

NEMA17 (Size 1.65")

2 phase HB stepper motor , 1.8 deg/step

# KH42-B900 Series

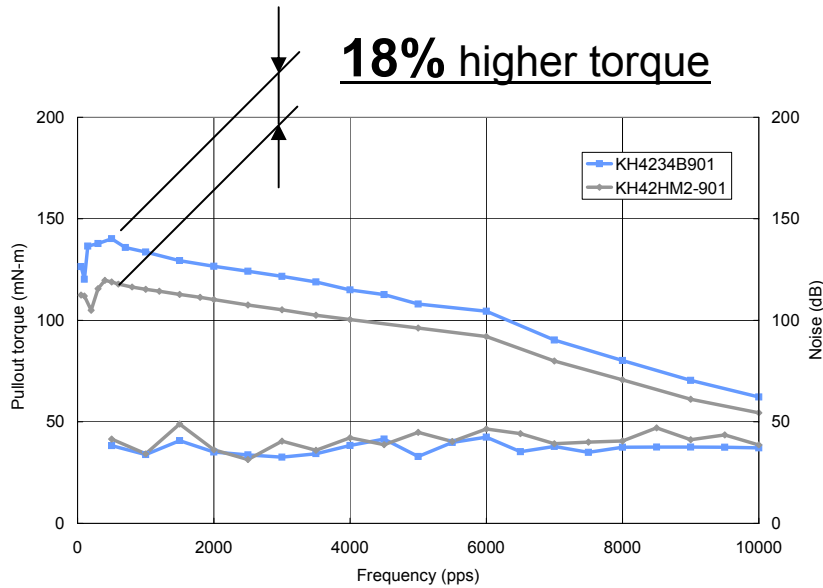
Greater Torque & Higher Speed with New Varied Lineup

RoHS Compliance

# Greater Torque

Our winding technology was improved to achieve greater torque.

While maintaining the same low noise level, the pullout torque has been increased 18% and holding torque has been increased 34.5%.



	Length	Holding torque
	inch (mm)	oz-in (mN-m)
KH42HM2-901	1.34 (34)	20.0 (140)
KH4234-B901	1.34 (34)	26.9 (190)
		<b>34.5% up</b>

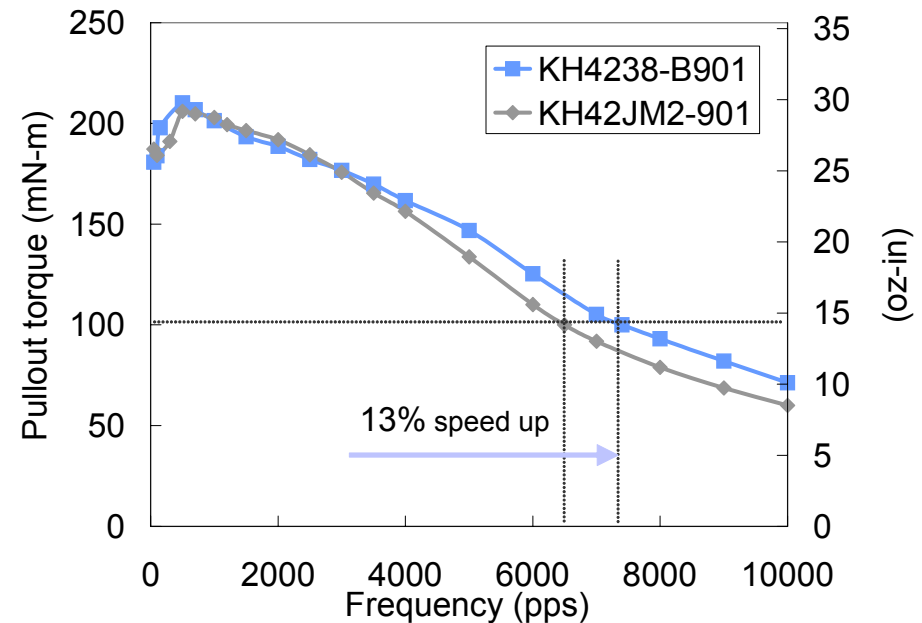
# Higher Speed

The motor windings have been optimized to meet recent demands for operation at higher speeds.

A comparison of driving frequency at 14.17 oz-in (100mNm)

KH42JM2-901: 6500 pps

KH4238-B901: 7400 pps (13% higher speed)



# New Varied Lineup

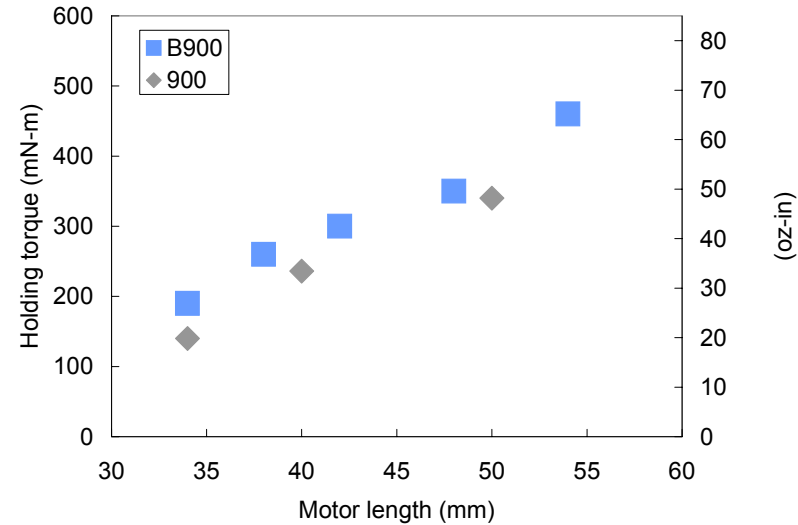
Japan Servo offers new lineup to meet all your various needs. Motor length variation have increased from three to five.

The new 2.13" length stepper can obtain a holding torque 80.8 oz-in (570 mN-m). This is an increase of 41% compared to the current 57 oz-in.

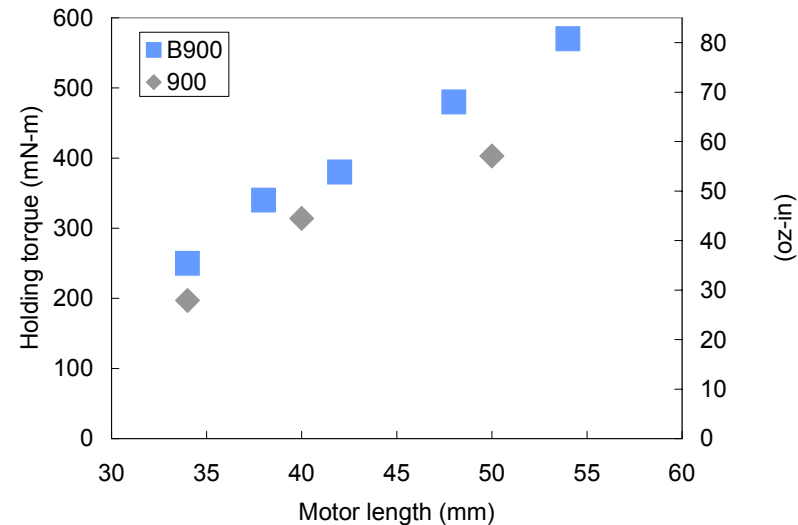
Also a new 1.65" (42 mm) length stepper has been released.

	inch (mm)		inch (mm)
KH42HM2	1.34 (34)	KH4234	1.34 (34)
KH42JM2	1.58 (40)	KH4238	1.50 (38)
		KH4242	1.65 (42)
KH42KM2	1.97 (50)	KH4248	1.89 (48)
		KH4254	2.13 (54)

## Unipolar steppers



## Bipolar steppers



# Motor Specs

## Unipolar

	Step angle deg/step	Motor length inch (mm)	Holding torque oz-in (mN-m)	Rated current A	Rated voltage V	Resistance ohm	Inductance mH	Detent torque oz-in (mN-m)	Rotor inertia (g-cm <sup>2</sup> )
KH4234-B901_ _	1.8	1.34 (34)	26.9 (190)	1.1	2.97	2.7	2.1	1.70 (12)	38
KH4238-B901_ _	1.8	1.50 (38)	36.8 (260)	1.4	3.08	2.2	1.9	2.27 (16)	48
KH4238-B902_ _	1.8	1.50 (38)	36.8 (260)	1.2	3.6	3	2.8	2.27 (16)	48
KH4242-B901_ _	1.8	1.65 (42)	42.5 (300)	1.3	3.38	2.6	2.8	2.55 (18)	59
KH4242-B902_ _	1.8	1.65 (42)	42.5 (300)	1.1	3.74	3.4	4	2.55 (18)	59
KH4248-B901_ _	1.8	1.89 (48)	49.6 (350)	1.2	3.6	3	2.6	3.40 (24)	78
KH4254-B901_ _	1.8	2.13 (54)	65.2 (460)	1.2	4.2	3.5	4.1	4.25 (30)	98

## Bipolar

	Step angle (deg/step)	Motor length inch (mm)	Holding torque oz-in (mN-m)	Rated current (A)	Rated voltage (V)	Resistance (ohm)	Inductance (mH)	Detent torque oz-in (mN-m)	Rotor inertia (g-cm <sup>2</sup> )
KH4234-B951_ _	1.8	1.34 (34)	35.4 (250)	1.1	3.41	3.1	4.4	1.70 (12)	38
KH4238-B951_ _	1.8	1.50 (38)	48.2 (340)	1.2	3.24	2.7	4.9	2.27 (16)	48
KH4242-B951_ _	1.8	1.65 (42)	53.8 (380)	1.1	3.41	3.1	6.9	2.55 (18)	59
KH4248-B951_ _	1.8	1.89 (48)	68.0 (480)	1.5	3.00	2.0	3.6	3.40 (24)	78
KH4254-B951_ _	1.8	2.13 (54)	80.8 (570)	1.4	3.22	2.3	5.0	4.25 (30)	98

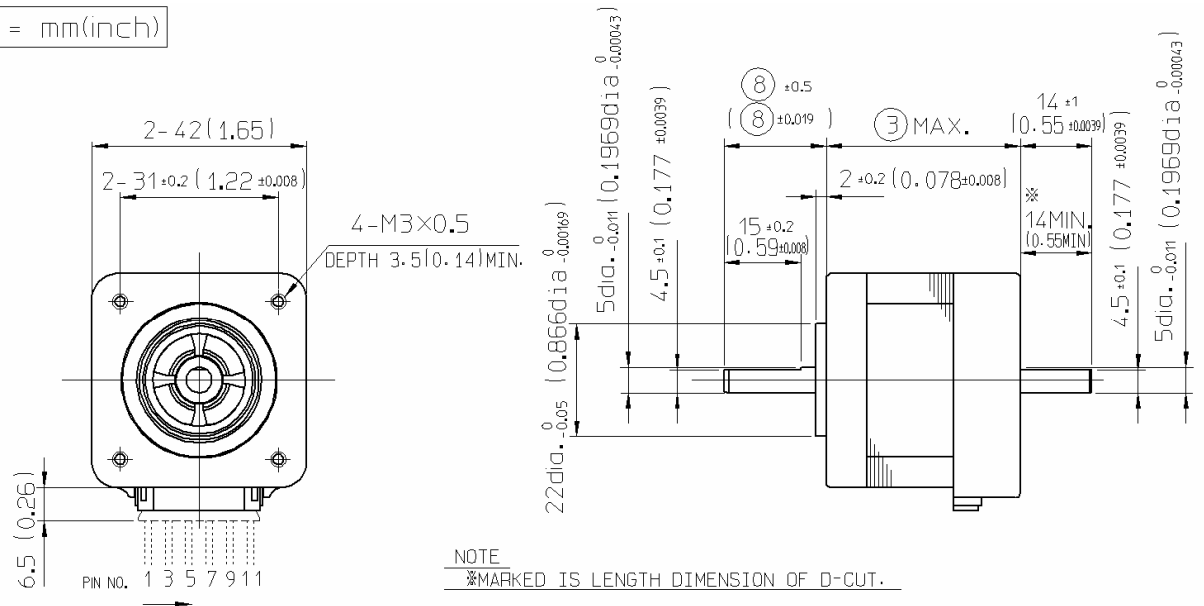
# New Naming Rules

# KH4238-B90101

①      ②      ③      ④      ⑤ ⑥ ⑦ ⑧

1	2 phase HB stepper						
2	Motor size	1.65" sqr (42 mm spr)					
3	Motor length	34: 1.34" (34 mm)	38: 1.50" (38 mm)	42: 1.65" (42 mm)	48: 1.89" (48 mm)	54: 2.13" (54 mm)	
4	Series name	B900 Series					
5	Winding type	0: Unipolar			5: Bipolar		
6	Coil variation code	1 or 2					
7	Single/Double shaft	0: Single shaft			1: Double shaft		
8	Shaft length	1: 0.79" (20 mm)	2: 0.95" (24 mm)			3: 0.63" (16 mm)	

UNIT = mm(inch)



# Lead assembly

Lead assembly is not attached to B900 series.  
Please order separately.

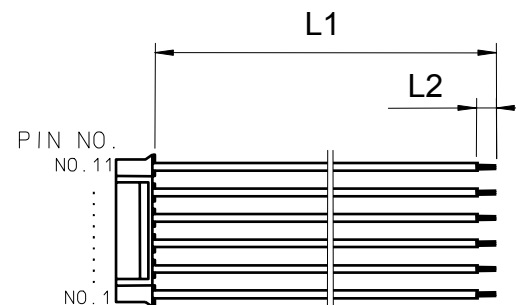
## For Unipolar stepper

	Lead length L1 inch(mm)	Strip length L2 inch(mm)
X112D09055	11.81 +1.58/-0 (300 +40/-0)	1.57 (3.5)
X112D09086	23.62 +1.58/-0 (600 +40/-0)	1.57 (3.5)

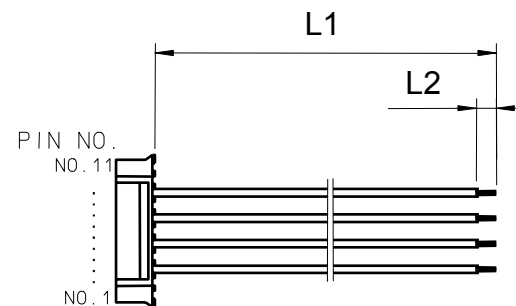
## For Bipolar stepper

	Lead length L1 inch(mm)	Strip length L2 inch(mm)
X112D09056	11.81 +1.58/-0 (300 +40/-0)	1.57 (3.5)
X112D09081	23.62 +1.58/-0 (600 +40/-0)	1.57 (3.5)

Housing	PHR-11(JST)
Contact	SPH-002T-P0.5S (JST)
Lead	UL3266 AWG#26



PHR-11 (Pin#)	1	3	5	7	9	11
Phase	A	A com	<u>A</u>	B	B com	<u>B</u>
Collor of lead	Black	Red	Brown	Yellow	Blue	Orange



PHR-11 (Pin#)	3	5	7	9
Phase	A	<u>A</u>	B	<u>B</u>
Collor of lead	Red	Blue	Yellow	White

# Unipolar Steppers



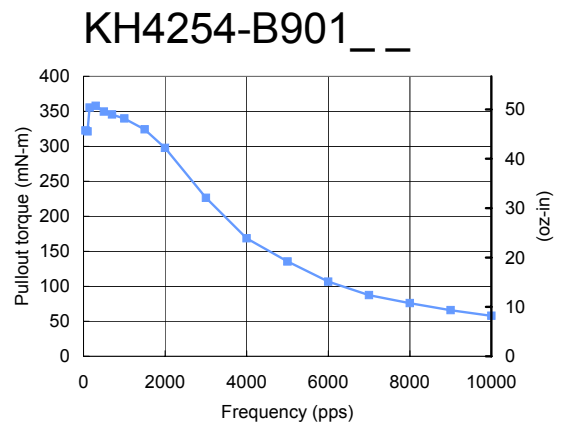
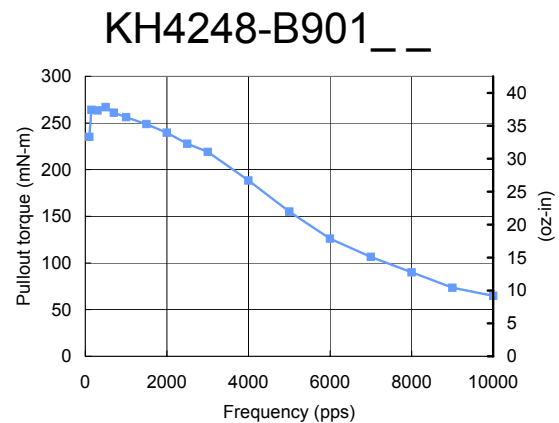
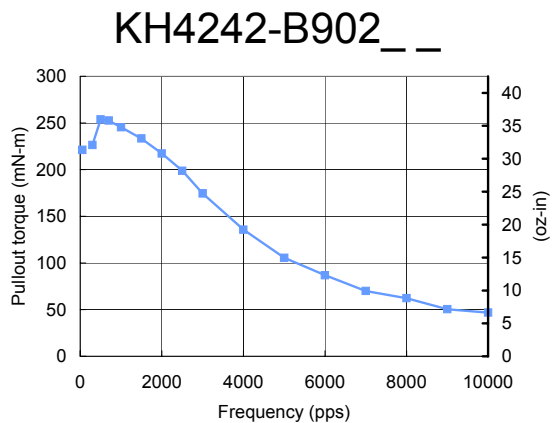
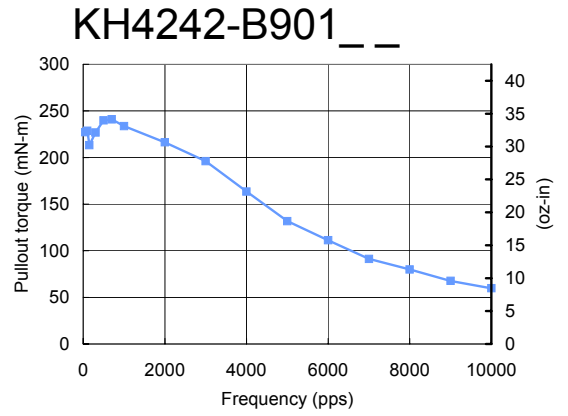
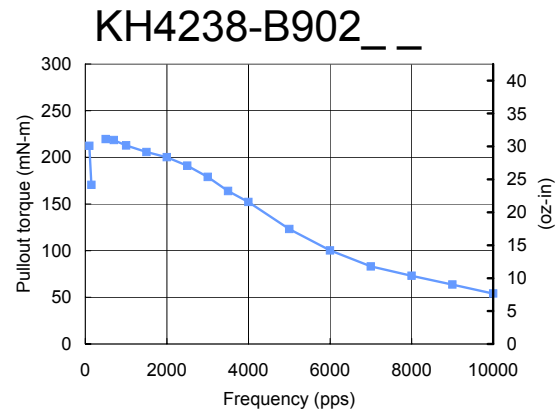
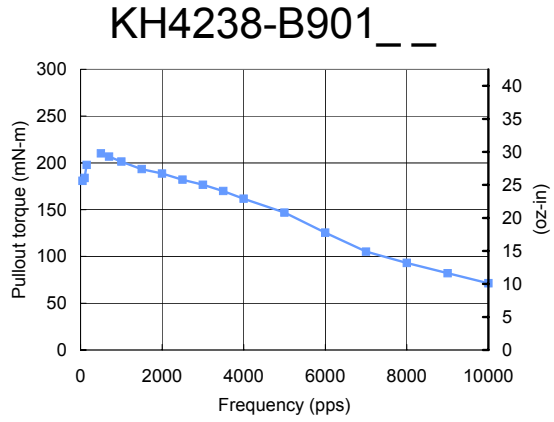
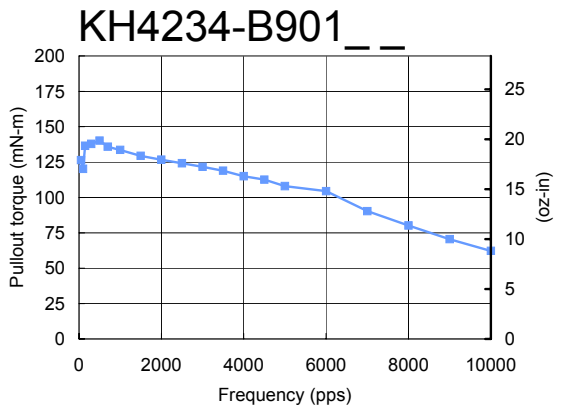
Test conditions

Driving voltage: DC 24 V

Driving current: Rated current

Driver IC: STK672-050 (SANYO)

Excitation: 2 phase excitation





# Bipolar Steppers



## Test conditions

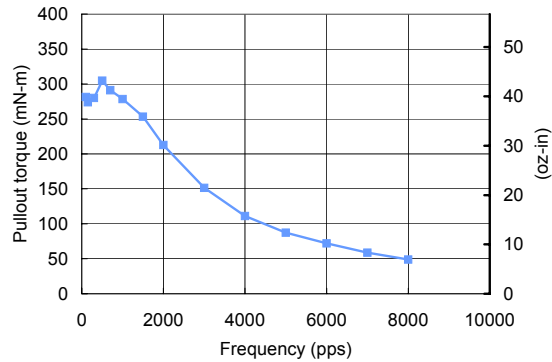
Driving voltage: DC 24 V

Driving current: Rated current

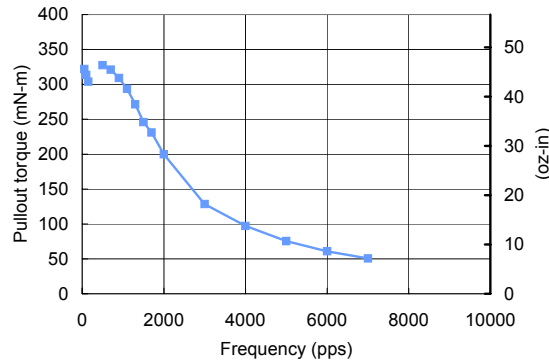
Driver IC: L298N (ST Micro)

Excitation: 2 phase excitation

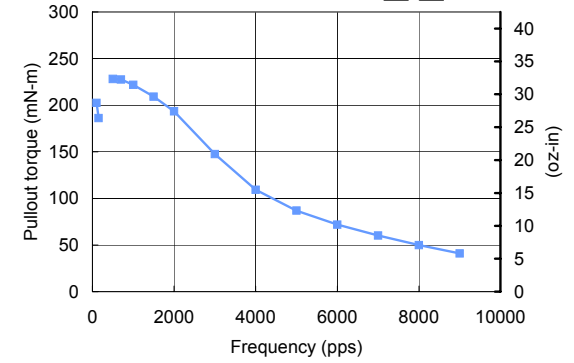
### KH4238-B951\_\_



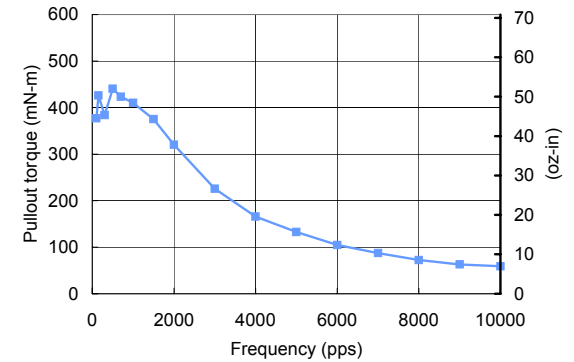
### KH4242-B951\_\_



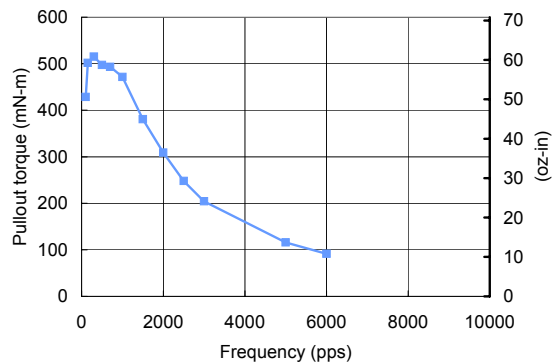
### KH4234-B951\_\_



### KH4248-B951\_\_



### KH4254-B951\_\_



# Basic Specs

Insulation class	UL class B equivalent
Insulation resistance	100M ohm, 500VDC
dielectric strength	500 VAC, 50 Hz, 1 min
Operating temp range	32 to 122 F (0 to 50 degC)
Allowable temp rise	70 K
Thrust load	52.9 oz (1.5 kgf)
Radial load	70.5 oz (2.0 kgf), Point of application of force is 2.54" (10 mm) from tip of shaft
Shaft run out	0.00197" (0.05 mm) (Total indicator reading)