

2-phase stepping motor

28mmsq. (1.10inch sq.)

103H32 □□
1.8° /step

Unipolar winding • Connector type

Model		Holding torque at 2-phase energization [N · m (oz · in) MIN.]	Rated current A/phase	Wiring resistance Ω /phase	Winding inductance mH/phase	Rotor inertia [×10 ⁻⁴ kg · m ² (oz · in ²)]	Mass (Weight) [kg (lbs)]
Single shaft	Double shafts						
103H3205-5040	-5010	0.032 (4.53)	0.25	40	9.1	0.009 (0.05)	0.11 (0.24)
103H3205-5140	-5110	0.032 (4.53)	0.5	9.4	2.4	0.009 (0.05)	0.11 (0.24)
103H3215-5140	-5110	0.062 (8.78)	0.5	11	3.1	0.016 (0.09)	0.2 (0.44)
103H3215-5240	-5210	0.062 (8.78)	1	2.6	0.8	0.016 (0.09)	0.2 (0.44)

Unipolar winding • Lead wire type

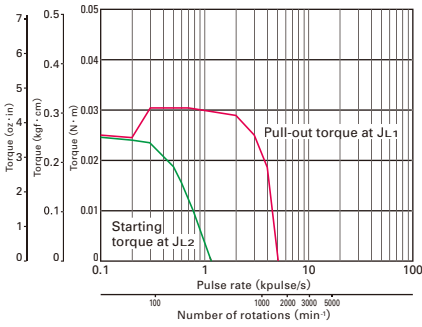
Model		Holding torque at 2-phase energization [N · m (oz · in) MIN.]	Rated current A/phase	Wiring resistance Ω /phase	Winding inductance mH/phase	Rotor inertia [×10 ⁻⁴ kg · m ² (oz · in ²)]	Mass (Weight) [kg (lbs)]
Single shaft	Double shafts						
103H3205-5070	-5030	0.032 (4.53)	0.25	40	9.1	0.009 (0.05)	0.11 (0.24)
103H3205-5170	-5130	0.032 (4.53)	0.5	9.4	2.4	0.009 (0.05)	0.11 (0.24)
103H3205-5270	-5230	0.032 (4.53)	1	2.4	0.53	0.009 (0.05)	0.11 (0.24)
103H3215-5170	-5130	0.062 (8.78)	0.5	11	3.1	0.016 (0.09)	0.2 (0.44)
103H3215-5270	-5230	0.062 (8.78)	1	2.6	0.8	0.016 (0.09)	0.2 (0.44)

Bipolar winding • Lead wire type

Model		Holding torque at 2-phase energization [N · m (oz · in) MIN.]	Rated current A/phase	Wiring resistance Ω /phase	Winding inductance mH/phase	Rotor inertia [×10 ⁻⁴ kg · m ² (oz · in ²)]	Mass (Weight) [kg (lbs)]
Single shaft	Double shafts						
103H3205-5570	-5530	0.048 (6.80)	0.25	38.3	19.5	0.009 (0.05)	0.11 (0.24)
103H3205-5670	-5630	0.051 (7.22)	0.5	10.4	5.8	0.009 (0.05)	0.11 (0.24)
103H3205-5770	-5730	0.051 (7.22)	1	2.5	1.45	0.009 (0.05)	0.11 (0.24)
103H3215-5570	-5530	0.09 (12.74)	0.25	51.8	30.7	0.016 (0.09)	0.2 (0.44)
103H3215-5670	-5630	0.09 (12.74)	0.5	12.5	8	0.016 (0.09)	0.2 (0.44)
103H3215-5770	-5730	0.1 (14.16)	1	3.5	2.3	0.016 (0.09)	0.2 (0.44)

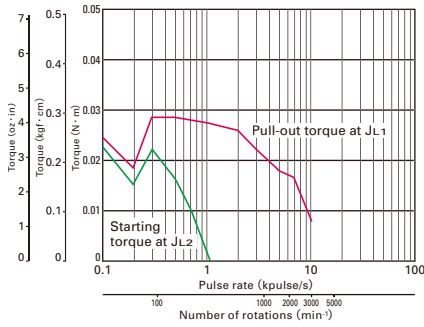
Pulse rate-torque characteristics

103H3205-50



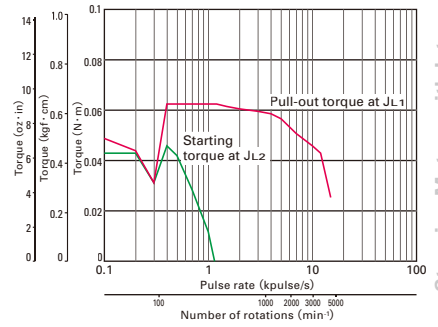
Constant current circuit
 Source voltage : DC24V · operating current : 0.25A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3205-51



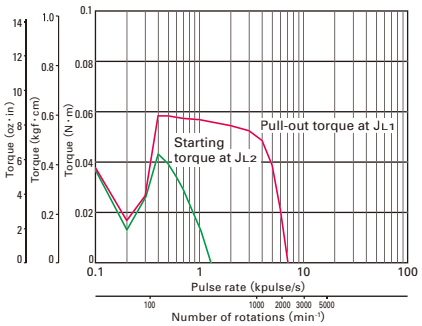
Constant current circuit
 Source voltage : DC24V · operating current : 0.5A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3205-52



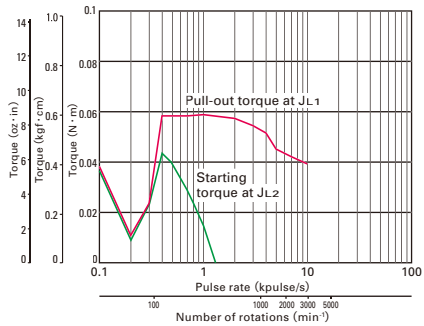
Constant current circuit
 Source voltage : DC24V · operating current : 0.5A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3215-51



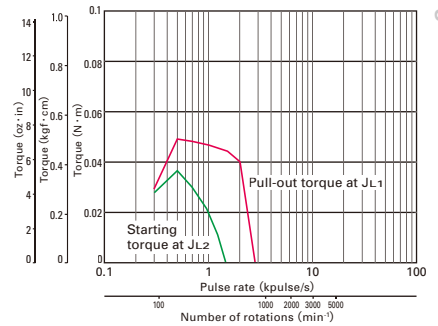
Constant current circuit
 Source voltage : DC24V · operating current : 0.5A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3215-52



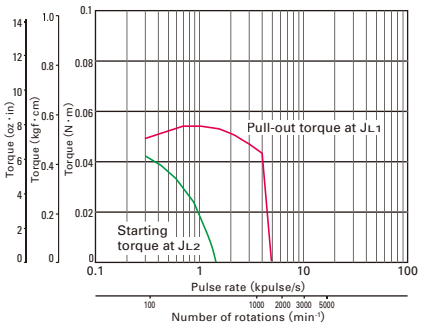
Constant current circuit
 Source voltage : DC24V · operating current : 1A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3205-55



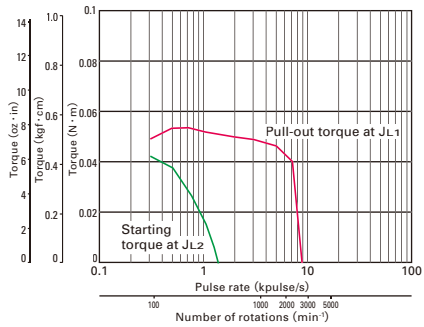
Constant current circuit
 Source voltage : DC24V · operating current : 0.25A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3205-56



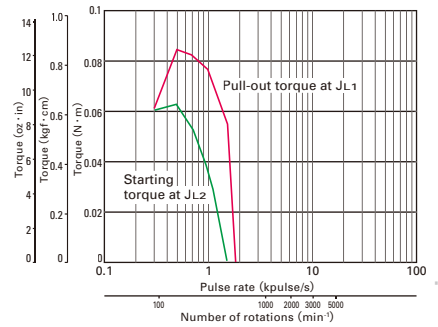
Constant current circuit
 Source voltage : DC24V · operating current : 0.5A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3205-57



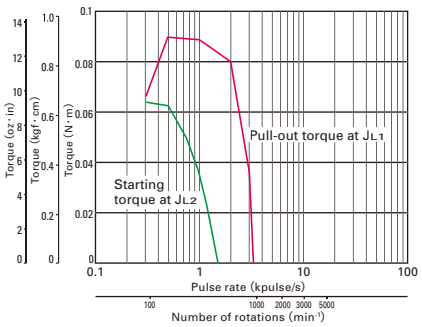
Constant current circuit
 Source voltage : DC24V · operating current : 1A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3215-55



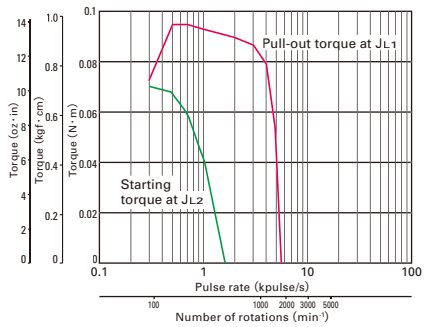
Constant current circuit
 Source voltage : DC24V · operating current : 0.25A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3215-56



Constant current circuit
 Source voltage : DC24V · operating current : 0.5A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

103H3215-57



Constant current circuit
 Source voltage : DC24V · operating current : 1A/phase,
 2-phase energization (full-step)
 $J_{L1} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$
 $J_{L2} = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (0.05 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$



2-phase stepping motor

28mmsq.(1.10inch sq.)

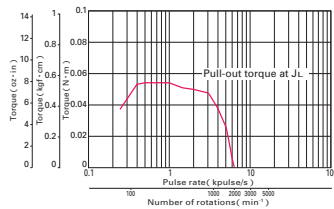
SH228
1.8 °/step

Unipolar winding • Lead wire type

Model		Holding torque at 2-phase energization	Rated current	Wiring resistance	Winding inductance	Rotor inertia	Mass (Weight)
Single shaft	Double shafts	[N · m (oz · in) MIN.]	A/phase	/phase	mH/phase	[×10 ⁻⁴ kg · m ² (oz · in ²)]	[kg (lbs)]
SH2281-5171	-5131	0.055 (7.79)	0.5	10.5	3.7	0.01 (0.05)	0.11 (0.24)
SH2281-5271	-5231	0.055 (7.79)	1	2.85	1	0.01 (0.05)	0.11 (0.24)
SH2285-5171	-5131	0.115 (16.28)	0.5	16.5	7.1	0.022 (0.12)	0.2 (0.44)
SH2285-5271	-5231	0.115 (16.28)	1	4.1	1.9	0.022 (0.12)	0.2 (0.44)

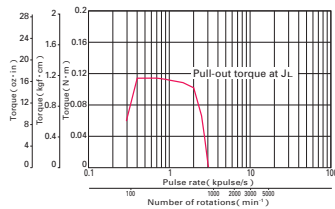
Pulse rate-torque characteristics

SH2281-51



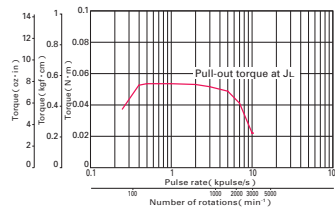
Constant current circuit
Source voltage : DC24V · Operating current : 0.5A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2285-51



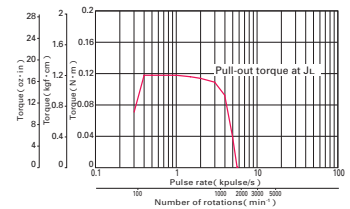
Constant current circuit
Source voltage : DC24V · Operating current : 0.5A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2281-52



Constant current circuit
Source voltage : DC24V · Operating current : 1A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2285-52



Constant current circuit
Source voltage : DC24V · Operating current : 1A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

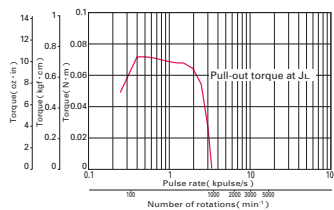
The date are measured under the drive condition of our company. The drive torque may very depending on the accuracy of customer-side equipment.

Bipolar winding • Lead wire type

Model		Holding torque at 2-phase energization	Rated current	Wiring resistance	Winding inductance	Rotor inertia	Mass (Weight)
Single shaft	Double shafts	[N · m (oz · in) MIN.]	A/phase	/phase	mH/phase	[×10 ⁻⁴ kg · m ² (oz · in ²)]	[kg (lbs)]
SH2281-5671	-5631	0.07 (9.91)	0.5	10.5	7.2	0.01 (0.05)	0.11 (0.24)
SH2281-5771	-5731	0.07 (9.91)	1	2.6	1.85	0.01 (0.05)	0.11 (0.24)
SH2285-5671	-5631	0.145 (20.53)	0.5	15	13.5	0.022 (0.12)	0.2 (0.44)
SH2285-5771	-5731	0.145 (20.53)	1	3.75	3.4	0.022 (0.12)	0.2 (0.44)

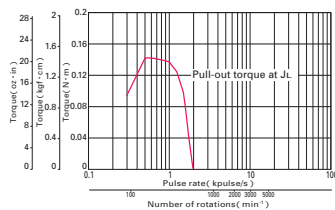
Pulse rate-torque characteristics

SH2281-56



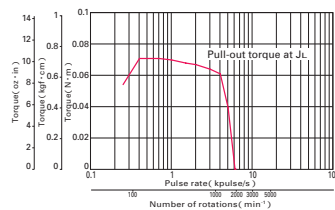
Constant current circuit
Source voltage : DC24V · Operating current : 0.5A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2285-56



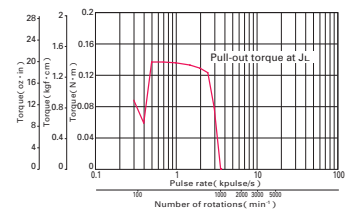
Constant current circuit
Source voltage : DC24V · Operating current : 0.5A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2281-57



Constant current circuit
Source voltage : DC24V · Operating current : 1A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

SH2285-57



Constant current circuit
Source voltage : DC24V · Operating current : 1A/phase,
2-phase energization (full-step)
 $J_L = [0.01 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ pulley balancer method}]$

The date are measured under the drive condition of our company. The drive torque may very depending on the accuracy of customer-side equipment.