



2-phase Stepping Motor

60mm sq. 103H782 □
(2.36inch sq.) 1.8°/step

Recommendable Driver
Refer to the page 7,17,27 and 45.

Specifications

Unipolar winding

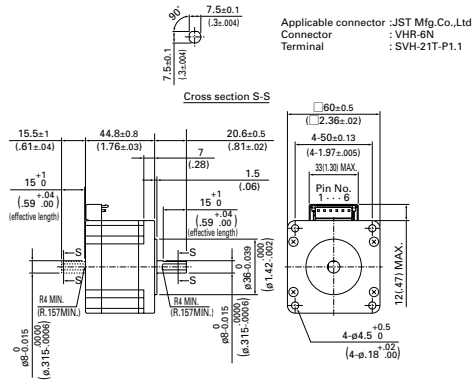
Model		Holding torque at 2-phase energization	Rated current	Resistance	Inductance	Rotor inertia	Mass(Weight)
Single shaft	Double shaft						
103H7821-0140	-0110	0.78(110.5)	1	5.7	8.3	0.275(1.50)	0.6(1.32)
103H7821-0440	-0410	0.78(110.5)	2	1.5	2	0.275(1.50)	0.6(1.32)
103H7821-0740	-0710	0.78(110.5)	3	0.68	0.8	0.275(1.50)	0.6(1.32)
103H7822-0140	-0110	1.17(165.7)	1	6.9	14	0.4(2.19)	0.77(1.70)
103H7822-0440	-0410	1.17(165.7)	2	1.8	3.6	0.4(2.19)	0.77(1.70)
103H7822-0740	-0710	1.17(165.7)	3	0.8	1.38	0.4(2.19)	0.77(1.70)
103H7823-0140	-0110	2.1(297.4)	1	10	21.7	0.84(4.59)	1.34(2.95)
103H7823-0440	-0410	2.1(297.4)	2	2.7	5.6	0.84(4.59)	1.34(2.95)
103H7823-0740	-0710	2.1(297.4)	3	1.25	2.4	0.84(4.59)	1.34(2.95)

Bipolar winding

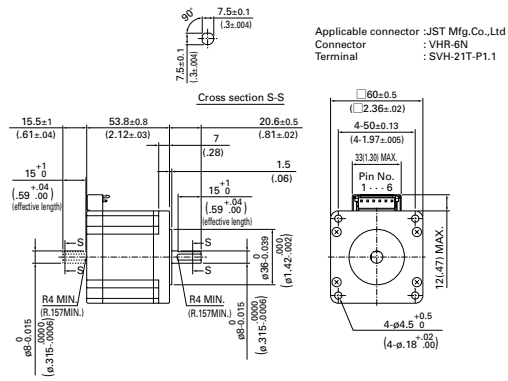
Model		Holding torque at 2-phase energization	Rated current	Resistance	Inductance	Rotor inertia	Mass(Weight)
Single shaft	Double shaft						
103H7821-1740	-1710	0.88(124.6)	4	0.35	0.8	0.275(1.50)	0.6(1.32)
103H7822-1740	-1710	1.37(194.0)	4	0.43	1.38	0.4(2.19)	0.77(1.70)
103H7823-1740	-1710	2.7(382.3)	4	0.65	2.4	0.84(4.59)	1.34(2.95)

Dimensions [Unit:mm(inch)]

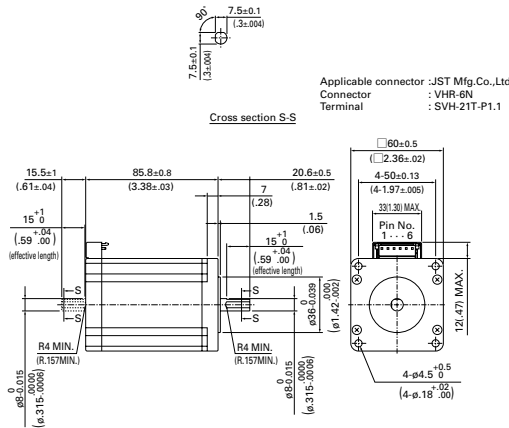
103H7821-0140/0440/0740 (Single shaft)
103H7821-0110/0410/0710 (Double shaft)



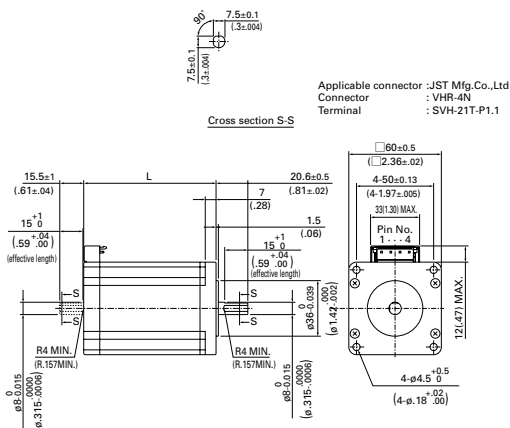
103H7822-0140/0440/0740 (Single shaft)
103H7822-0110/0410/0710 (Double shaft)



103H7823-0140/0440/0740 (Single shaft)
103H7823-0110/0410/0710 (Double shaft)



Bipolar winding
103H7821-1740/103H7822-1740/103H7823-1740(Single shaft)
103H7821-1710/103H7822-1710/103H7823-1710(Double shaft)

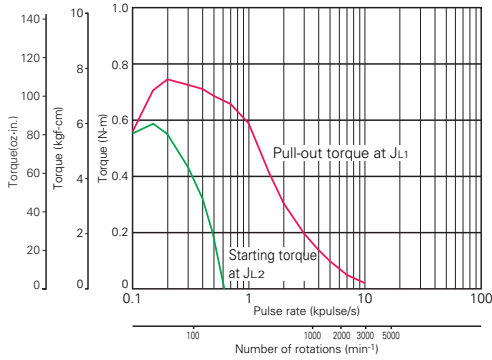


Model	L
103H7821-□□□□	44.8±0.8 (1.76±0.03)
103H7822-□□□□	53.8±0.8 (2.12±0.03)
103H7823-□□□□	85.8±0.8 (3.38±0.03)

39mm(1.54)/0.9
42mm(1.65)/0.9
29mm(1.10)/1.8
35mm(1.38)/1.8
42mm(1.65)/1.8
50mm(1.97)/1.8
56mm(2.20)/1.8
60mm(2.36)/1.8
86mm(3.39)/1.8
φ106mm(4.17)/1.8
56mm(2.20)/CE
86mm(3.39)/CE
φ106mm(4.17)/CE
Specifications of 2-phase stepping motor
In-vacuum stepping motor
2-phase synchronous motor

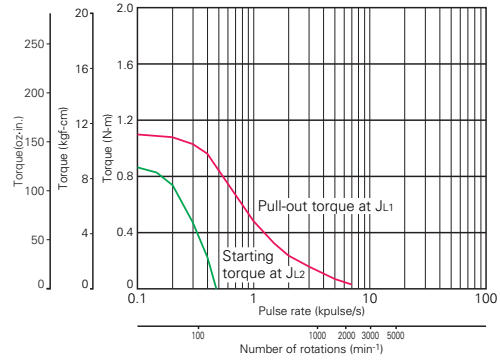
Pulse Rate - Torque Characteristics

● 103H7821-0140



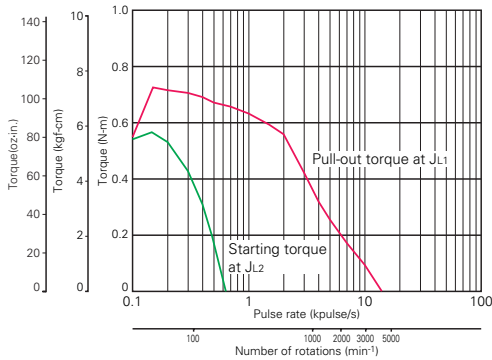
Sanyo constant current circuit
 Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
 $J_{L1}=[0.94 \times 10^{-4} \text{kg}\cdot\text{m}^2 (5.14 \text{oz}\cdot\text{in}^2)]$ Use the rubber coupling]
 $J_{L2}=[0.8 \times 10^{-4} \text{kg}\cdot\text{m}^2 (4.37 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

● 103H7822-0140



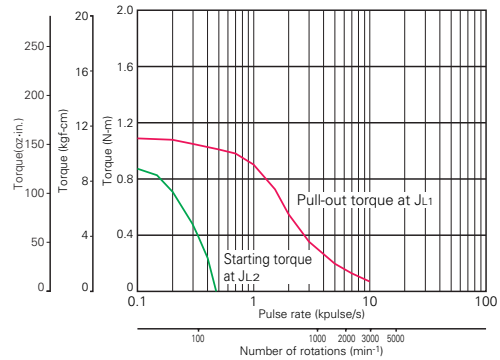
Sanyo constant current circuit
 Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
 $J_{L1}=[7.4 \times 10^{-4} \text{kg}\cdot\text{m}^2 (40.46 \text{oz}\cdot\text{in}^2)]$ Use the rubber coupling]
 $J_{L2}=[7.4 \times 10^{-4} \text{kg}\cdot\text{m}^2 (40.46 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

● 103H7821-0440



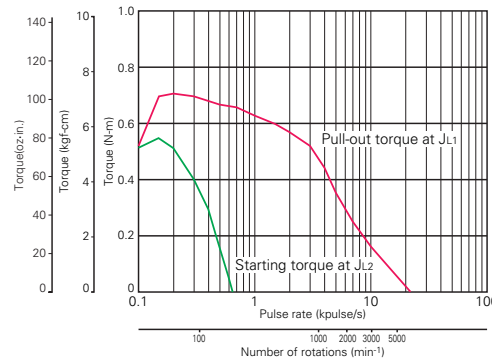
Sanyo constant current circuit
 Source voltage: DC24V Operating current: 2A/phase, 2-phase energization (full-step)
 $J_{L1}=[0.94 \times 10^{-4} \text{kg}\cdot\text{m}^2 (5.14 \text{oz}\cdot\text{in}^2)]$ Use the rubber coupling]
 $J_{L2}=[0.8 \times 10^{-4} \text{kg}\cdot\text{m}^2 (4.37 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

● 103H7822-0440



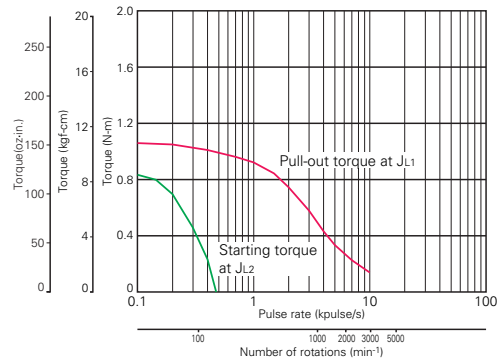
Sanyo constant current circuit
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 $J_{L2}=[7.4 \times 10^{-4} \text{kg}\cdot\text{m}^2 (40.46 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

● 103H7821-0740



Sanyo constant current circuit
 Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
 $J_{L1}=[0.94 \times 10^{-4} \text{kg}\cdot\text{m}^2 (5.14 \text{oz}\cdot\text{in}^2)]$ Use the rubber coupling]
 $J_{L2}=[0.8 \times 10^{-4} \text{kg}\cdot\text{m}^2 (4.37 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

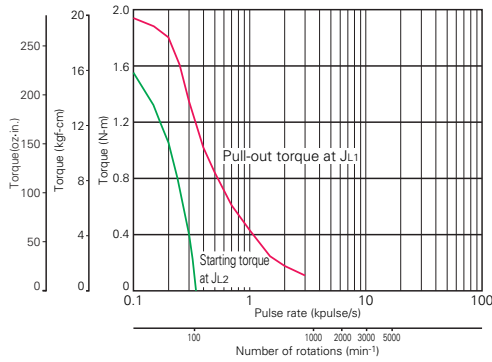
● 103H7822-0740



Sanyo constant current circuit
 Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
 $J_{L1}=[7.4 \times 10^{-4} \text{kg}\cdot\text{m}^2 (40.46 \text{oz}\cdot\text{in}^2)]$ Use the rubber coupling]
 $J_{L2}=[7.4 \times 10^{-4} \text{kg}\cdot\text{m}^2 (40.46 \text{oz}\cdot\text{in}^2)]$ Use the direct coupling]

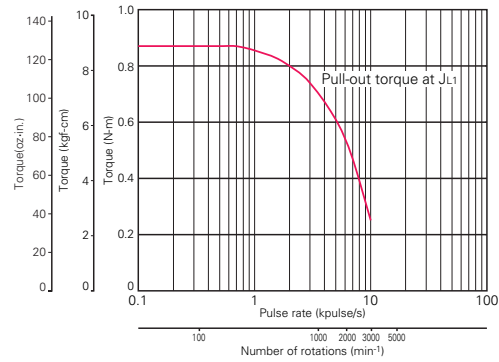
Pulse Rate - Torque Characteristics

● 103H7823-0140



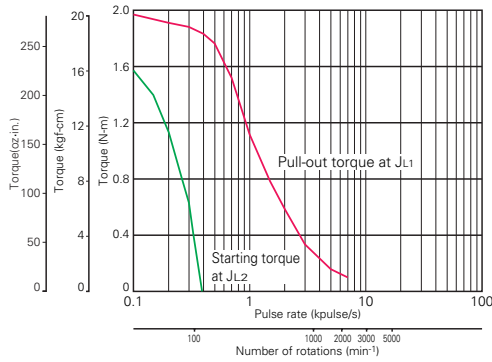
Sanyo constant current circuit
 Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
 J_{L1}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the rubber coupling]
 J_{L2}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the direct coupling]

● 103H7821-1740



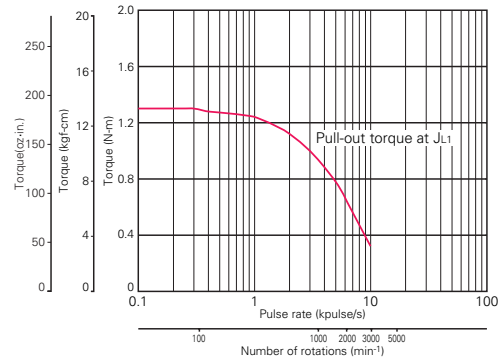
Sanyo constant current circuit
 Source voltage: AC100V Operating current: 4A/phase, 2-phase energization (full-step)
 J_{L1}=[2.6x10⁻⁴kg·m² (14.22 oz-in²) Use the rubber coupling]

● 103H7823-0440



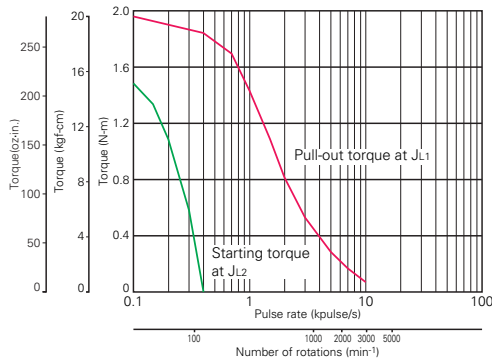
Sanyo constant current circuit
 Source voltage: DC24V Operating current: 2A/phase, 2-phase energization (full-step)
 J_{L1}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the rubber coupling]
 J_{L2}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the direct coupling]

● 103H7822-1740



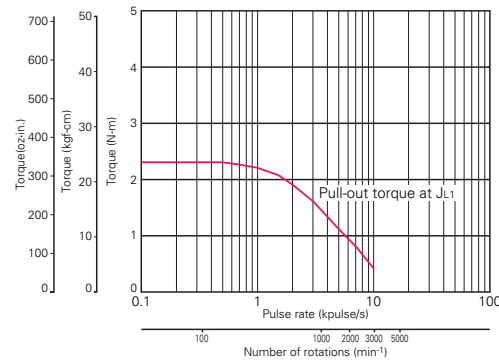
Sanyo constant current circuit
 Source voltage: AC100V Operating current: 4A/phase, 2-phase energization (full-step)
 J_{L1}=[2.6x10⁻⁴kg·m² (14.22 oz-in²) Use the rubber coupling]

● 103H7823-0740



Sanyo constant current circuit
 Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
 J_{L1}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the rubber coupling]
 J_{L2}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the direct coupling]

● 103H7823-1740



Sanyo constant current circuit
 Source voltage: AC100V Operating current: 4A/phase, 2-phase excitation (full-step)
 J_{L1}=[7.4x10⁻⁴kg·m² (40.46 oz-in²) Use the rubber coupling]

- 39mm(1.54)/0.9
- 42mm(1.65)/0.9
- 29mm(1.10)/1.8
- 35mm(1.38)/1.8
- 42mm(1.65)/1.8
- 50mm(1.97)/1.8
- 56mm(2.20)/1.8
- 60mm(2.36)/1.8
- 86mm(3.39)/1.8
- 106mm(4.17)/1.8
- 56mm(2.20)/CE
- 86mm(3.39)/CE
- 106mm(4.17)/CE
- Specifications of 2-phase stepping motor
- In-vacuum stepping motor
- 2-phase synchronous motor

2-phase Stepping Driver



PMM-UA-4303-1

AC100V

Unipolar type

(Applicable motor rated current 1.2A/phase, 2A/phase)

Full-step / Half-step

(200 x 1 division) (200 x 2 division)

● Applicable motor



PMM-UA-4304-1

AC100V

Unipolar high-speed type

(Applicable motor rated current 4A/phase)

Full-step / Half-step

(200 x 1 division) (200 x 2 division)

● Applicable motor



Standard combined stepping motors

PMM-UA-4303-1

Dimensions of stepping motor	Stepping motor model number		Rated current [A/phase]	Holding torque [N·m(oz·in)]	Rotor inertia [x 10 ⁻⁴ kg·m ² (oz·in ²)]	Mass(Weight) [kg(lbs)]	Page
	Single shaft	Double shaft					
□42mm (1.65inch)	103H5205-0440	103H5205-0410	1.2	0.2(28.32)	0.036(0.20)	0.23(0.51)	69 Page
	103H5208-0440	103H5208-0410	1.2	0.3(42.48)	0.056(0.31)	0.29(0.64)	
	103H5209-0440	103H5209-0410	1.2	0.32(45.31)	0.062(0.34)	0.31(0.68)	
	103H5210-0440	103H5210-0410	1.2	0.37(52.39)	0.074(0.40)	0.37(0.82)	
□50mm (1.97inch)	103H6701-0440	103H6701-0410	2	0.28(39.6)	0.057(0.31)	0.35(0.77)	75 Page
	103H6703-0440	103H6703-0410	2	0.49(69.4)	0.118(0.65)	0.5(1.10)	
	103H6704-0440	103H6704-0410	2	0.52(73.6)	0.14(0.77)	0.55(1.21)	
□56mm (2.20inch)	103H7121-0440	103H7121-0410	2	0.39(55.2)	0.1(0.55)	0.47(1.04)	79 Page
	103H7123-0440	103H7123-0410	2	0.83(117.5)	0.21(1.15)	0.65(1.43)	
	103H7124-0440	103H7124-0410	2	0.98(138.8)	0.245(1.34)	0.8(1.76)	
	103H7126-0440	103H7126-0410	2	1.27(179.8)	0.36(1.97)	0.98(2.16)	
□60mm (2.36inch)	103H7821-0440	103H7821-0410	2	0.78(110.5)	0.275(1.50)	0.6(1.32)	87 Page
	103H7822-0440	103H7822-0410	2	1.17(165.7)	0.4(2.19)	0.77(1.70)	
	103H7823-0440	103H7823-0410	2	2.1(297.4)	0.84(4.59)	1.34(2.95)	
ø86mm (3.39inch)	103H8221-0441	103H8221-0411	2	2.15(304.5)	1.45(7.93)	1.5(3.31)	91 Page
	103H8222-0441	103H8222-0411	2	4.13(584.8)	2.9(15.86)	2.5(5.51)	
	103H8223-0441	103H8223-0411	2	6.27(887.9)	4.4(24.06)	3.5(7.72)	

• For information about the general specifications and dimensions of each stepping motor, refer to its page.

PMM-UA-4304-1

Dimensions of stepping motor	Stepping motor model number		Rated current [A/phase]	Holding torque [N·m(oz·in)]	Rotor inertia [x 10 ⁻⁴ kg·m ² (oz·in ²)]	Mass(Weight) [kg(lbs)]	Page
	Single shaft	Double shaft					
ø86mm (3.39inch)	103H8221-0941	103H8221-0911	4	2.15(304.5)	1.45(7.93)	1.5(3.31)	91 Page
	103H8222-0941	103H8222-0911	4	4.13(584.8)	2.9(15.86)	2.5(5.51)	
	103H8223-0941	103H8223-0911	4	6.27(887.9)	4.4(24.06)	3.5(7.72)	
ø106mm (4.17inch)	103H8922-0941	103H8922-0911	4	10.8(1529.4)	14.6(79.83)	7.5(16.53)	97 Page
	103H8923-0941	103H8923-0911	4	15.5(2194.9)	22(120.28)	10.5(23.15)	

• For information about the general specifications and dimensions of each stepping motor, refer to its page.