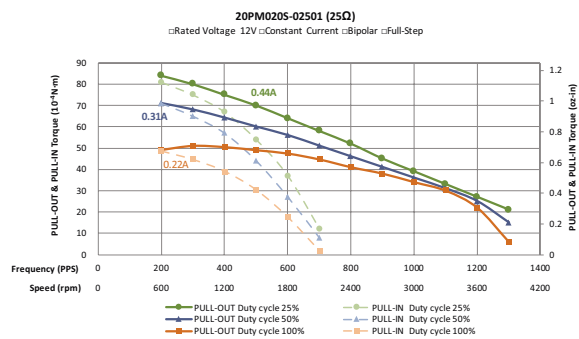
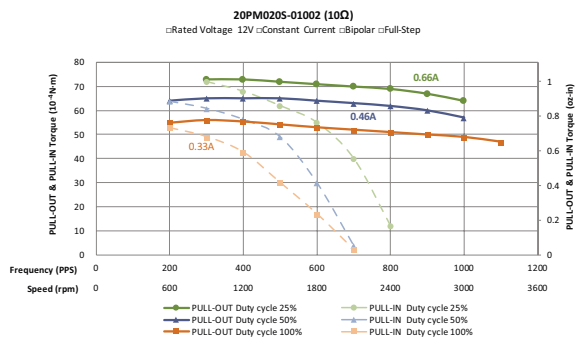
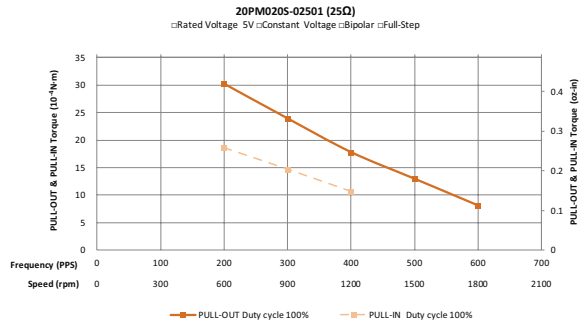
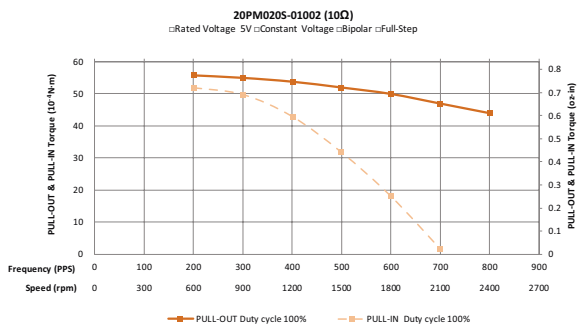
^ Preferred model

## Dimensions: mm

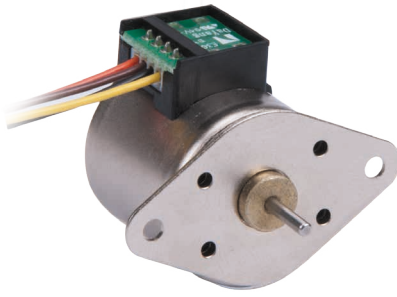


20PM020S0-01002

20PM020S0-02501



# 20PM020L - Ø20mm, L, 18°



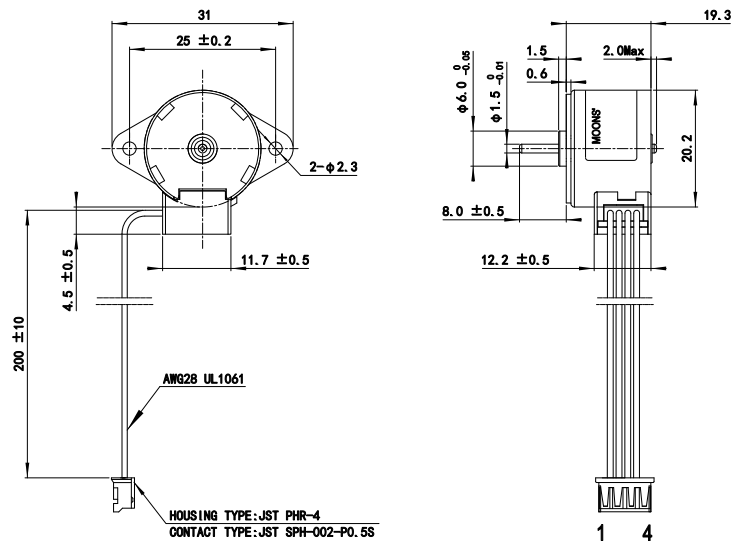
- Phases 2
- Steps / Revolution 20
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number		20PM020L8-00702	20PM020L8-02101
Length		19.3mm (0.76in.)	
Step Angle	°	18	
Rated Current	Amps	0.43	0.25
Holding Torque	10 <sup>-4</sup> Nm	Typ. 155	155
	oz-in	Typ. 2.2	2.2
Winding	Ohms	±10% @ 20°C	
	mH	Typ. 4.8	14.3
Detent Torque	10 <sup>-4</sup> Nm	34	34
	oz-in	0.5	0.5
Rotor Inertia	gcm <sup>2</sup>	0.37	0.37
	10 <sup>-4</sup> oz-in <sup>2</sup>	20.2	20.2
Motor Weight	g	27	
	Lbs	0.06	

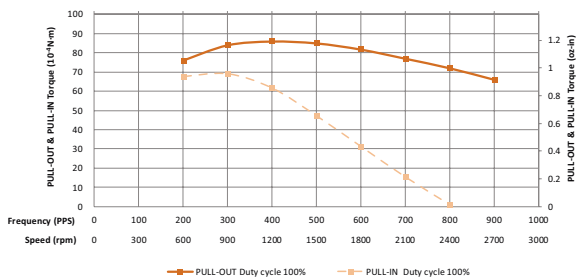
^ Preferred model

## Dimensions: mm



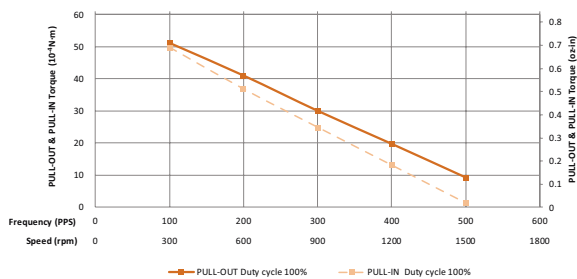
20PM020L8-00702

20PM020L-00702 (7Ω)  
 □Rated Voltage 5V □Constant Voltage □Bipolar □Full-Step



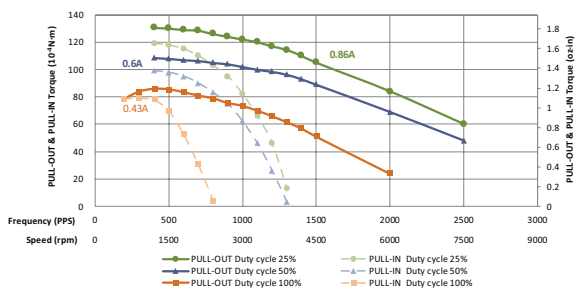
20PM020L8-02101

20PM020L-02101 (21Ω)  
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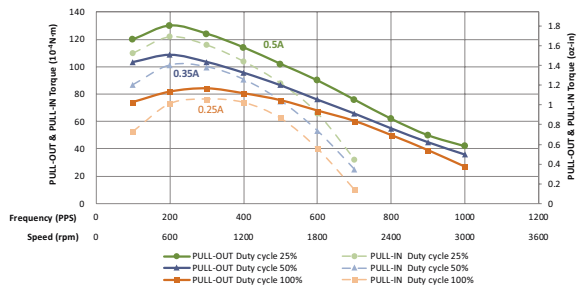
20PM020L-00702 (7Ω)

□Rated Voltage 12V □Constant Current □Bipolar □Full-Step



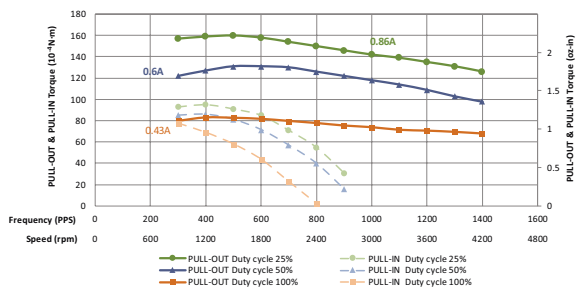
20PM020L-02101 (21Ω)

□Rated Voltage 12V □Constant Current □Bipolar □Full-Step



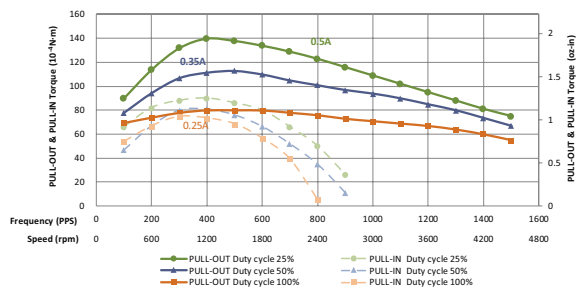
20PM020L-00702 (7Ω)

□Rated Voltage 24V □Constant Current □Bipolar □Full-Step



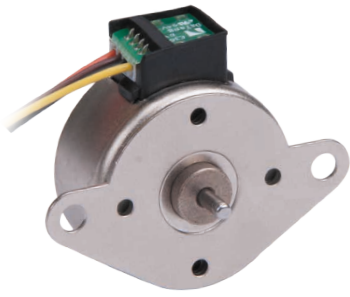
20PM020L-02101 (21Ω)

□Rated Voltage 24V □Constant Current □Bipolar □Full-Step





# 25PM024S - Ø25mm, S, 15°



- Phases 2
- Steps / Revolution 24
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

Selection Guidance

PM Step Motors

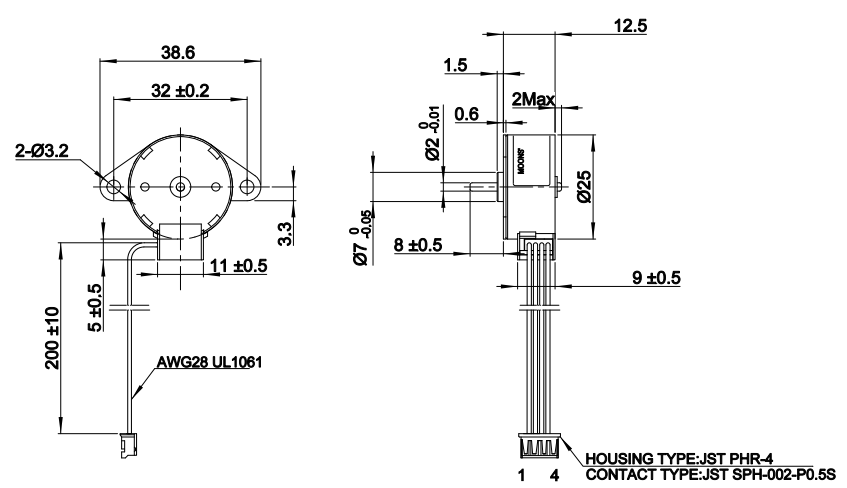
Technical

## Motor Data

Model Number			25PM024S8-00601	25PM024S8-01601
Length			12.5mm (0.40in.)	
Step Angle	°		15	
Rated Current	Amps		0.5	0.32
Holding Torque	10 <sup>-4</sup> Nm	Typ.	105	115
	oz-in	Typ.	1.5	1.6
Winding	Ohms	±10% @ 20°C	6	16
	mH	Typ.	2.7	7.4
Detent Torque	10 <sup>-4</sup> Nm		24	24
	oz-in		0.3	0.3
Rotor Inertia	gcm <sup>2</sup>		0.54	0.54
	10 <sup>-4</sup> oz-in <sup>2</sup>		29.5	29.5
Motor Weight	g		30	
	Lbs		0.07	

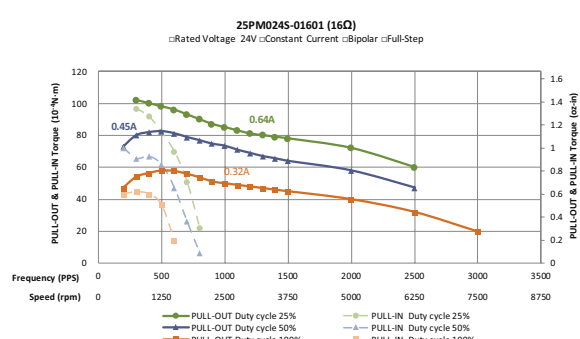
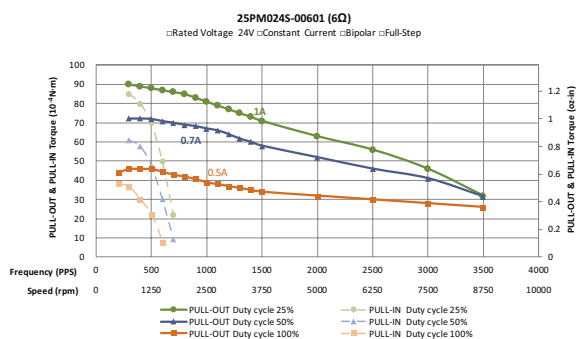
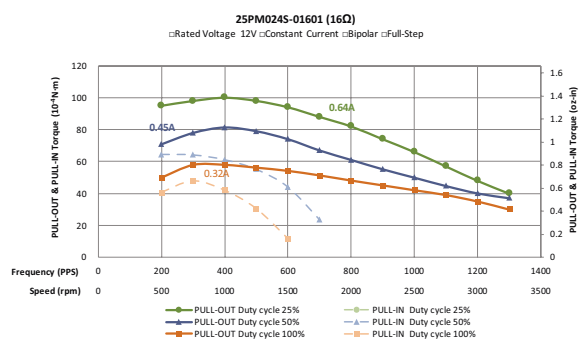
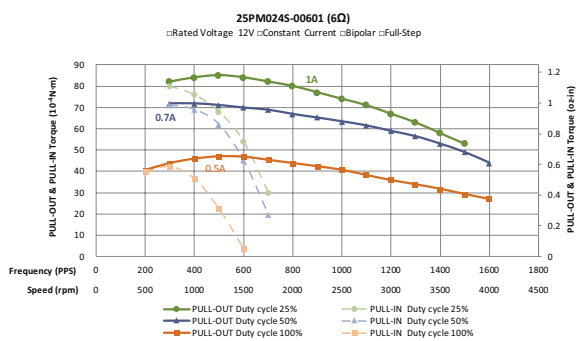
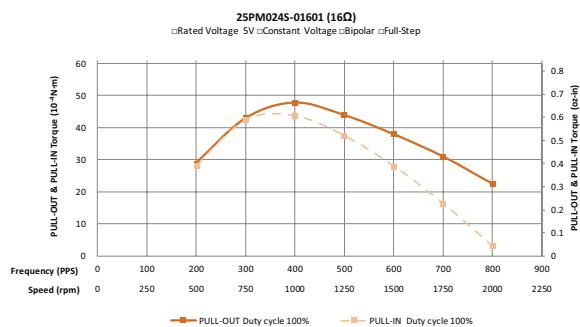
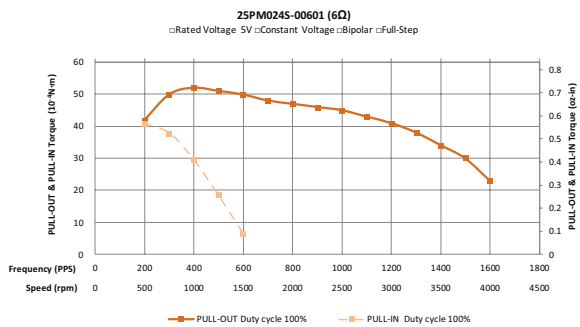
^ Preferred model

## Dimensions: mm

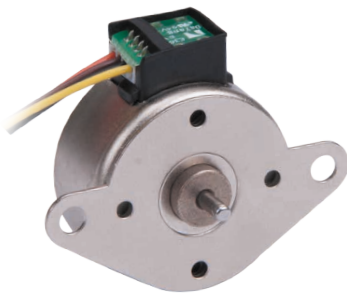


25PM024S8-00601

25PM024S8-01601



# 25PM048S - Ø25mm, S, 7.5°



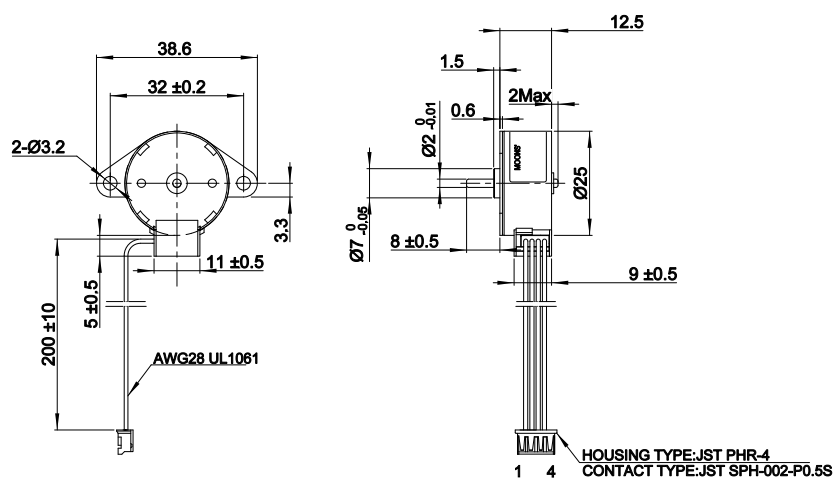
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number		25PM048S9-00601	25PM048S9-01601
Length		12.5mm (0.40in.)	
Step Angle	°	7.5	
Rated Current	Amps	0.5	0.32
Holding Torque	10 <sup>-4</sup> Nm	Typ. 170	230
	oz-in	Typ. 2.4	3.2
Winding	Ohms	±10% @ 20°C	
	mH	Typ. 3.4	9.4
Detent Torque	10 <sup>-4</sup> Nm	36	36
	oz-in	0.5	0.5
Rotor Inertia	gcm <sup>2</sup>	0.54	0.54
	10 <sup>-4</sup> oz-in <sup>2</sup>	29.5	29.5
Motor Weight	g	30	
	Lbs	0.07	

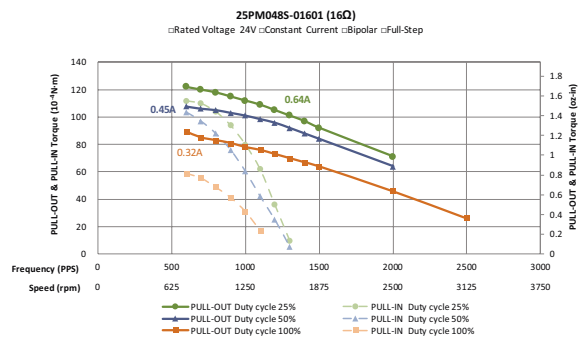
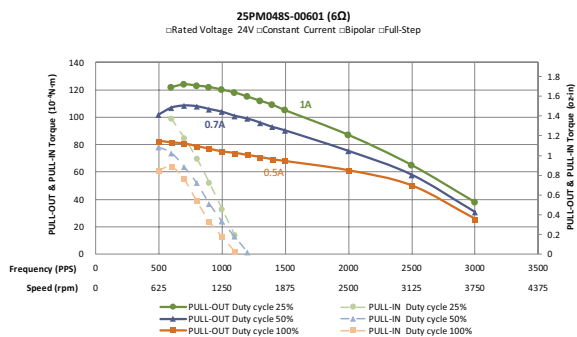
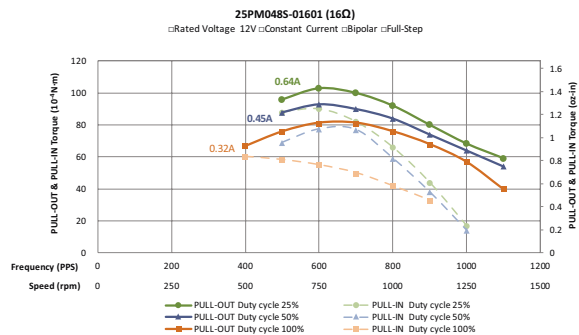
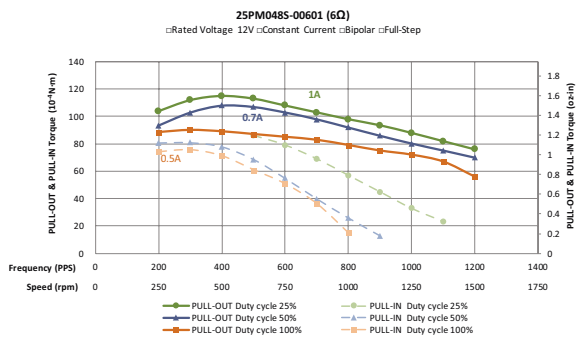
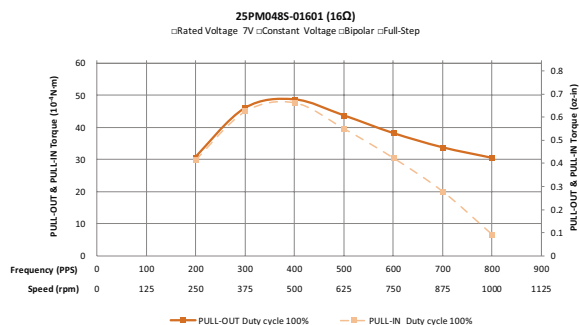
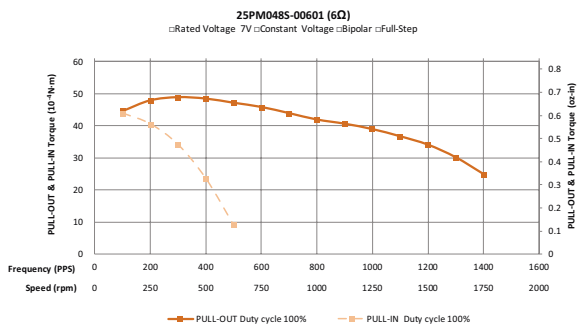
^ Preferred model

## Dimensions: mm

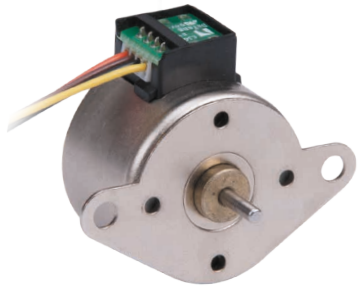


25PM048S9-00601

25PM048S9-01601



# 25PM024L - Ø25mm, L, 15°



- Phases 2
- Steps / Revolution 24
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

Selection Guidance

PM Step Motors

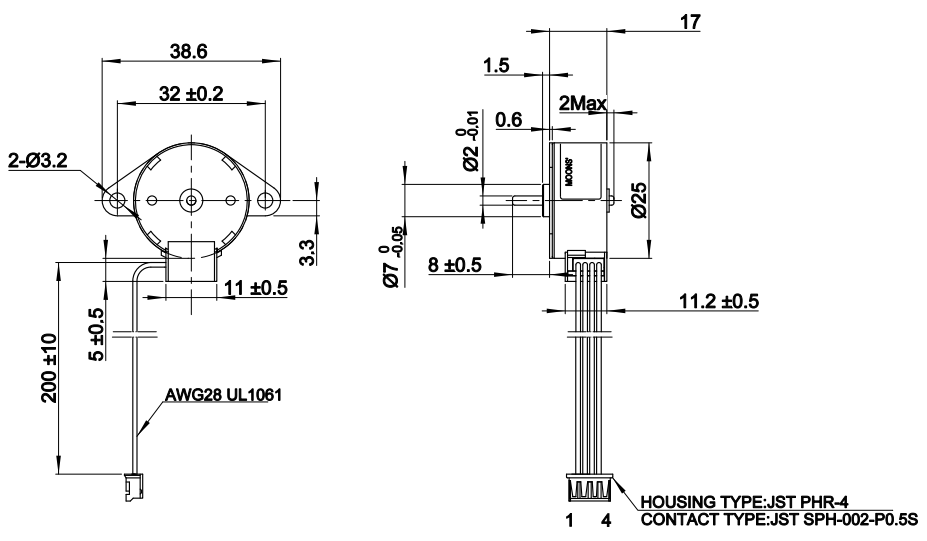
Technical

## Motor Data

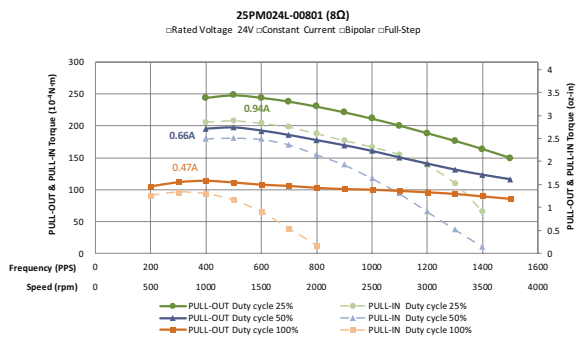
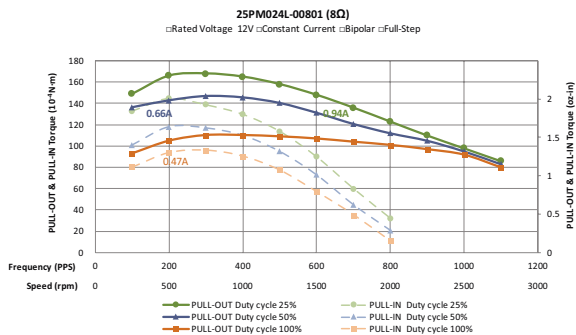
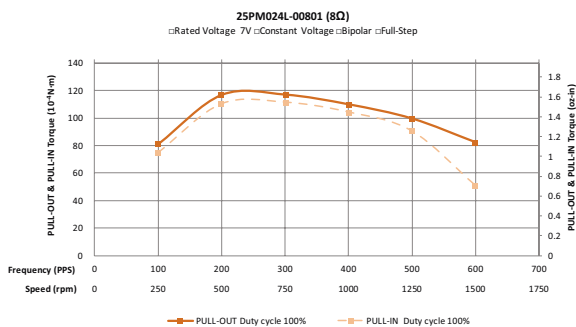
Model Number			25PM024L8-00801	25PM024L8-01403
Length			17mm (0.67in.)	
Step Angle	°		15	
Rated Current	Amps		0.47	0.35
Holding Torque	10 <sup>-4</sup> Nm	Typ.	160	170
	oz-in	Typ.	2.2	2.4
Winding	Ohms	±10% @ 20°C	8	14
	mH	Typ.	7.9	14.4
Detent Torque	10 <sup>-4</sup> Nm		30	30
	oz-in		0.4	0.4
Rotor Inertia	gcm <sup>2</sup>		0.88	0.88
	10 <sup>-4</sup> oz-in <sup>2</sup>		48.1	48.1
Motor Weight	g		39	
	Lbs		0.09	

^ Preferred model

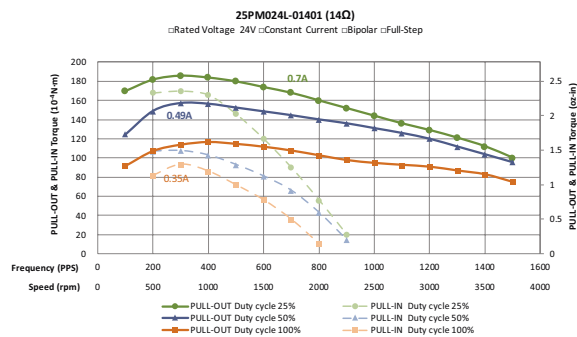
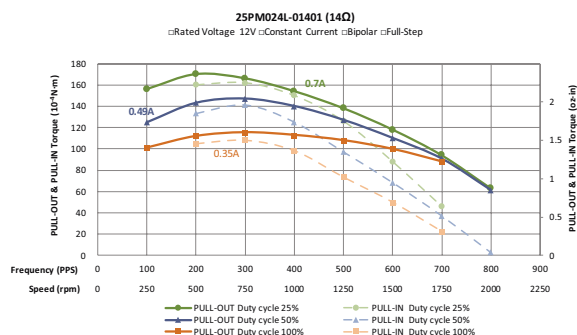
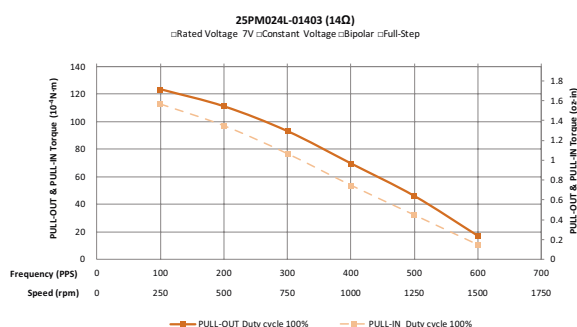
## Dimensions: mm



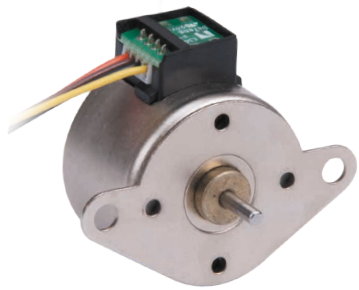
25PM024L8-00801



25PM024L8-01403



# 25PM048L - Ø25mm, L, 7.5°



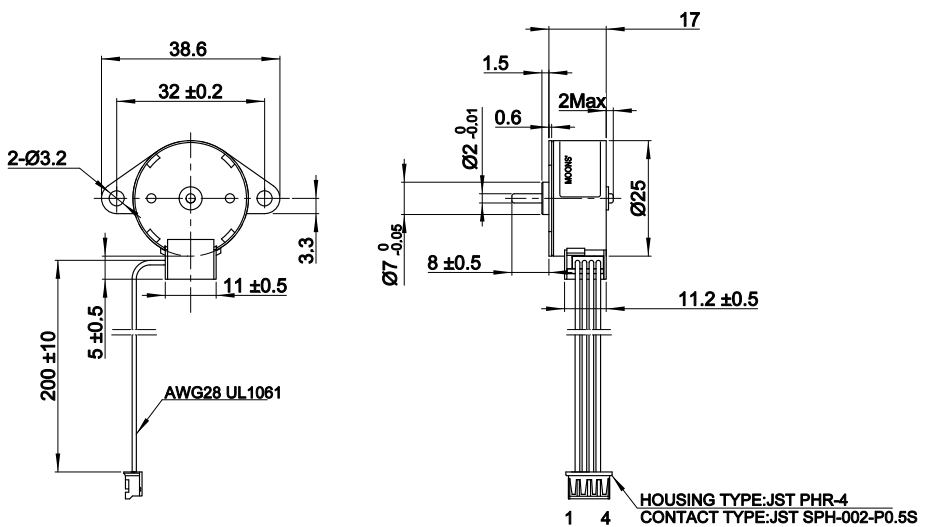
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1N
  - Radial 5N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number			25PM048L9-00801	25PM048L9-01401
Length			17mm (0.67in.)	
Step Angle	°		7.5	
Rated Current	Amps		0.47	0.35
Holding Torque	10 <sup>-4</sup> Nm	Typ.	270	270
	oz-in	Typ.	3.8	3.8
Winding	Ohms	±10% @ 20°C	8	14
	mH	Typ.	7.2	14.5
Detent Torque	10 <sup>-4</sup> Nm		27	27
	oz-in		0.4	0.4
Rotor Inertia	gcm <sup>2</sup>		0.88	0.88
	10 <sup>-4</sup> oz-in <sup>2</sup>		48.1	48.1
Motor Weight	g		39	
	Lbs		0.09	

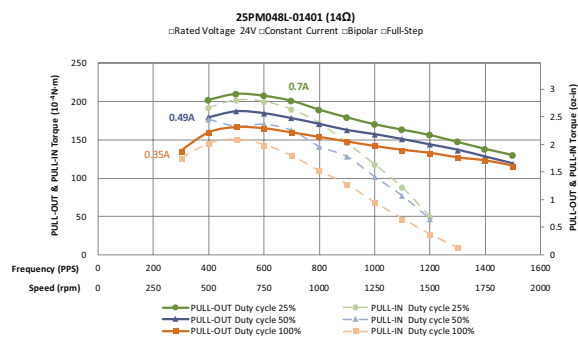
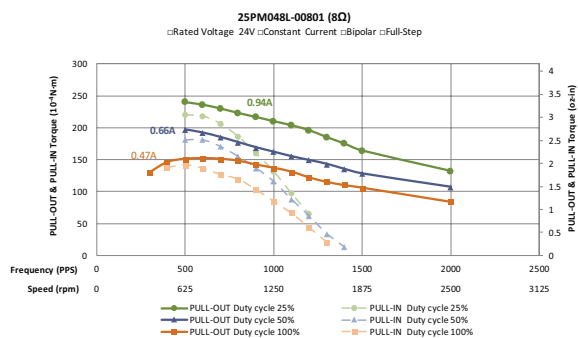
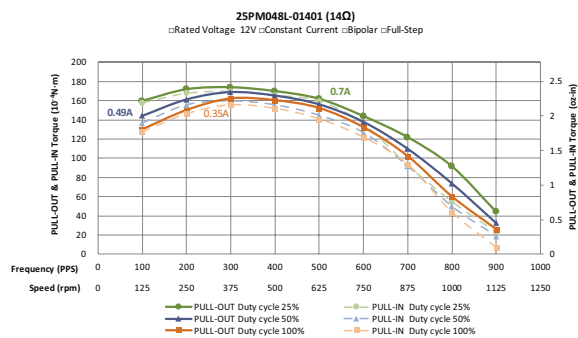
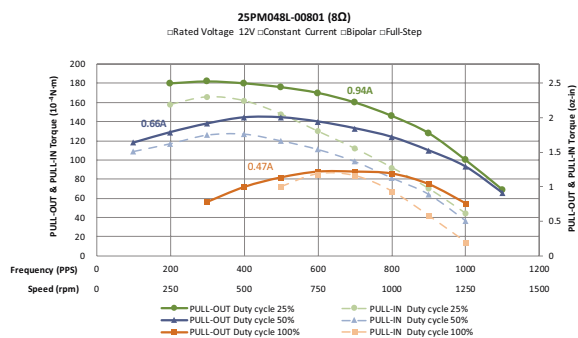
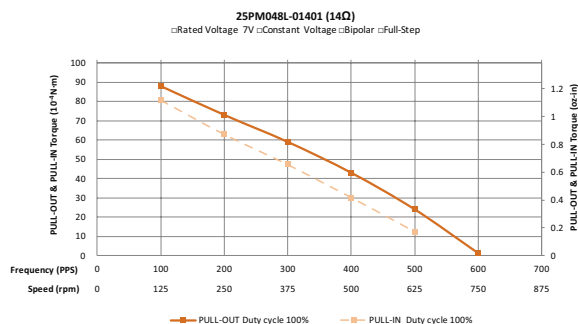
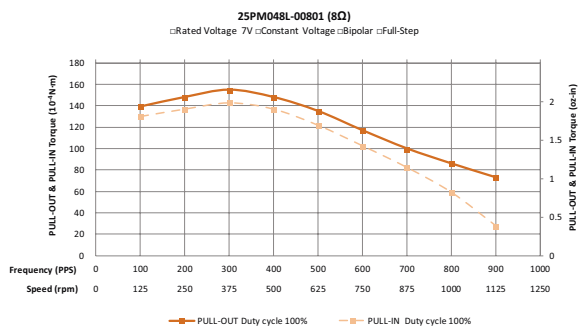
^ Preferred model

## Dimensions: mm



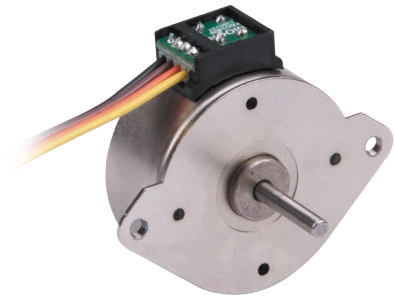
25PM048L9-00801

25PM048L9-01401





# 35PM024S - Ø35mm, S, 15°



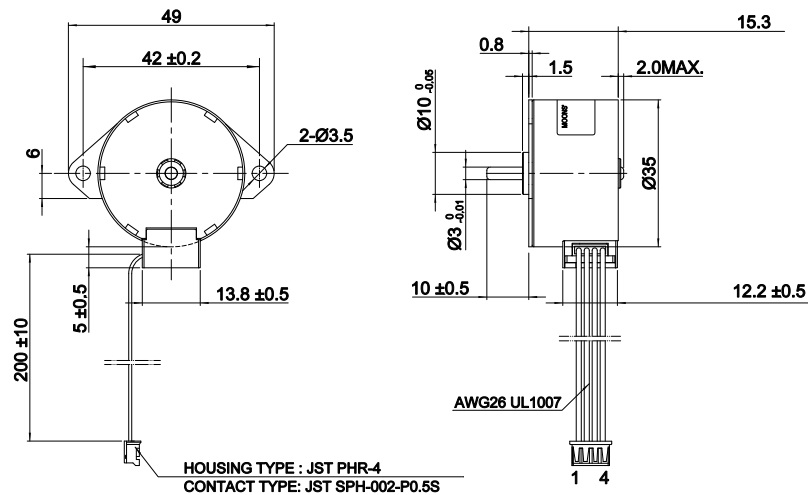
- Phases 2
- Steps / Revolution 24
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

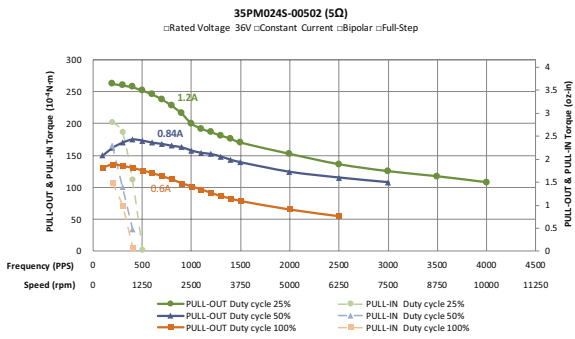
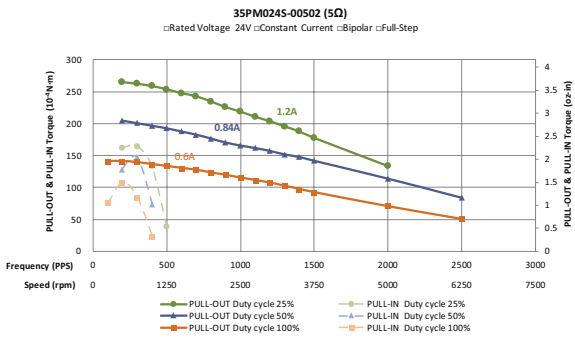
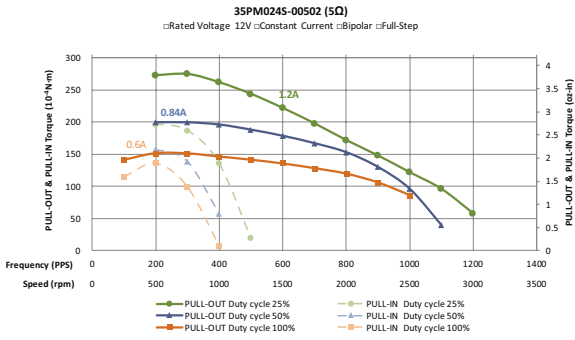
Model Number			35PM024S9-00502	35PM024S9-01201	35PM024S9-08001
Length			15.3mm (0.60in.)		
Step Angle	°		15		
Rated Current	Amps		0.6	0.38	0.15
Holding Torque	10 <sup>-4</sup> Nm	Typ.	270	270	310
	oz-in	Typ.	3.8	3.8	4.3
Winding	Ohms	±10% @ 20°C	5	12.5	80
	mH	Typ.	4.2	10	62.4
Detent Torque	10 <sup>-4</sup> Nm		55	55	55
	oz-in		0.77	0.77	0.77
Rotor Inertia	gcm <sup>2</sup>		2.8	2.8	2.8
	10 <sup>-4</sup> oz-in <sup>2</sup>		153	153	153
Motor Weight	g		70		
	Lbs		0.15		

^ Preferred model

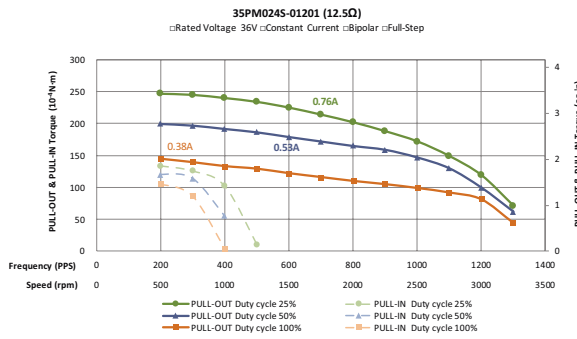
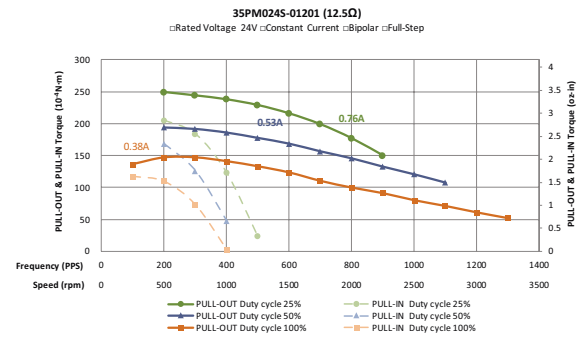
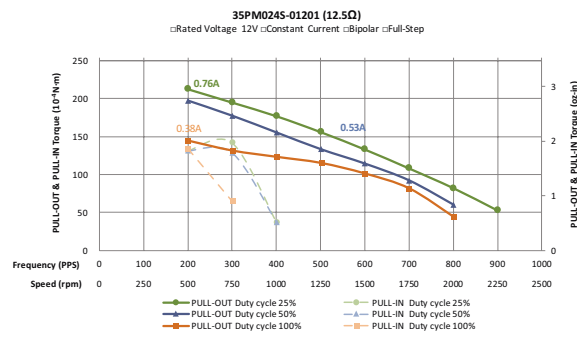
## Dimensions: mm



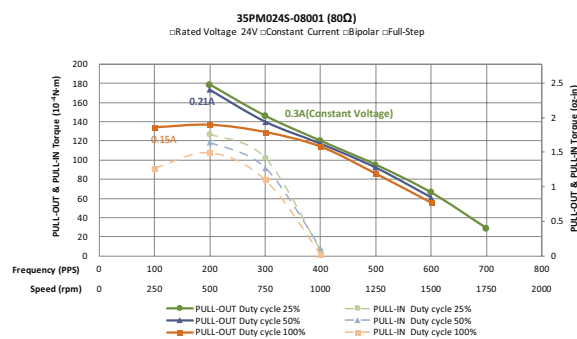
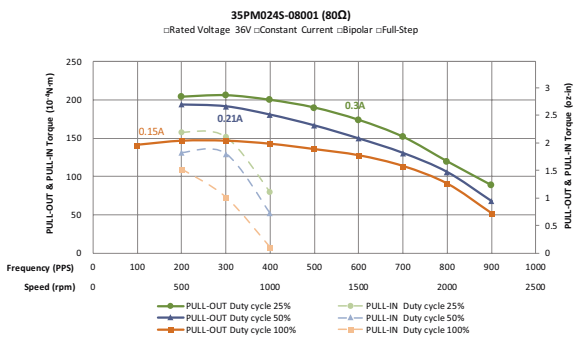
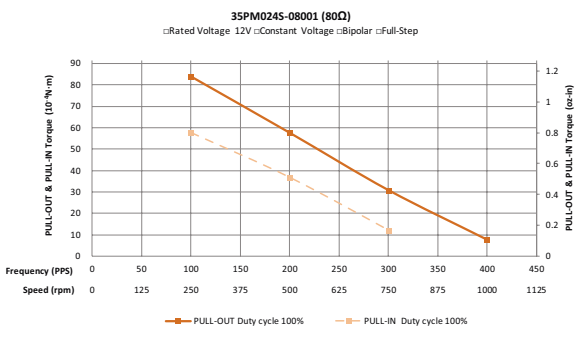
35PM024S9-00502



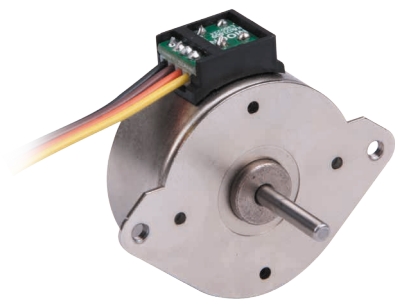
35PM024S9-01201



35PM024S9-08001



# 35PM048S - Ø35mm, S, 7.5°



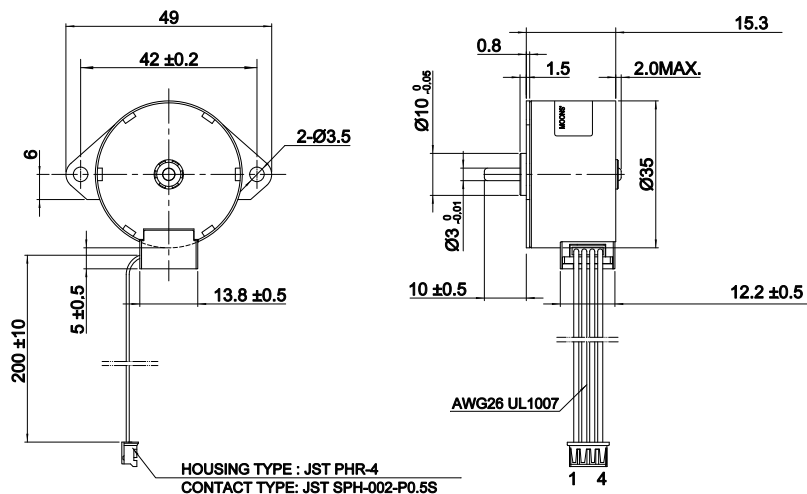
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

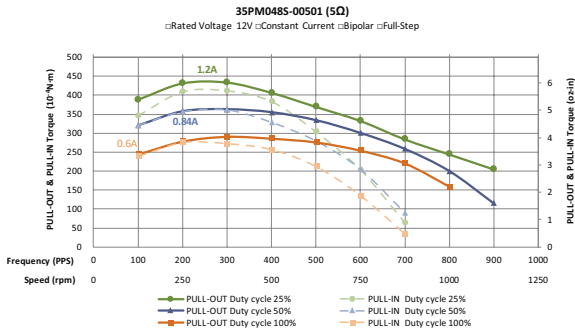
Model Number			35PM048S8-00501	35PM048S8-01201	35PM048S8-08001
Length			15.3mm (0.60in.)		
Step Angle	°		7.5		
Rated Current	Amps		0.6	0.38	0.15
Holding Torque	10 <sup>-4</sup> Nm	Typ.	450	450	540
	oz-in	Typ.	6.3	6.3	7.6
Winding	Ohms	±10% @ 20°C	5	12.5	80
	mH	Typ.	5.2	12.5	78
Detent Torque	10 <sup>-4</sup> Nm		60	60	60
	oz-in		0.8	0.8	0.8
Rotor Inertia	gcm <sup>2</sup>		2.8	2.8	2.8
	10 <sup>-4</sup> oz-in <sup>2</sup>		153	153	153
Motor Weight	g		70		
	Lbs		0.15		

^ Preferred model

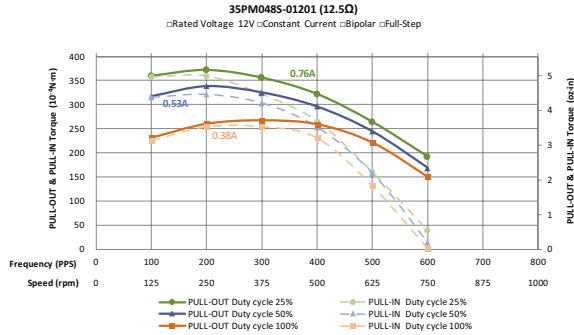
## Dimensions: mm



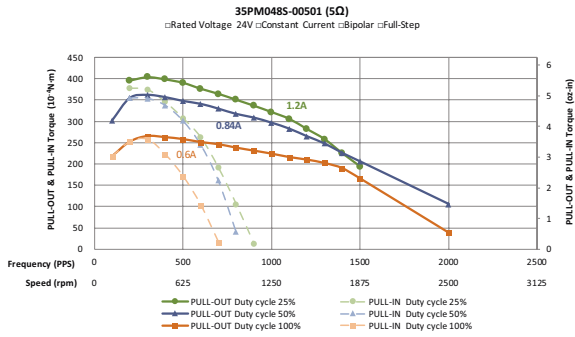
35PM048S8-00501



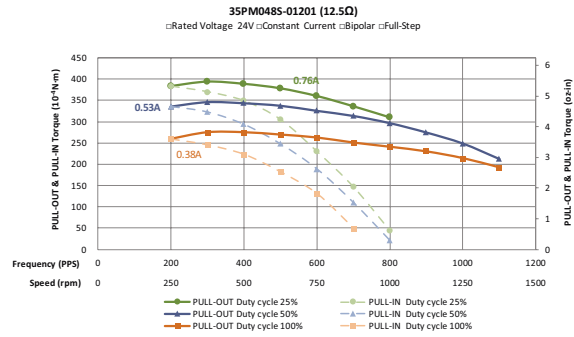
35PM048S8-01201



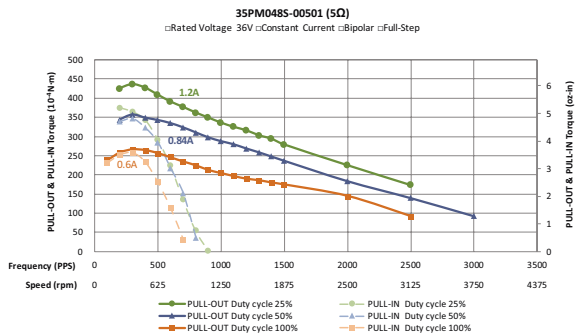
35PM048S-00501 (5Ω)



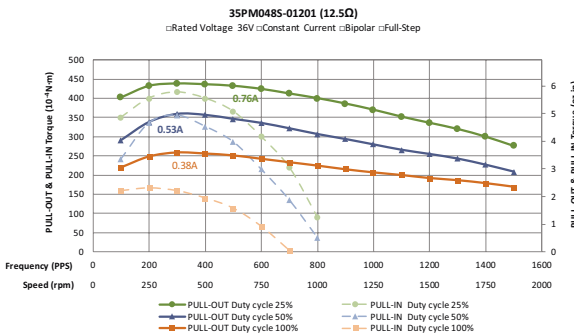
35PM048S-01201 (12.5Ω)



35PM048S-00501 (5Ω)

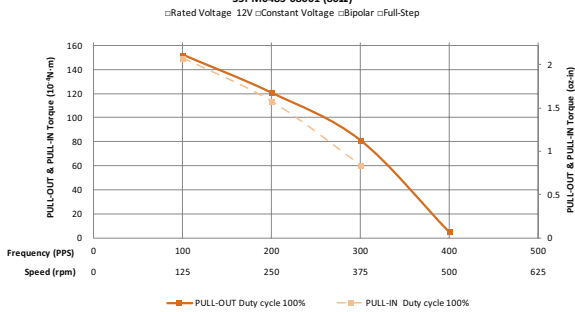


35PM048S-01201 (12.5Ω)

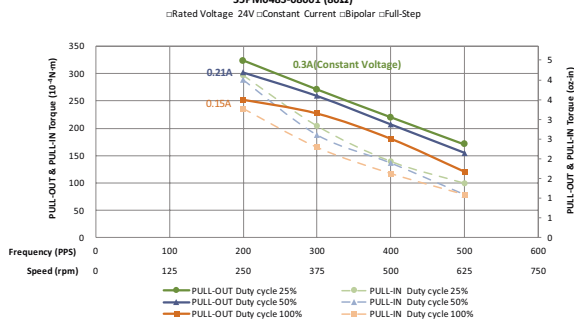


35PM048S8-01201

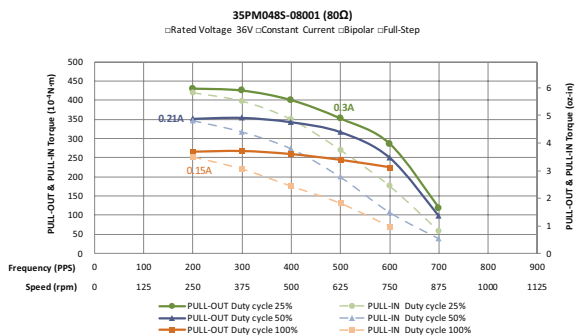
35PM048S-08001 (80Ω)



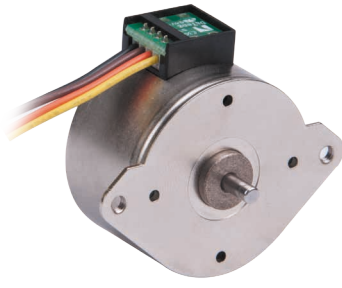
35PM048S-08001 (80Ω)



35PM048S-08001 (80Ω)



# 35PM024L - Ø35mm, L, 15°



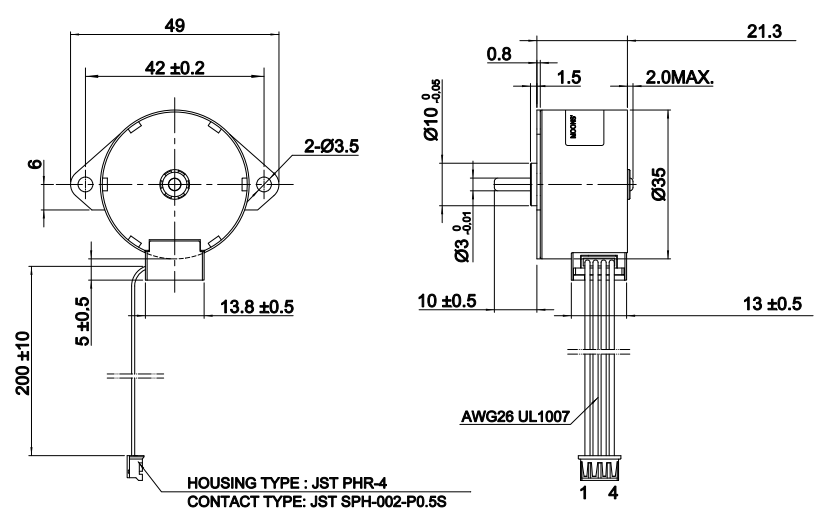
- Phases 2
- Steps / Revolution 24
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number			35PM024L9-00502	35PM024L9-01204	35PM024L9-07501
Length			21.3 mm (0.84 in.)		
Step Angle	°		15		
Rated Current	Amps		0.63	0.4	0.16
Holding Torque	10 <sup>-4</sup> Nm	Typ.	450	450	490
	oz-in	Typ.	6.3	6.3	6.9
Winding	Ohms	±10% @ 20°C	5	12.5	75
	mH	Typ.	6.2	14.7	71
Detent Torque	10 <sup>-4</sup> Nm		150	150	150
	oz-in		2.1	2.1	2.1
Rotor Inertia	gcm <sup>2</sup>		4.7	4.7	4.7
	10 <sup>-4</sup> oz-in <sup>2</sup>		257	257	257
Motor Weight	g		90		
	Lbs		0.2		

^ Preferred model

## Dimensions: mm

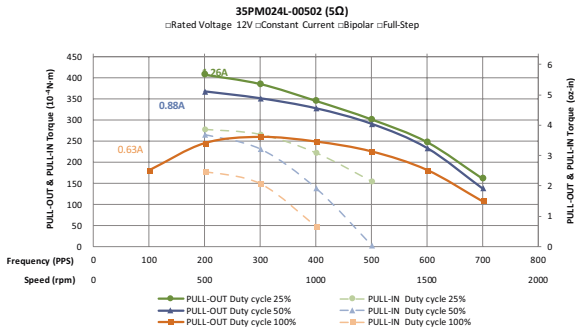


Selection Guidance

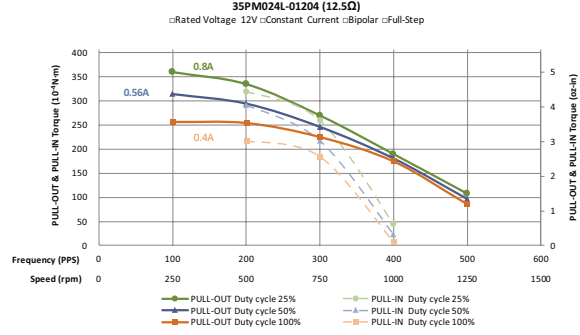
PM Step Motors

Technical

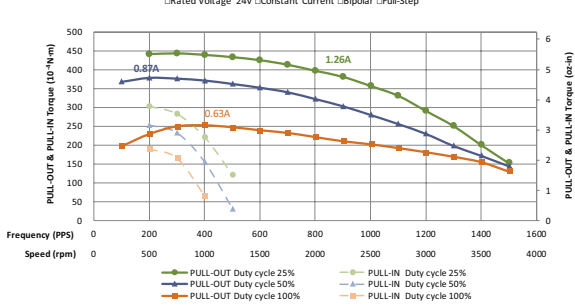
35PM024L9-00502



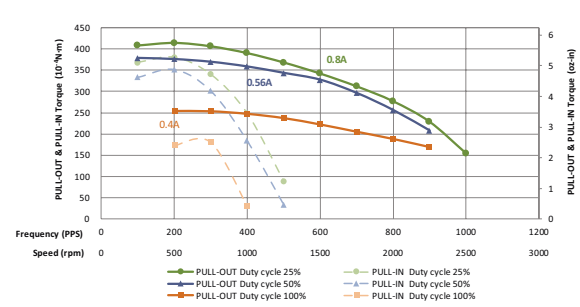
35PM024L9-01204



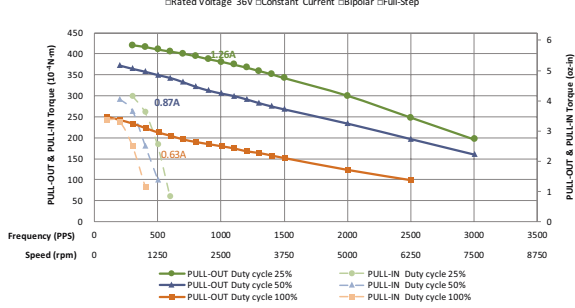
35PM024L-00502 (5Ω)



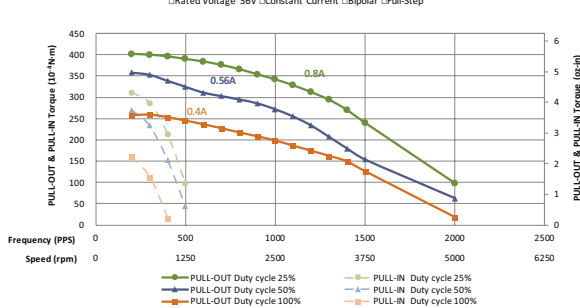
35PM024L-01204 (12.5Ω)



35PM024L-00502 (5Ω)

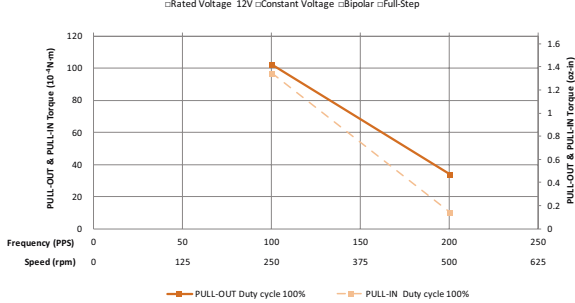


35PM024L-01204 (12.5Ω)

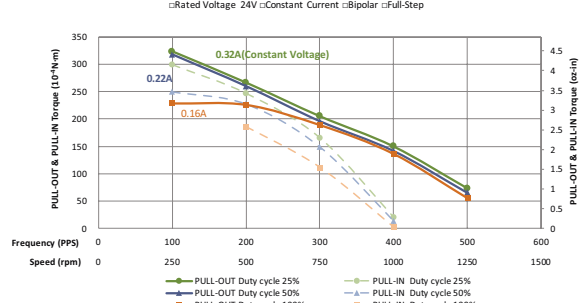


35PM024L9-07501

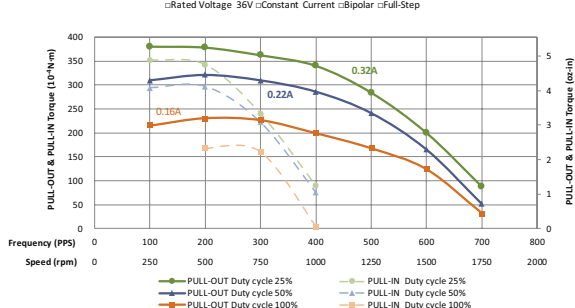
35PM024L-07501 (75Ω)



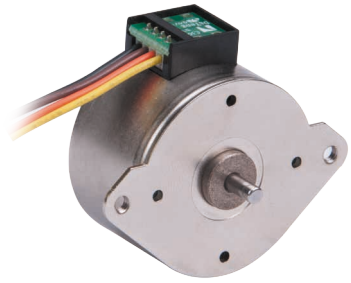
35PM024L-07501 (75Ω)



35PM024L-07501 (75Ω)



# 35PM048L - Ø35mm, L, 7.5°



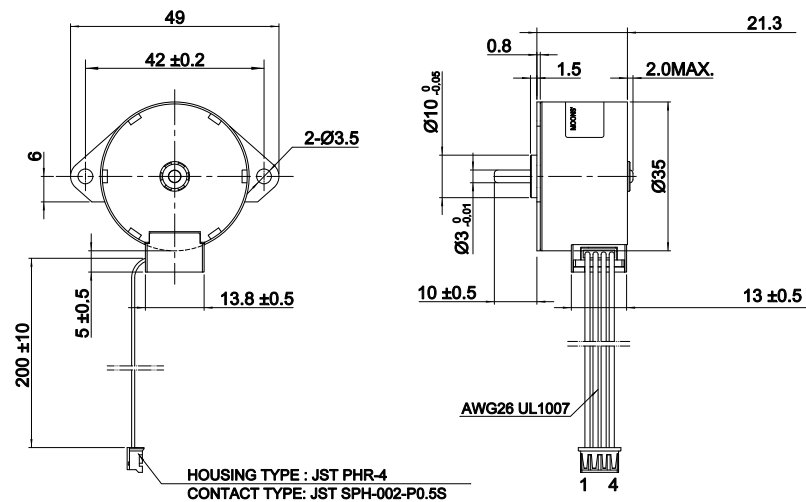
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number			35PM048L8-00506	35PM048L8-01201	35PM048L8-07501
Length			21.3 mm (0.84 in.)		
Step Angle	°		7.5		
Rated Current	Amps		0.63	0.4	0.16
Holding Torque	10 <sup>-4</sup> Nm	Typ.	670	670	700
	oz-in	Typ.	9.4	9.4	9.8
Winding	Ohms	±10% @ 20°C	5	12.5	75
	mH	Typ.	8.6	20.1	98.5
Detent Torque	10 <sup>-4</sup> Nm		105	105	105
	oz-in		1.5	1.5	1.5
Rotor Inertia	gcm <sup>2</sup>		4.7	4.7	4.7
	10 <sup>-4</sup> oz-in <sup>2</sup>		257	257	257
Motor Weight	g		90		
	Lbs		0.2		

^ Preferred model

## Dimensions: mm

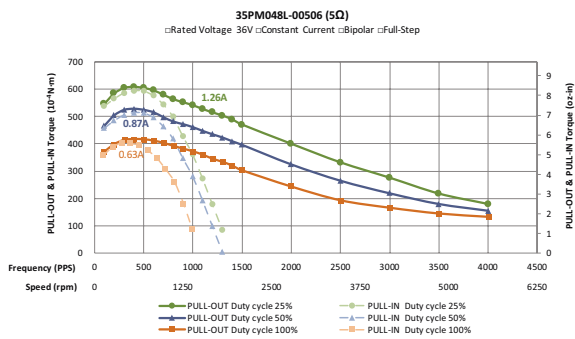
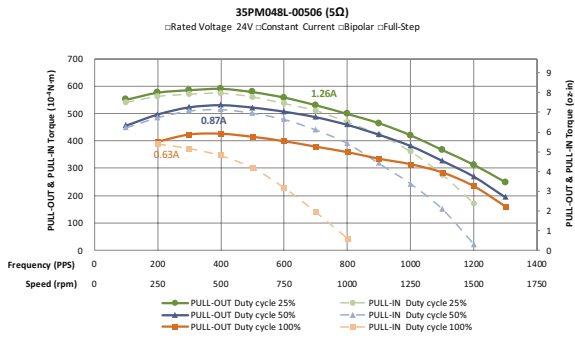
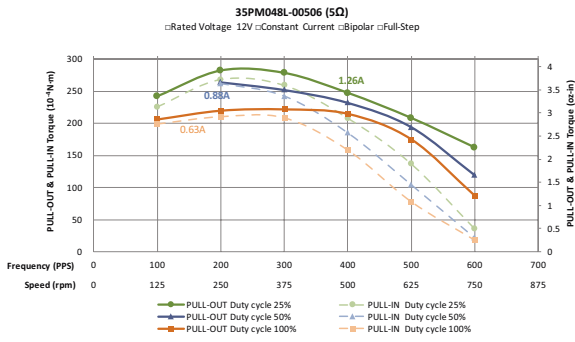


Selection Guidance

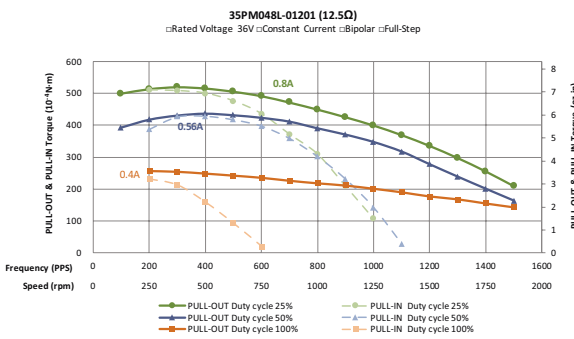
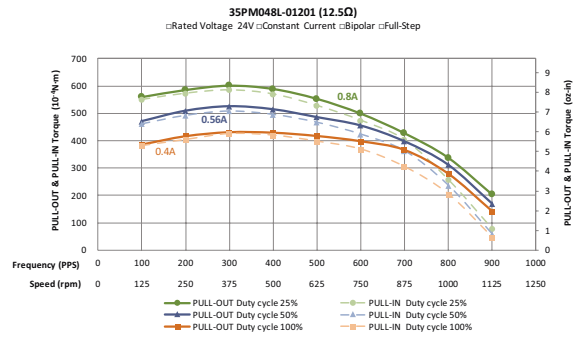
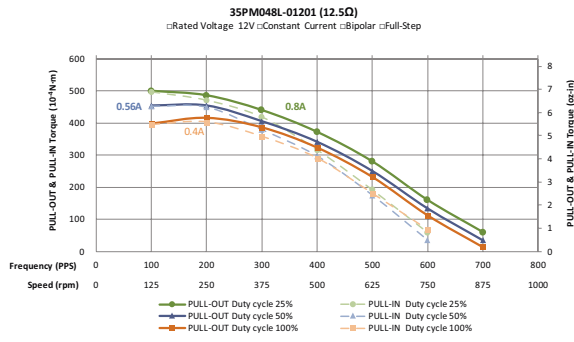
PM Step Motors

Technical

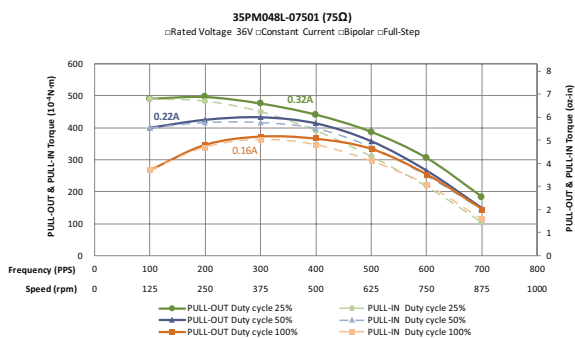
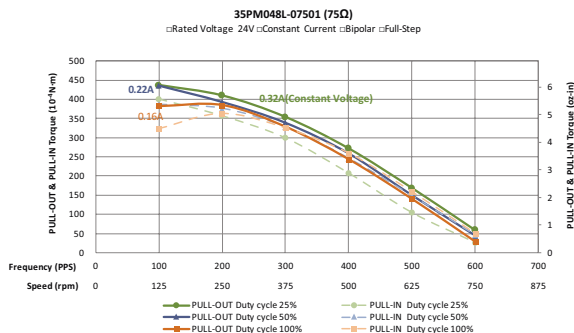
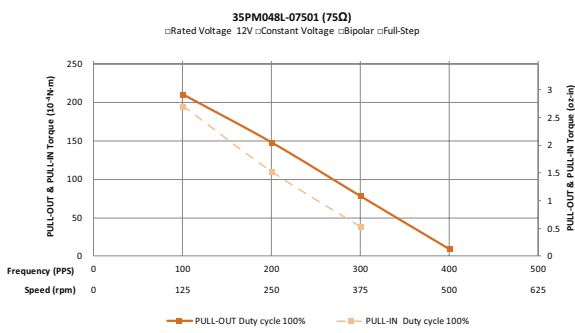
35PM048L8-00506



35PM048L8-01201

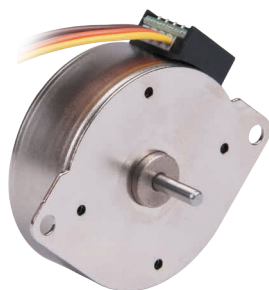


35PM048L8-07501





# 42PM048S - Ø42mm, S, 7.5°



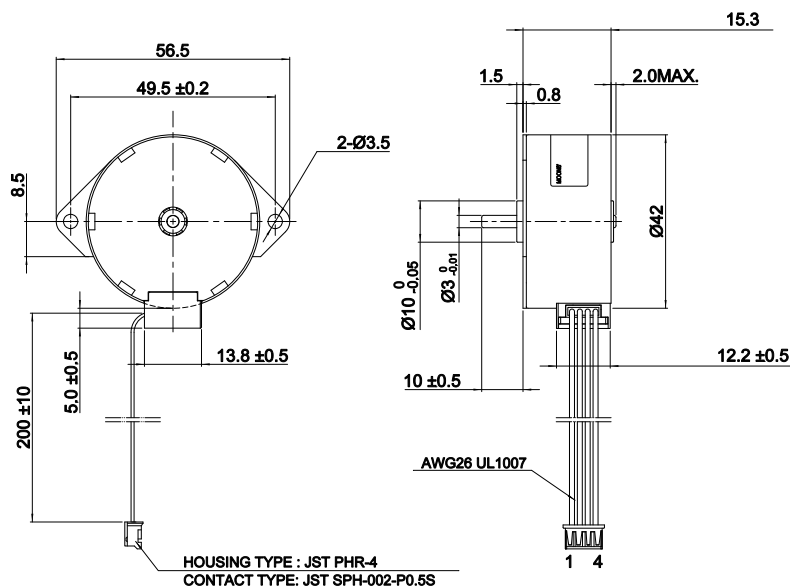
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

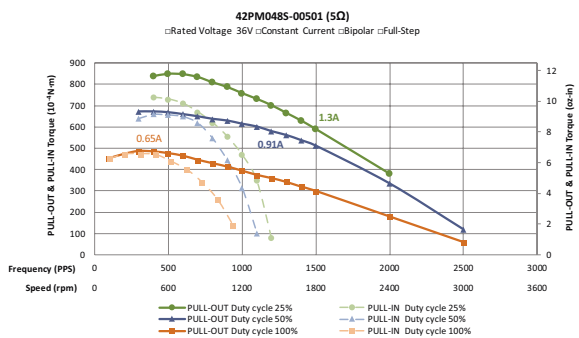
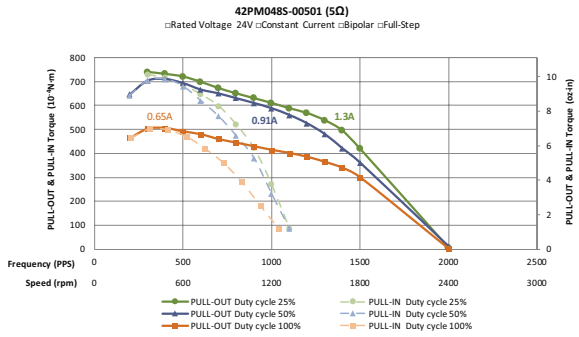
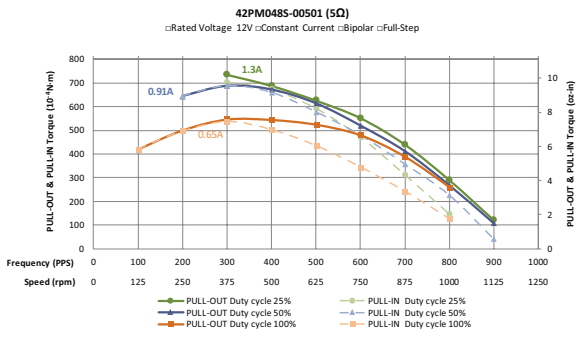
Model Number			42PM048S0-00501	42PM048S0-01201	42PM048S0-08001
Length			15.3mm (0.60in.)		
Step Angle	°		7.5		
Rated Current	Amps		0.65	0.42	0.15
Holding Torque	10 <sup>-4</sup> Nm	Typ.	870	830	800
	oz-in	Typ.	12.2	11.6	11.2
Winding	Ohms	±10% @ 20°C	5	12	80
	mH	Typ.	5.4	11.6	72.5
Detent Torque	10 <sup>-4</sup> Nm		110	110	110
	oz-in		1.5	1.5	1.5
Rotor Inertia	gcm <sup>2</sup>		7.4	7.4	7.4
	10 <sup>-4</sup> oz-in <sup>2</sup>		404	404	404
Motor Weight	g		90		
	Lbs		0.2		

^ Preferred model

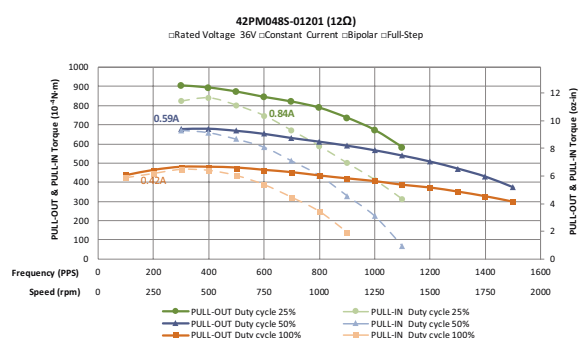
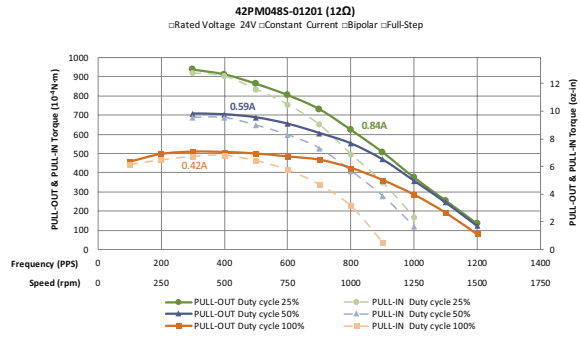
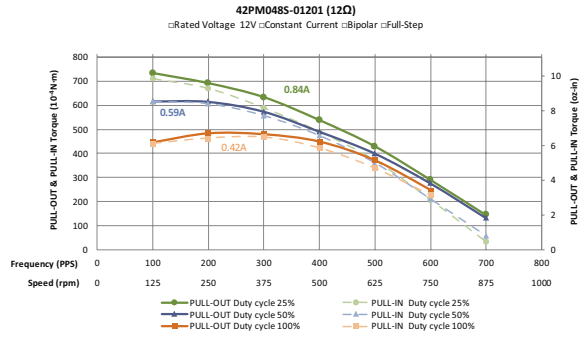
## Dimensions: mm



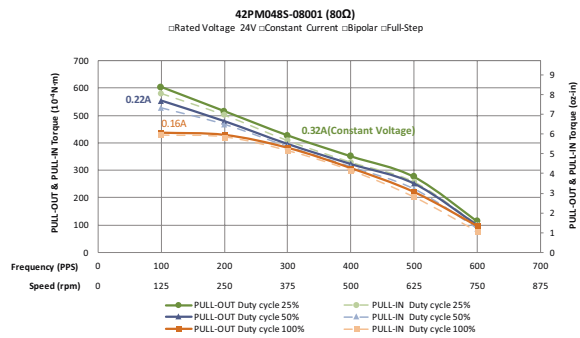
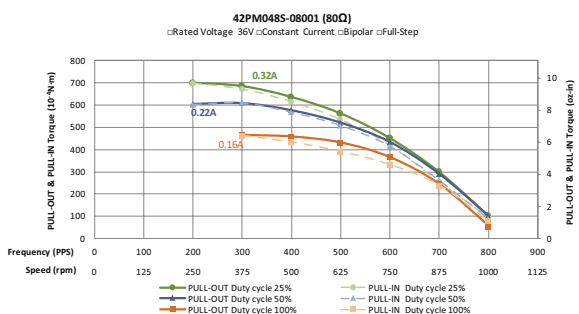
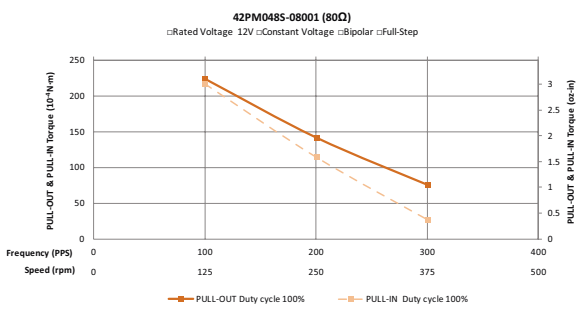
42PM048S0-00501



42PM048S0-01201



42PM048S0-08001



# 42PM096S - Ø42mm, S, 3.75°



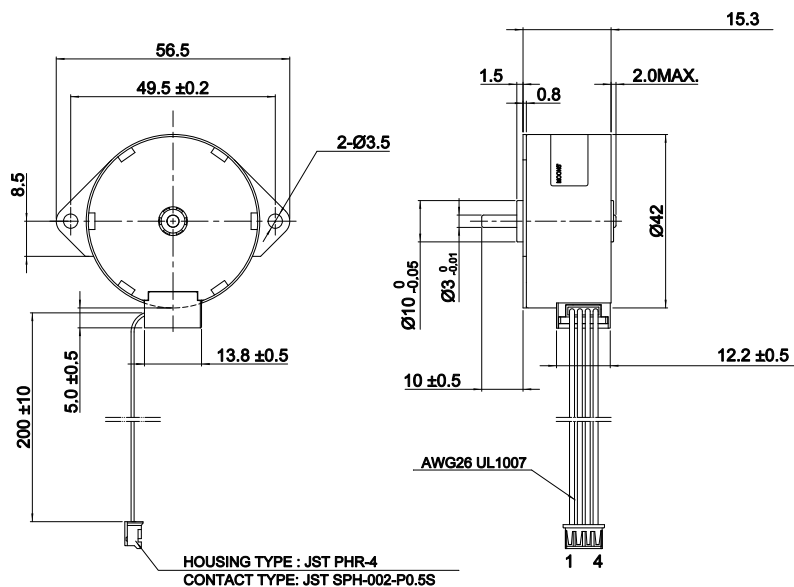
- Phases 2
- Steps / Revolution 96
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

Model Number			42PM096S0-00501	42PM096S0-01201	42PM096S0-08001
Length			15.3mm (0.60in.)		
Step Angle	°		3.75		
Rated Current	Amps		0.65	0.42	0.15
Holding Torque	10 <sup>-4</sup> Nm	Typ.	960	940	780
	oz-in	Typ.	13.4	13.2	10.9
Winding	Ohms	±10% @ 20°C	5	12	80
	mH	Typ.	6.2	13.4	82
Detent Torque	10 <sup>-4</sup> Nm		75	75	75
	oz-in		1.1	1.1	1.1
Rotor Inertia	gcm <sup>2</sup>		7.4	7.4	7.4
	10 <sup>-4</sup> oz-in <sup>2</sup>		404	404	404
Motor Weight	g		90		
	Lbs		0.2		

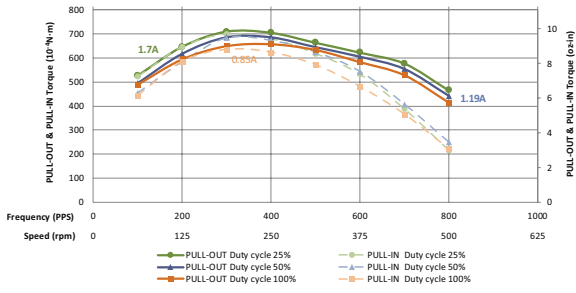
^ Preferred model

## Dimensions: mm

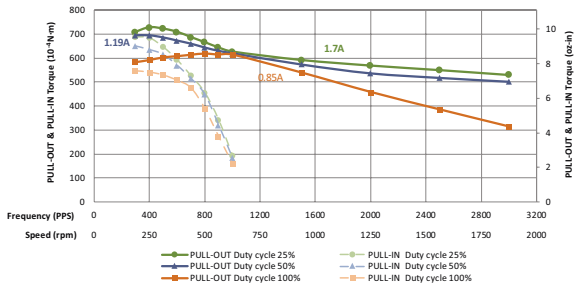


42PM096S0-00501

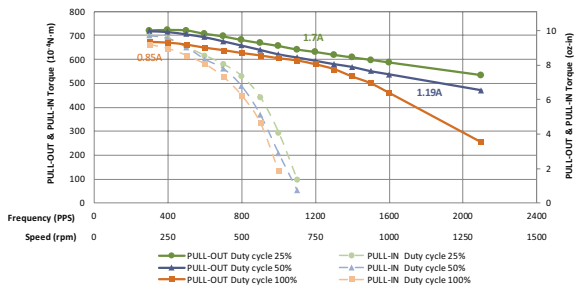
42PM096L-00301 (3Ω)  
Rated Voltage 12V Constant Current Bipolar Full-Step



42PM096L-00301 (3Ω)  
Rated Voltage 24V Constant Current Bipolar Full-Step

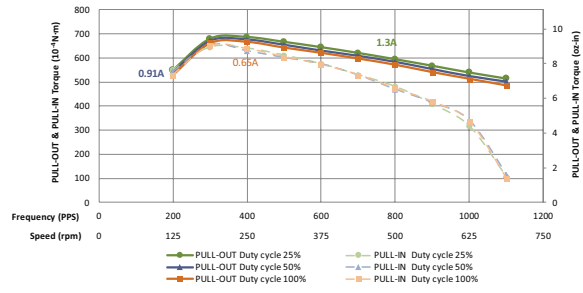


42PM096L-00301 (3Ω)  
Rated Voltage 36V Constant Current Bipolar Full-Step



42PM096S0-01201

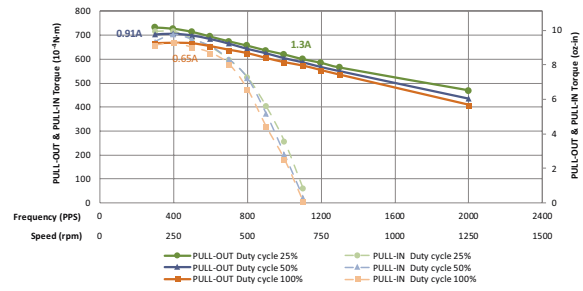
42PM096L-00701 (7Ω)  
Rated Voltage 24V Constant Current Bipolar Full-Step



42PM096L-00701 (7Ω)  
Rated Voltage 36V Constant Current Bipolar Full-Step

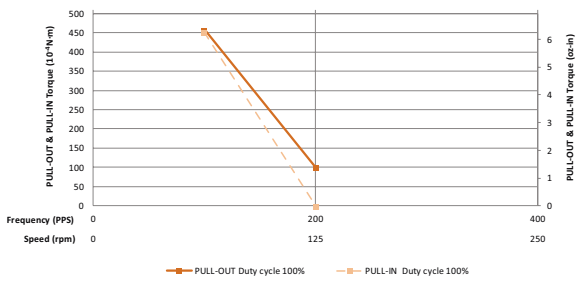


42PM096L-00701 (7Ω)  
Rated Voltage 24V Constant Current Bipolar Full-Step

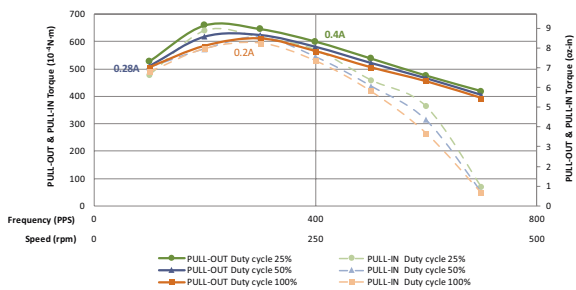


42PM096S0-08001

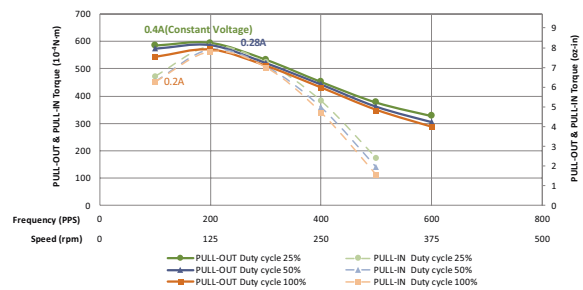
42PM096L-06001 (60Ω)  
Rated Voltage 12V Constant Voltage Bipolar Full-Step



42PM096L-06001 (60Ω)  
Rated Voltage 36V Constant Current Bipolar Full-Step



42PM096S-06001 (60Ω)  
Rated Voltage 24V Constant Current Bipolar Full-Step



# 42PM048L - Ø42mm, L, 7.5°



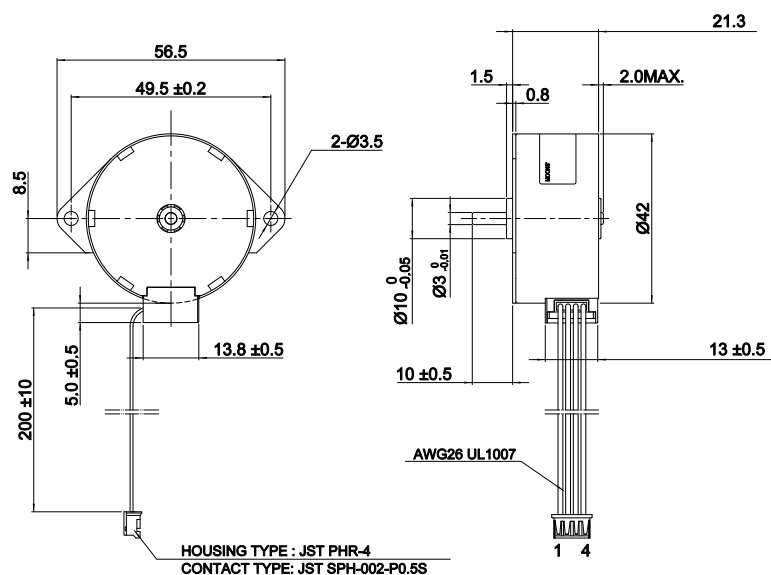
- Phases 2
- Steps / Revolution 48
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

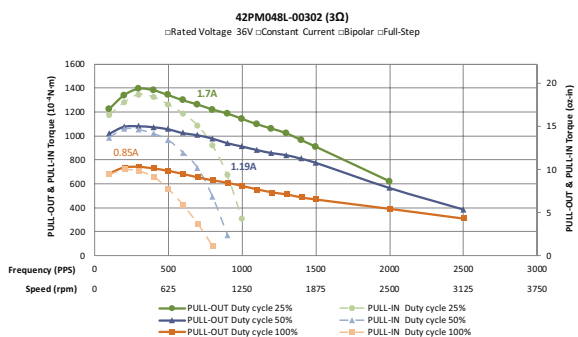
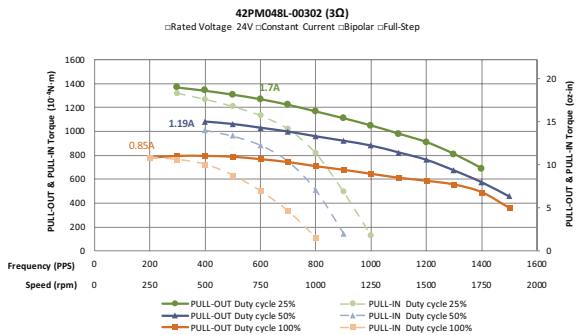
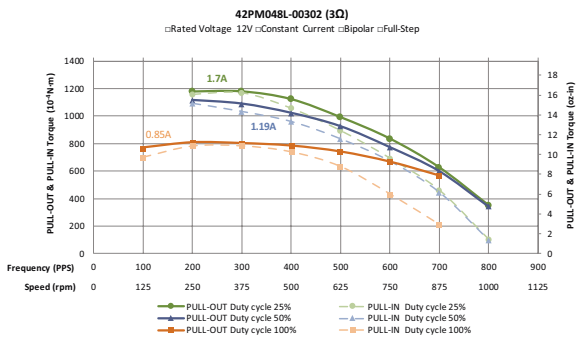
Model Number			42PM048L1-00302	42PM048L1-00711	42PM048L1-06001
Length			21.3 mm (0.84 in.)		
Step Angle	°		7.5		
Rated Current	Amps		0.85	0.55	0.2
Holding Torque	10 <sup>-4</sup> Nm	Typ.	1200	1200	1250
	oz-in	Typ.	16.8	16.8	17.5
Winding	Ohms	±10% @ 20°C	3	7	60
	mH	Typ.	4.4	9.6	82
Detent Torque	10 <sup>-4</sup> Nm		180	180	180
	oz-in		2.5	2.5	2.5
Rotor Inertia	gcm <sup>2</sup>		11	11	11
	10 <sup>-4</sup> oz-in <sup>2</sup>		601	601	601
Motor Weight	g		120		
	Lbs		0.26		

^ Preferred model

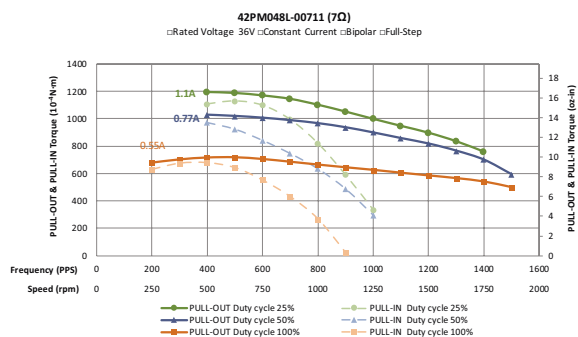
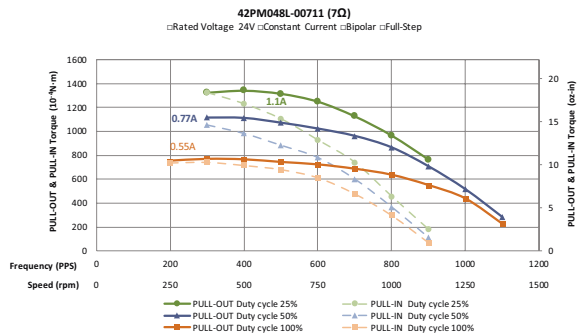
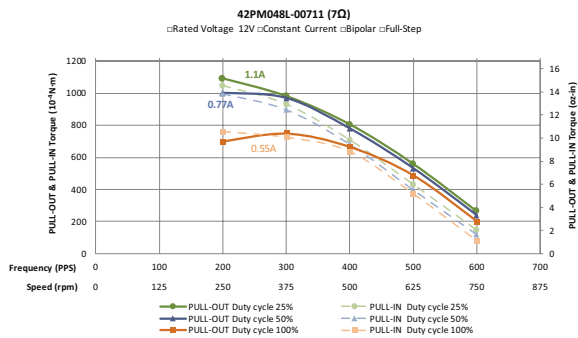
## Dimensions: mm



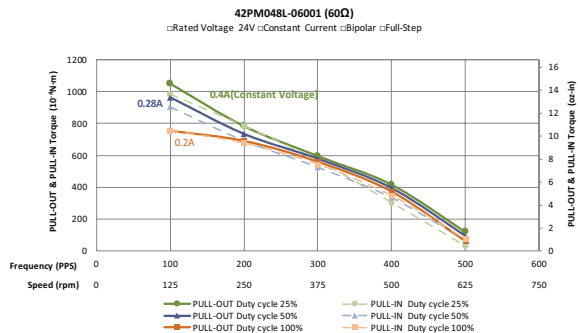
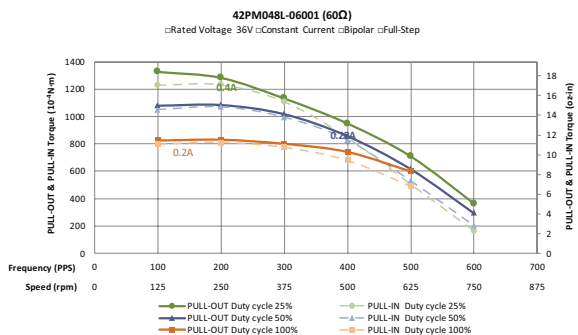
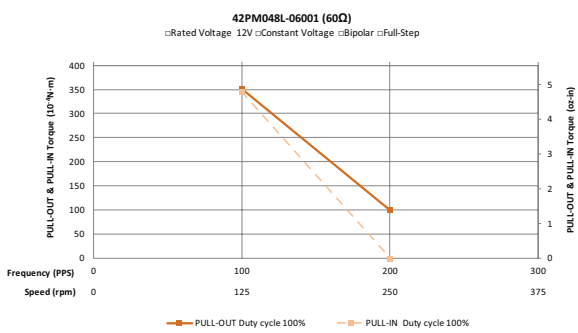
42PM048L1-00302



42PM048L1-00711



42PM048L1-06001



# 42PM096L - Ø42mm, L, 3.75°



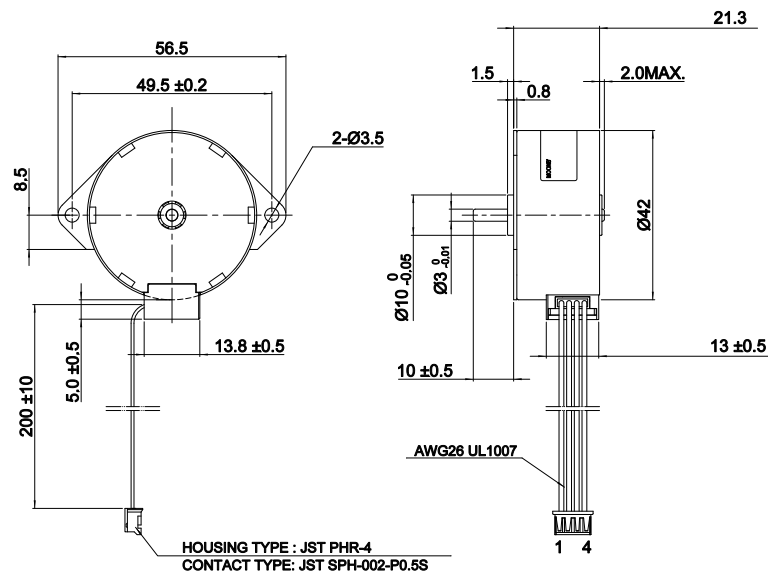
- Phases 2
- Steps / Revolution 96
- Shaft Load
  - Axial 1 N
  - Radial 7.5 N
- IP Rating 40
- Approvals RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

## Motor Data

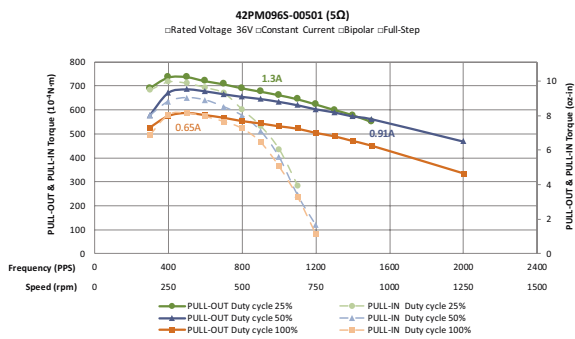
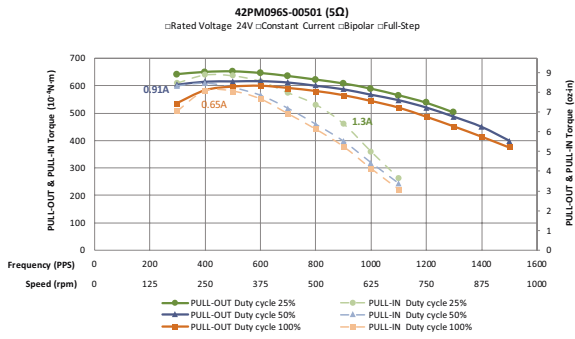
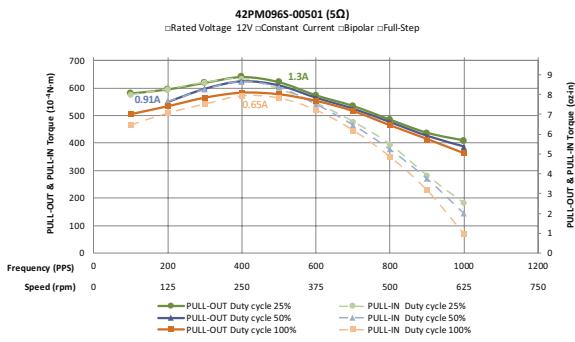
Model Number			42PM096L1-00301	42PM096L1-00701	42PM096L1-06001
Length			21.3 mm (0.84 in.)		
Step Angle	°		3.75		
Rated Current	Amps		0.85	0.55	0.2
Holding Torque	10 <sup>-4</sup> Nm	Typ.	970	920	900
	oz-in	Typ.	13.6	12.9	12.6
Winding	Ohms	±10% @ 20°C	3	7	60
	mH	Typ.	5.5	12.1	103
Detent Torque	10 <sup>-4</sup> Nm		160	160	160
	oz-in		2.2	2.2	2.2
Rotor Inertia	gcm <sup>2</sup>		11	11	11
	10 <sup>-4</sup> oz-in <sup>2</sup>		601	601	601
Motor Weight	g		120		
	Lbs		0.26		

^ Preferred model

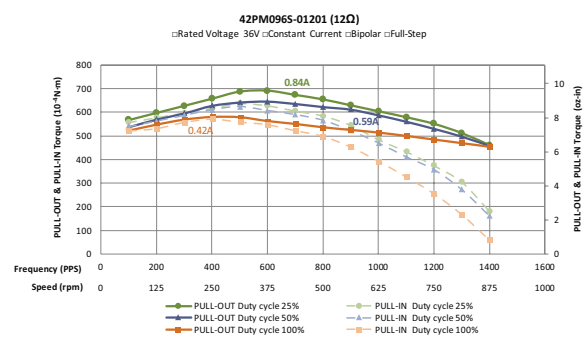
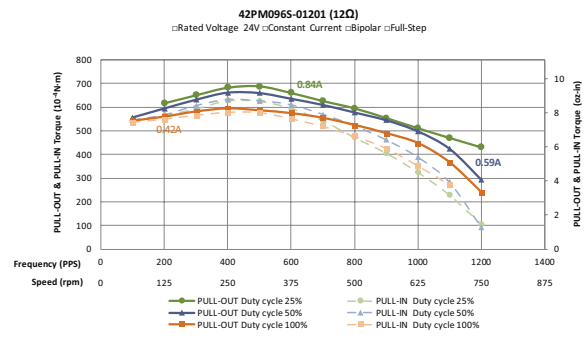
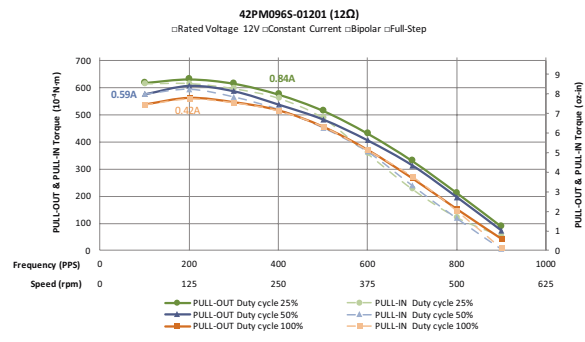
## Dimensions: mm



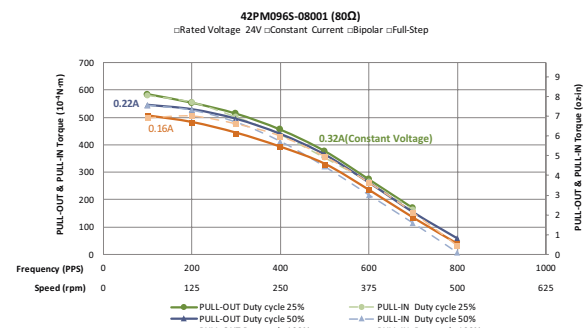
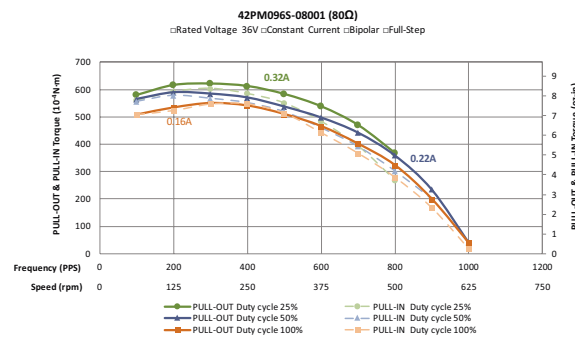
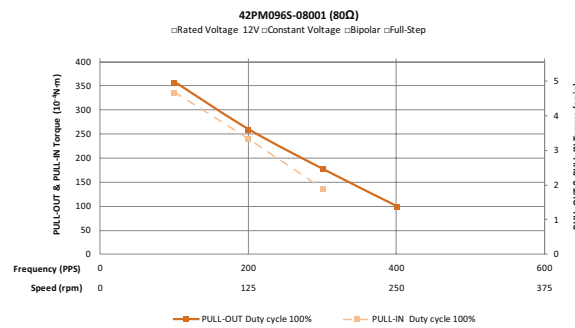
42PM096L1-00301



42PM096L1-00701



42PM096L1-06001





# Conversion Factors

- Length

A \ B	mm	cm	m	inch	feet
mm	--	0.1	0.001	0.03937	0.003281
cm	10	--	0.01	0.3937	0.03281
m	1,000	100	--	39.37	3.281
inch	25.4	2.54	0.0254	--	0.08333
feet	304.8	30.48	0.348	12	--

Multiply "A" units by conversion factor to obtain "B" units

- Force

A \ B	g	kgf	oz	lb	Newton
g	--	0.001	0.03527	0.002205	0.0098
kgf	1,000	--	35.27	22.05	9.807
oz	28.35	0.02835	--	0.0625	0.278
lb	453.6	0.4536	16	--	4.448
Newton	102	0.102	3.597	0.2248	--

- Torque

A \ B	Nm	Ncm	mNm	kgm*	kgcm*	gcm*	oz-in	lb-ft	lb-in
Nm	--	100	1,000	0.102	10.2	10,200	141.6	0.7376	8.851
Ncm	0.01	--	10	0.00102	0.102	102	1.416	0.007376	0.08851
mNm	0.001	0.1	--	0.000102	1.0102	10.2	0.1416	0.000738	0.008851
kgm*	9.807	980.7	9807	--	100	100,000	1,389	7.233	86.8
kgcm*	0.09807	9.807	98.07	0.01	--	1,000	13.89	0.07233	0.868
gcm*	9.81E-05	0.009807	0.09807	0.00001	0.001	--	0.01389	7.23E-05	0.000868
oz-in	0.007062	0.7062	7.062	0.00072	0.07201	72.01	--	0.00521	0.0625
lb-ft	1.356	135.6	135.6	0.1383	13.83	13,830	192	--	12
lb-in	0.113	11.3	113	0.01152	1.152	1,152	16	0.0833	--

- Inertia

A \ B	kgm <sup>2</sup>	kgcm <sup>2</sup>	gcm <sup>2</sup>	oz-in <sup>2</sup>	oz-in-sec <sup>2</sup>	lb-in <sup>2</sup>	lb-in-sec <sup>2</sup>	lb-ft <sup>2</sup>	lb-ft-sec <sup>2</sup> (slug ft <sup>2</sup> )
kgm <sup>2</sup>	--	10,000	10,000,000	54,700	142	3,420	8.85	23.7	0.738
kgcm <sup>2</sup>	0.0001	--	1,000	5.47	0.0142	0.342	0.000885	0.00237	7.38E-05
gcm <sup>2</sup>	1E-07	0.001	--	0.00547	1.42E-05	0.000342	8.85E-07	2.37E-06	7.38E-08
oz-in <sup>2</sup>	1.83E-05	0.1829	183	--	0.00259	0.0625	0.000162	0.000434	1.35E-05
oz-in-sec <sup>2</sup>	0.00706	70.62	70,600	386	--	24.1	0.0625	0.168	0.00521
lb-in <sup>2</sup>	0.000293	2.926	2,930	16	0.0414	--	0.00259	0.00694	0.000216
lb-in-sec <sup>2</sup>	0.113	1,130	1,130,000	6,180	1.6	386	--	2.68	0.0833
lb-ft <sup>2</sup>	0.0421	421.4	421,000	2,300	5.97	144	0.373	--	0.318
lb-ft-sec <sup>2</sup> (slug ft <sup>2</sup> )	1.36	13,600	13,600,000	74,100	192	4,630	12	32.2	--

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