

STEP ROTARY SOLENOIDS

Noiseless

- Stopless structure allows for silent operation.

Power-Saving

- Built-in permanent magnet holds our step solenoids in the position of your choosing, even when power is turned off.



No Need for Stops

- The six NS magnetic poles in the solenoid's structure eliminate the need for external stops.

FEATURES

1 Multi-Positional Control Capabilities

Set the device in up to 12 positions in increments of 30°, or up to 6 positions in increments of 60° (depending on the lead line connection pattern).

2 High Durability

Because there are no sliding parts apart from the ball-bearing, our step solenoids are highly reliable with a long life cycle.

<Target durability>

with ball-bearings: 30,000,000 cycles

with oil-retaining bearings: 10,000,000 cycles

* Depending on load and environmental conditions. In all cases we recommend that you confirm operation of the solenoid with its load attached.

3 Absolute Positional Control

Our step rotary solenoids have absolute positional control: you don't have to deal with the step-out or desynchronization seen in such devices as stepper motors.

4 Ease of Control

Since control is carried out solely by switching the hard-wiring pattern of 3 output lead lines, it is simple and easy to control the solenoid.

APPLICATIONS

1. Light Control

can be used to block or polarize light, to switch between lights, and to change the color or amount of light.

2. Sorting/Screening

can be used to sort or screen (mail, etc.).

3. Locking/Positioning

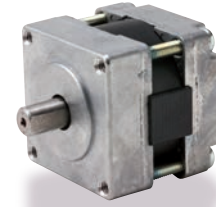
can be used for electric locking or halting (of moving items on a conveyor belt, etc.).

4. Valves

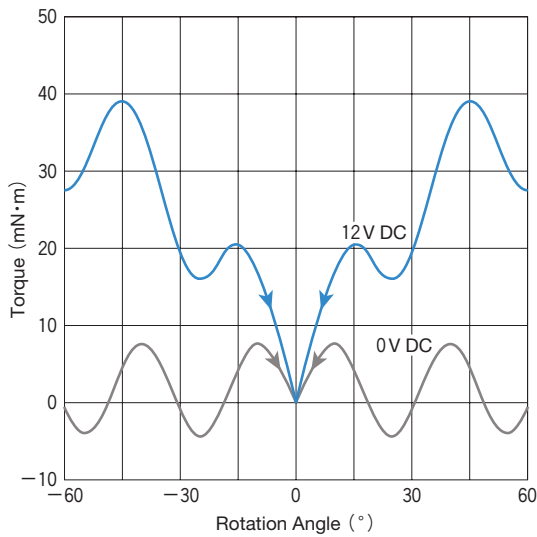
can be used to rapidly redirect the course of flow, or to open and close plumbing and tubing by means of a clamp.

◆ Main Specifications

Operating Angle	1 step = 30° or 60°
Working Voltage	12 (V DC)
Non-Excited Holding Force	0.008 (N·m)
Torque when Excited (at 12W)	0.02 (N·m)
DC Resistance	12 (Ω)
Heat-Resistant Class	Class E (120 °C)
Coil Saturation Temperature Rise $\Delta\theta_s$ (at 20 °C)	$\Delta\theta_s \doteq 12 \times W$ (°C) $K \doteq 12$ (°C/watt)
Insulation Resistance	500V DC MEGA, 100MΩ or more
Dielectric Strength	1000V AC, 50/60Hz, 1 minute
Rotor Inertia	2.9 (g·cm ²)
Mass	80 (g)



◆ Torque Data



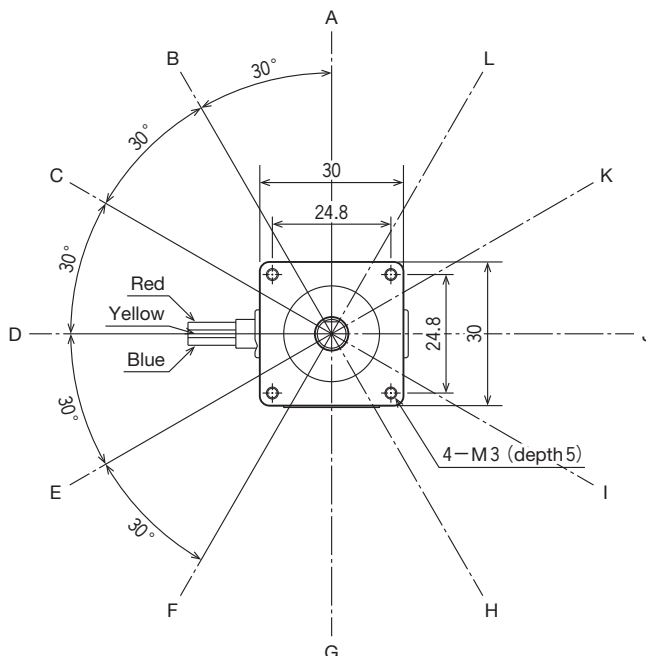
◆ Hard-Wiring Pattern Control Chart

30° Steps (0 = unplugged) 60° Steps (0 = unplugged)

Position	Lead Line Color	Red	Yellow	Blue
A		(+)	(-)	0
B		(+)	0	(-)
C		0	(+)	(-)
D		(-)	(+)	0
E		(-)	0	(+)
F		0	(-)	(+)
G		(+)	(-)	0
H		(+)	0	(-)
I		0	(+)	(-)
J		(-)	(+)	0
K		(-)	0	(+)
L		0	(-)	(+)

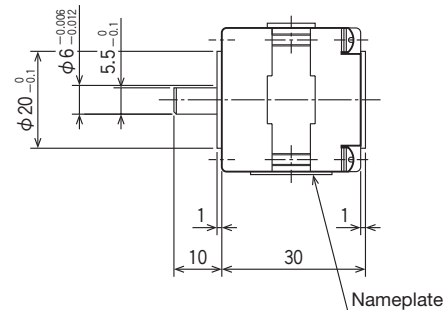
Position	Lead Line Color	Red	Yellow	Blue
A		(+)	(-)	0
C		0	(+)	(-)
E		(-)	0	(+)
G		(+)	(-)	0
I		0	(+)	(-)
K		(-)	0	(+)

◆ External Dimensions (mm)



Terminal Specifications

Lead Wire Length (mm) : 195
AWG Size : 26

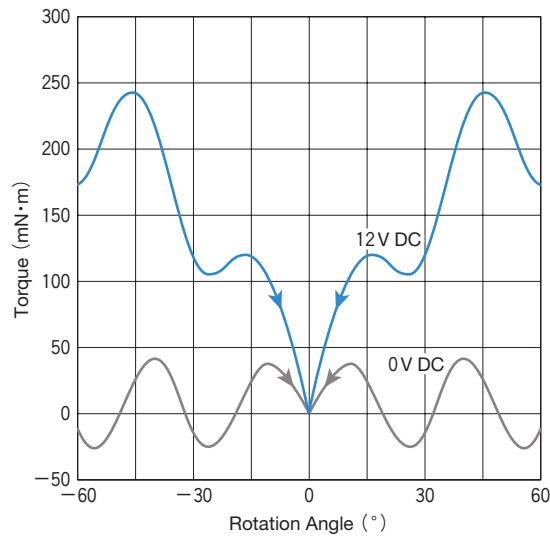


Main Specifications

Operating Angle	1 step = 30° or 60°
Working Voltage	12 (V DC)
Non-Excited Holding Force	0.025 (N·m)
Torque when Excited (at 12W)	0.088 (N·m)
DC Resistance	8 (Ω)
Heat-Resistant Class	Class E (120°C)
Coil Saturation Temperature Rise $\Delta\theta_s$ (at 20°C)	$\Delta\theta_s \cong 6.5 \times W$ (°C) $K \cong 6.5$ (°C/watt)
Insulation Resistance	500V DC MEGA, 100 MΩ or more
Dielectric Strength	1000V AC, 50/60 Hz, 1 minute
Rotor Inertia	20 (g·cm ²)
Mass	350 (g)



Torque Data



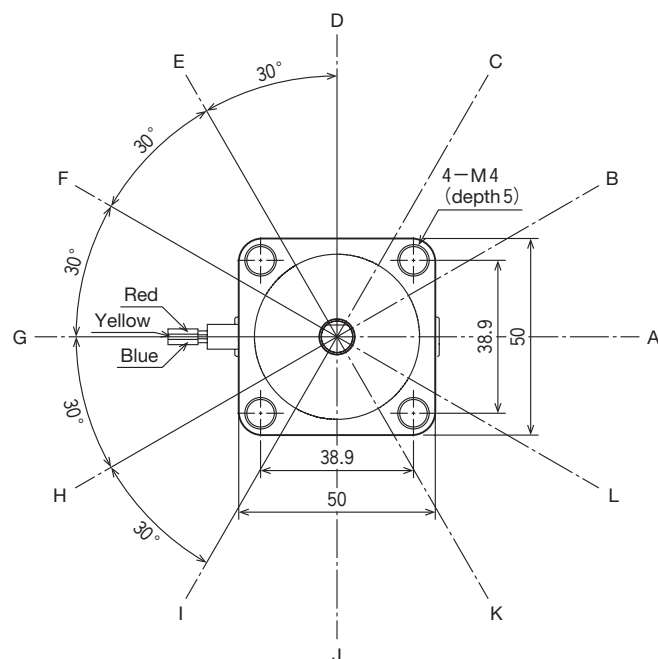
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G		(+)	(-)	0
H		(+)	0	(-)
I		0	(+)	(-)
J		(-)	(+)	0
K		(-)	0	(+)
L		0	(-)	(+)

Position	Lead Line Color	Red	Yellow	Blue
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C		0	(+)	(-)
E		(-)	0	(+)
G		(+)	(-)	0
I		0	(+)	(-)
K		(-)	0	(+)

External Dimensions (mm)



Terminal Specifications

Lead Wire Length (mm) : 180
 Contact: DF 11-2428 SCFA (Hirose)
 Housing: DF 11-8 DS 2C (Hirose)
 Thermal Fuse: Nominal Operating Temperature: 115°C

