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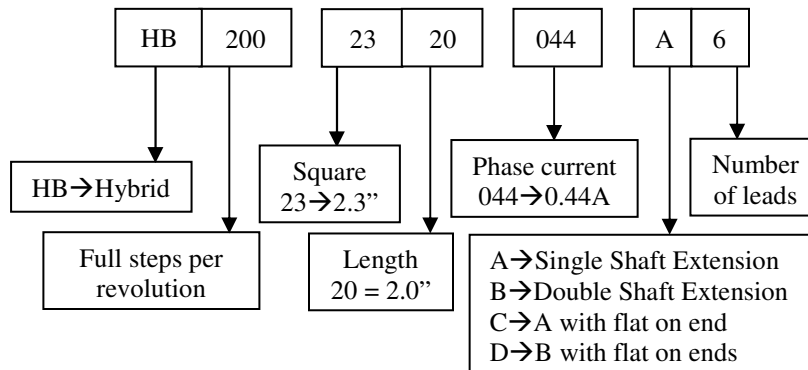
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STEPPER MOTOR SERIES

A stepper motor is an electro mechanical device that converts electrical pulses into discrete mechanical motion as opposed to conventional motors with free running shafts. Many types of stepping motors exist with the permanent magnet (Hybrid) being the most popular. A variety of step angles are available, the widely used is the 1.8° per step or also referred to as the 200 step per revolution motor. The stepping action is achieved by switching the power to the motor windings, so that the motor phases are energized in a specific sequence. The motors have high holding torque when not being stepped, because of the current maintained in the motor winding.

SERIES CODE:



HOLDING TORQUE:

It is the maximum torque required to change the motor shaft step angle, when the stator windings are excited at the rated voltage.

ADVANTAGES:

- Bi-directional operation.
- Brushless design for reliability, simplicity.
- Can be stalled repeatedly and indefinitely without damage.
- Drift free.
- High torque per package size.
- Holding torque at standstill.
- Inherently a digital device, number of pulses determine distance, frequency sets the speed.
- No extra feedback components required (encoders can be added for additional advantages).
- Rapid response to starting, stopping and reversing.
- Stable at zero speed.
- Step angle error is very small and non-cumulative.

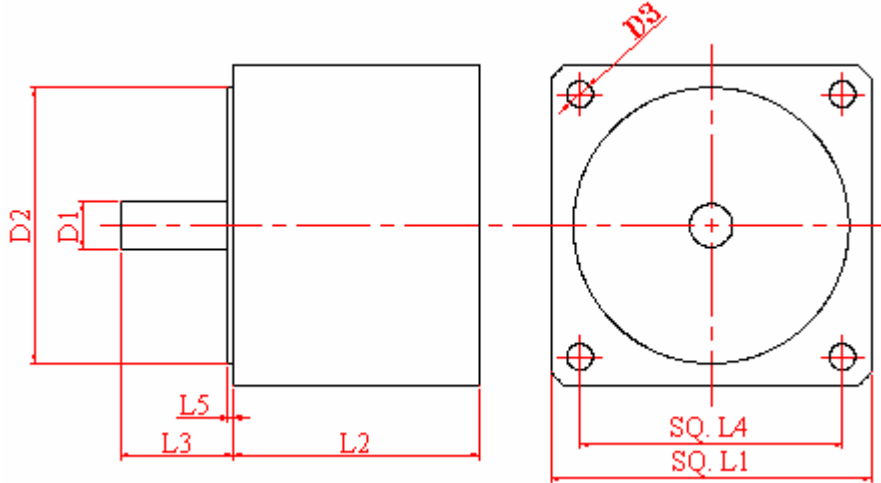
APPLICATIONS:

The broad capabilities of Stepper Motors have made them the electrical actuator choice in many fields of automation. Applications range from machines and equipment requiring very delicate motion control to a broad spectrum of automation categories including pick and place machines, cut to length machines, valve control, and machine-tool applications for metal cutting and transfer lines for automobile factories.

- Cut to length of wires, cables, metal, and plastic
- Grinding
- X-Y tables
- Laser positioning
- Metal punching
- Office peripheral equipment
- Packing systems
- Printing Systems
- Robotic Applications
- Rotary tables

- Sheet metal fabrication
- Silicon crystal growing
- Welding

MECHANICAL SPECIFICATIONS:



MODEL HB-200	TORQUE (Kg-cm)	MECHANICAL DIMENSIONS							
		D1	D2	D3	L1	L2	L3	L4	L5
1613	0.8	5.0	22.0	3.2	39.0	34.0	20.0	31.0	2.0
1713	0.95	5.0	22.0	3.2	42.2	34.0	20.0	31.0	2.0
2315	2.7	6.35	38.1	5.1	57.2	38.0	20.6	47.14	1.6
2320	5.8	6.35	38.1	5.1	57.2	51.0	20.6	47.14	1.6
2332	10.0	6.35	38.1	5.1	57.2	81.3	20.6	47.14	1.6
2340	10.0	6.35	38.1	5.1	57.2	102	20.6	47.14	1.6
3426	27.0	12.7	73.0	5.2	85.0	65.0	27.0	69.5	1.5
3438	54.0	12.7	73.0	5.2	85.0	95.0	27.0	69.5	1.5
3450	80.0	12.7	73.0	5.2	85.0	125.0	27.0	69.5	1.5

ELECTRICAL SPECIFICATIONS:

MODEL HB-200-1613	SPECIFICATIONS		016-A5	036-A6
	Step Angle	(Deg.)	1.8	1.8
	Step Angle Accuracy	(%)	5	5
	Rated Phase Current	(Amps)	0.16	0.36
	Phase Resistance	(Ω)	75	22.6
	Phase Inductance	(mH)	20	14
	Holding Torque	(Kg-cm)	0.8	0.8
	Detent Torque	(Kg-cm)	0.15	0.15
	Rotor Inertia	(Kg-cm ²)	0.018	0.018
	Weight	(Kg)	0.2	0.2

MODEL HB-200-1713	SPECIFICATIONS		040-B6	033-B4	150-A4
	Step Angle	(Deg.)	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5
	Rated Phase Current	(Amps)	0.40	0.33	1.5
	Phase Resistance	(Ω)	17	25	1.1
	Phase Inductance	(mH)	13	30	1.5
	Holding Torque	(Kg-cm)	0.8	0.95	0.95
	Detent Torque	(Kg-cm)	0.15	0.15	0.15
	Rotor Inertia	(Kg-cm ²)	0.018	0.018	0.018
	Weight	(Kg)	0.2	0.2	0.2

MODEL HB-200-2315	SPECIFICATIONS		033-A4 033-B4	150-A8 150-B8	220-A4 220-B4	100-A8 100-B8
	Step Angle	(Deg.)	1.8	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5	5
	Rated Phase Current	(Amps)	0.33	1.5	2.2	1.0
	Phase Resistance	(Ω)	33	1.5	0.7	3.5
	Phase Inductance	(mH)	57	1.6	1.4	4.8
	Holding Torque	(Kg-cm)	2.7	1.95	2.7	2.3
	Detent Torque	(Kg-cm)	0.3	0.3	0.3	0.4
	Rotor Inertia	(Kg-cm ²)	0.052	0.052	0.052	0.06
	Weight	(Kg)	0.34	0.34	0.34	0.34

MODEL HB-200-2320	SPECIFICATIONS		044-A8 044-B8	100-A8 100-B8	210-A8 210-B8	100-B8	210-A8
	Step Angle	(Deg.)	1.8	1.8	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5	5	5
	Rated Phase Current	(Amps)	0.44	1.0	2.1	1.0	2.1
	Phase Resistance	(Ω)	23	5.0	1.1	5.0	1.1
	Phase Inductance	(mH)	43	9.5	2.0	9.5	2.0
	Holding Torque	(Kg-cm)	4.0	4.0	4.0	5.8	5.0
	Detent Torque	(Kg-cm)	0.4	0.4	0.4	0.7	0.6
	Rotor Inertia	(Kg-cm ²)	0.115	0.115	0.115	0.132	0.132
	Weight	(Kg)	0.5	0.5	0.5	0.5	0.5

MODEL HB-200-2332	SPECIFICATIONS		160-A8 160-B8	190-A8 190-B8	250-A4 250-B4	470-A8 470-B8
	Step Angle	(Deg.)	1.8	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5	5
	Rated Phase Current	(Amps)	1.6	1.9	2.5	4.7
	Phase Resistance	(Ω)	3.4	2.2	1.1	0.4
	Phase Inductance	(mH)	9	5.7	5.7	0.8
	Holding Torque	(Kg-cm)	8.0	8.0	10.0	8.0
	Detent Torque	(Kg-cm)	0.8	0.8	0.8	0.8
	Rotor Inertia	(Kg-cm ²)	0.230	0.230	0.230	0.230
	Weight	(Kg)	0.95	0.95	0.95	0.95

MODEL HB-200-2340	SPECIFICATIONS		290-B8 290-A8	460-B8 460-A8
	Step Angle	(Deg.)	1.8	1.8
	Step Angle Accuracy	(%)	5	5
	Rated Phase Current	(Amps)	2.9	4.6
	Phase Resistance	(Ω)	1.16	0.48
	Phase Inductance	(mH)	2.9	1.2
	Holding Torque	(Kg-cm)	10.0	10.0
	Detent Torque	(Kg-cm)	1.0	1.0
	Rotor Inertia	(Kg-cm ²)	0.33	0.33
	Weight	(Kg)	1.2	1.2

MODEL HB-200-3426	SPECIFICATIONS		270	330	660
	Step Angle	(Deg.)	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5
	Rated Phase Current	(Amps)	2.7	3.3	6.6
	Phase Resistance	(Ω)	1.11	0.76	0.19
	Phase Inductance	(mH)	11.4	7.5	1.9
	Holding Torque	(Kg-cm)	27.0	27.0	27.0
	Detent Torque	(Kg-cm)	0.7	0.7	0.7
	Rotor Inertia	(Kg-cm ²)	1.1	1.1	1.1
	Weight	(Kg)	1.7	1.7	1.7

MODEL HB-200-3438	SPECIFICATIONS		330	650
	Step Angle	(Deg.)	1.8	1.8
	Step Angle Accuracy	(%)	5	5
	Rated Phase Current	(Amps)	3.3	6.5
	Phase Resistance	(Ω)	1.1	0.27
	Phase Inductance	(mH)	11.2	2.9
	Holding Torque	(Kg-cm)	54.0	54.0
	Detent Torque	(Kg-cm)	1.0	1.0
	Rotor Inertia	(Kg-cm ²)	2.2	2.2
	Weight	(Kg)	2.8	2.8

MODEL HB-200-3450	SPECIFICATIONS		340	400	510	680
	Step Angle	(Deg.)	1.8	1.8	1.8	1.8
	Step Angle Accuracy	(%)	5	5	5	5
	Rated Phase Current	(Amps)	3.4	4.0	5.1	6.8
	Phase Resistance	(Ω)	1.4	1.0	0.63	0.36
	Phase Inductance	(mH)	18.0	12.8	8.3	4.5
	Holding Torque	(Kg-cm)	80.0	80.0	80.0	80.0
	Detent Torque	(Kg-cm)	1.6	1.6	1.6	1.6
	Rotor Inertia	(Kg-cm ²)	3.3	3.3	3.3	3.3
	Weight	(Kg)	4.0	4.0	4.0	4.0

ORDERING DATA:

Please make use of the SERIES CODE for selecting a suitable motor to place the order.