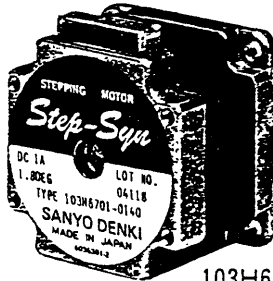


# 2 Phase H series

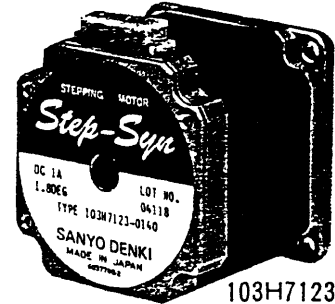
1.8 Degree Step



103H546-0440



103H6701-0140



103H7123-0140

### [42 Square type]

Model number	Shaft	Step Angle Degree/Step	Voltage V	Current A/Phase	Resistance Ω/Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight g	Lead code	Availability
103H546-0440 (0410)	Single shaft (Double shaft)	1.8	3.15	1	3.15	2.8	1.5	30	0.2	I	○
103H548-0440 (0410)	Single shaft (Double shaft)	1.8	3.6	1.2	3	4.3	2.7	58	0.28	I	○

### [50 Square type]

Model number	Shaft	Step Angle Degree/Step	Voltage V	Current A/Phase	Resistance Ω/Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight g	Lead code	Availability
103H6701-0140 (0110)	Single shaft (Double shaft)	1.8	4.3	1	4.3	6.8	2.9	57	350	I	○
103H6701-0440 (0410)	Single shaft (Double shaft)	1.8	2.2	2	1.1	1.6	2.9	57	350	I	○
103H6701-0740 (0710)	Single shaft (Double shaft)	1.8	1.8	3	0.6	0.7	2.9	118	350	I	○
103H6703-0140 (0110)	Single shaft (Double shaft)	1.8	6	1	6	13	5	118	500	I	○
103H6703-0440 (0410)	Single shaft (Double shaft)	1.8	3.2	2	1.6	3.2	5	118	500	I	○
103H6703-0740 (0710)	Single shaft (Double shaft)	1.8	2.5	3	0.83	1.4	5	118	500	I	○
103H6704-0140 (0110)	Single shaft (Double shaft)	1.8	6.5	1	6.5	16.5	5.4	140	550	I	○
103H6704-0440 (0410)	Single shaft (Double shaft)	1.8	3.4	2	1.7	3.8	5.4	140	550	I	○
103H6704-0740 (0710)	Single shaft (Double shaft)	1.8	2.7	3	0.9	1.7	5.4	140	550	I	○

### [56 Square type]

Model number	Shaft	Step Angle Degree/Step	Voltage V	Current A/Phase	Resistance Ω/Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight g	Lead code	Availability
103H7121-0140 (0110)	Single shaft (Double shaft)	1.8	4.8	1	4.8	9.3	4	100	470	I	○
103H7121-0440 (0410)	Single shaft (Double shaft)	1.8	2.5	2	1.25	1.9	4	100	470	I	○
103H7121-0740 (0710)	Single shaft (Double shaft)	1.8	1.8	3	0.6	0.8	4	100	470	I	○
103H7123-0140 (0110)	Single shaft (Double shaft)	1.8	6.7	1	6.7	15	8.5	210	650	I	○
103H7123-0440 (0410)	Single shaft (Double shaft)	1.8	3.2	2	1.6	3.8	8.5	210	650	I	○
103H7123-0740 (0710)	Single shaft (Double shaft)	1.8	2.3	3	0.77	1.58	8.5	210	650	I	○
103H7126-0140 (0110)	Single shaft (Double shaft)	1.8	8.6	1	8.6	19	13	360	980	I	○
103H7126-0440 (0410)	Single shaft (Double shaft)	1.8	4	2	2	4.5	13	360	980	I	○
103H7126-0740 (0710)	Single shaft (Double shaft)	1.8	2.75	3	0.9	2.2	13	360	980	I	○

### [86 Dia type]

Model number	Shaft	Step Angle Degree/Step	Voltage V	Current A/Phase	Resistance Ω/Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight g	Lead code	Availability
103H8221-5041 (5011)	Single shaft (Double shaft)	1.8	4.6	2	2.3	14	28	1,450	1,500	II	○
103H8221-5141 (5111)	Single shaft (Double shaft)	1.8	2.4	4	0.6	3.5	28	1,450	1,500	II	○
103H8222-5041 (5011)	Single shaft (Double shaft)	1.8	5.4	2	2.7	23	50	2,900	2,500	II	○
103H8222-5141 (5111)	Single shaft (Double shaft)	1.8	2.8	4	0.7	5.7	50	2,900	2,500	II	○
103H8223-5041 (5011)	Single shaft (Double shaft)	1.8	7.2	2	3.6	32.5	70	4,400	3,500	II	○
103H8223-5141 (5111)	Single shaft (Double shaft)	1.8	3.6	4	0.9	8.1	70	4,400	3,500	II	○

### [106 Dia type]

Model number	Shaft	Step Angle Degree/Step	Voltage V	Current A/Phase	Resistance Ω/Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight g	Lead code	Availability
103H89221-5241 (5211)	Single shaft (Double shaft)	1.8	2.4	6	0.4	4.3	70	7,900	4,200	II	○
103H89222-5241 (5211)	Single shaft (Double shaft)	1.8	2.5	6	0.42	5.4	120	14,600	7,500	II	○
103H89223-5241 (5211)	Single shaft (Double shaft)	1.8	3.9	6	0.65	8.5	170	22,000	10,500	II	○

### Common ratings

Dielectric strength: 900VAC

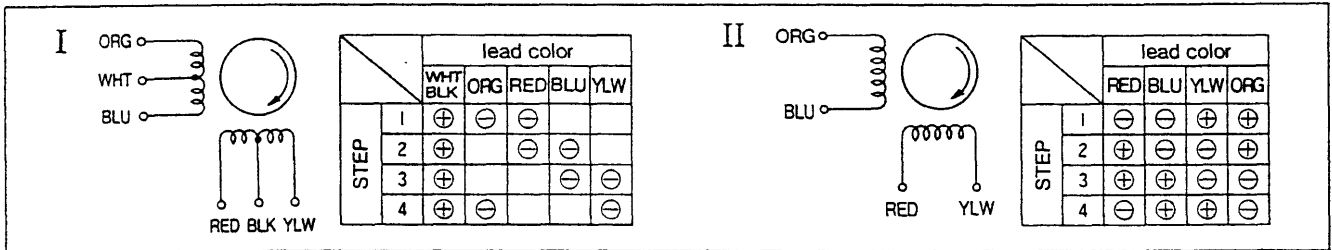
Insulation resistance: 100MΩ (500VDC)

Insulation: class B

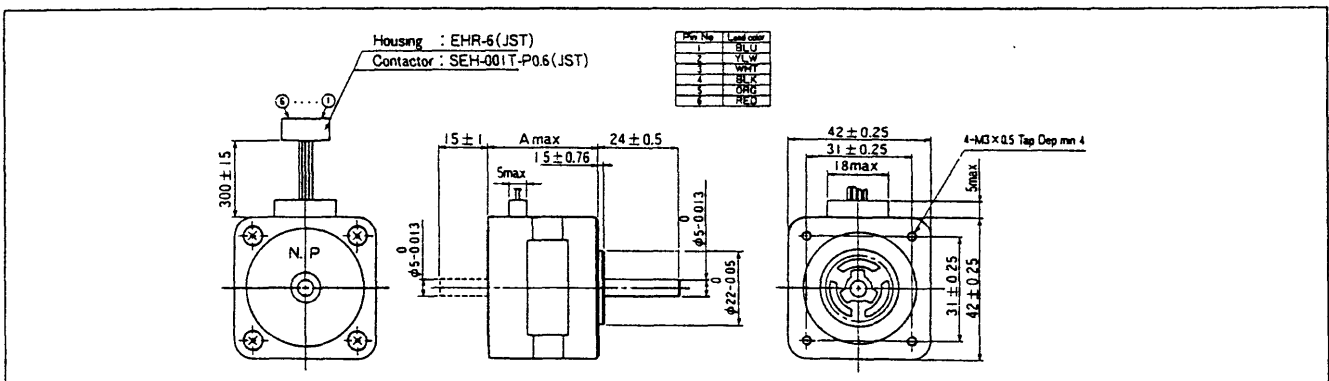
Radial play: 0.025mm max. (Load 450g)

Axial play : 0.075mm max. (Load 920g)

### Internal connection and rotating direction (viewed from mounting side)

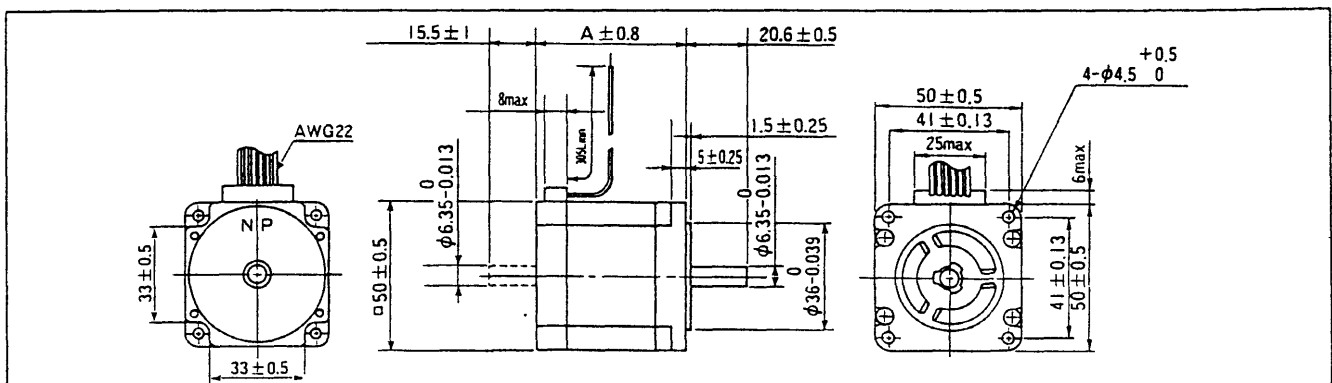


### Dimensions



Size of 42 square types (mm)

Model number	A
103H546-□□□□	32
103H548-□□□□	41



Size of 50 square types (mm)

Model number	A
103H6701-□□□□	39.8
103H6703-□□□□	51.3
103H6704-□□□□	55.8

# SPECIFICATIONS OF H-SERIES PENTA SYN

# STEPPING MOTOR

## Standard type Step Syn (H Series)

Model number	Step Angle Degree/Step	Current A/Phase	Resistance $\Omega$ /Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight kg	Dimension mm	Driver model No.
103H6500-7041 ((7011))	0.72	0.75	1.52	3.3	2.3	0.057	0.38	$\phi 50 \times 39.8$	PMM-BA-5603 PMM-BA-5643
103H7521-7051 (7021)	0.72	0.75	2.4	4.3	4.7	0.148	0.51	$\phi 60 \times 44.8$	
103H7522-7051 (7021)	0.72	0.75	3.3	7.5	8.5	0.18	0.6	$\phi 60 \times 53.8$	
103H7523-7051 (7021)	0.72	0.75	5.2	21	19	0.423	1.1	$\phi 60 \times 85.8$	
103H8581-7041 (7011)	0.72	0.75	5.7	25	21	1.45	1.5	$\phi 85.85 \times 62$	
103H8582-7041 (7011)	0.72	0.75	8.6	41	41	2.9	2.5	$\phi 85.85 \times 92.2$	
103H8583-7041 (7011)	0.72	0.75	10.5	59	63	4.4	3.5	$\phi 85.85 \times 125.9$	
103H89581-7041 (7011)	0.72	0.75	7	56	60	7.9	4.2	$\phi 106.4 \times 104.3$	
103H89582-7041 (7011)	0.72	0.75	9	90	110	14.6	7.5	$\phi 106.4 \times 163.3$	
103H89583-7041 (7011)	0.72	0.75	12.5	125	160	22	10.5	$\phi 106.4 \times 221.3$	

## High speed Type Step Syn (H Series)

Model number	Step Angle Degree/Step	Current A/Phase	Resistance $\Omega$ /Phase	Inductance mH/Phase	Holding torque kg·cm	Rotor inertia g·cm <sup>2</sup>	Weight kg	Dimensions mm	Driver model No.
103H6500-8041 ((8011))	0.72	1.5	0.38	0.85	2.3	0.057	0.38	$\phi 50 \times 39.8$	PMM-BA-5604 PMM-BA-5644
103H7521-8051 ((8021))	0.72	1.5	0.6	1.1	4.7	0.148	0.51	$\phi 60 \times 44.8$	
103H7522-8051 ((8021))	0.72	1.5	0.75	2	8.5	0.18	0.6	$\phi 60 \times 53.8$	
103H7523-8051 ((8021))	0.72	1.5	1.5	5.4	19	0.423	1.1	$\phi 60 \times 85.8$	
103H8581-8041 ((8011))	0.72	1.5	8.8	39.5	21	1.45	1.5	$\phi 85.85 \times 62$	
103H8582-8041 ((8011))	0.72	1.5	9.2	53	41	2.9	2.5	$\phi 85.85 \times 92.2$	
103H8683-8041 ((8011))	0.72	1.5	10.5	59	63	4.4	3.5	$\phi 85.85 \times 125.9$	
103H89581-8041 (8011)	0.72	1.5	7	56	60	7.9	4.2	$\phi 106.4 \times 104.3$	
103H89582-8041 (8011)	0.72	1.5	9	90	110	14.6	7.5	$\phi 106.4 \times 163.3$	
103H89583-8041 (8011)	0.72	1.5	12.5	125	160	22	10.5	$\phi 106.4 \times 221.3$	

\* The half-step angle is half of the full-step angle. The models in parentheses are of the double-ended shaft type.

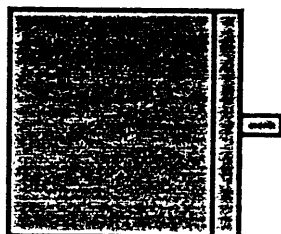
\* The indicated characteristics are those obtained when combined with the PM Driver for Penta Syn.

## Specifications (Common in Step Syn)

- Number of phases.....5
- Dielectric strength.....1000 VAC, 50/60Hz
- Insulation resistance.....1000M ohms min.(500VDC)
- Insulation.....Class B

## Comparison with Conventional types

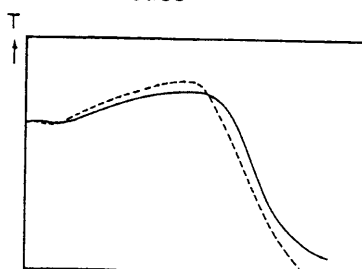
Comparison of Outline



H series

Conventional

Frequency vs torque characteristics



H-

Conventional

103H7522-7051 (H series)		103-7516-7041 (Conventional)	
$\phi 60 \times 53.8L$	Outline (mm)	$\phi 60 \times 82.5L$	
0.6	Weight (kg)	1.1	
8.5	Holding torque (kg·cm)	8.5	
0.72	Step Angle (degree/step)	0.72	
0.75	Current (A/phase)	0.75	
3.3	Resistance ( $\Omega$ /phase)	4.8	
7.5	Inductance (mH/phase)	17.2	
0.18	Rotor Inertia (kg·cm <sup>2</sup> )	0.235	