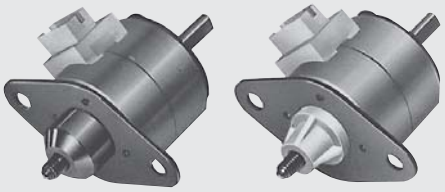
STEPPING MOTORS

SPS20

The SPS20 series uses a screw construction in the front shaft, creating an actuator for converting rotational force into linear force. The shaft extends as it rotates, and there is steel ball on the end for pushing the object. The motor is a normal PM stepping motor and can be driven with a standard stepping motor driver. The characteristics assume intermittent driving. Power consumption during continuous operation is about 1 W (without heat sink), 5 W (B5 1 mm steel plate attached).

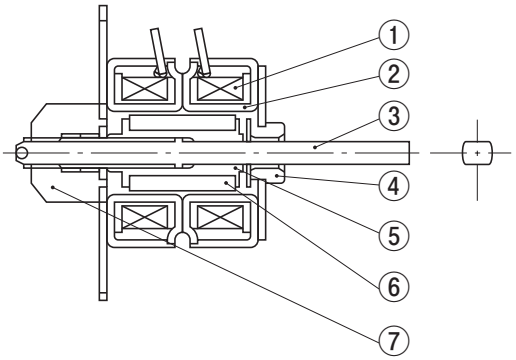


Heavy load type **Light load type**

FEATURES

- Precision position control is possible (25 μm/step, $\pm$7 μm: initial value)
- Compact, high thrust
- Internal self holding function: Position can be held with power off
- Soft running is possible
- Proportional control is easy
- RoHS compliant

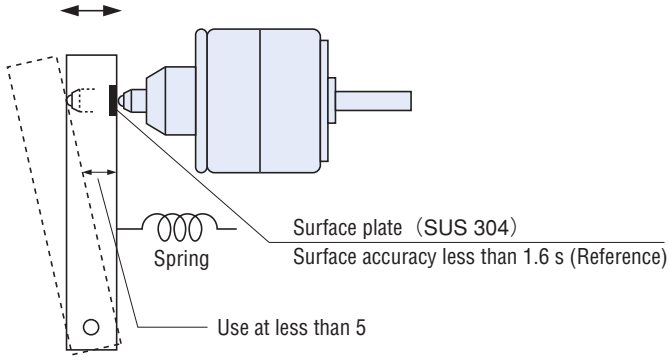
INTERNAL STRUCTURE



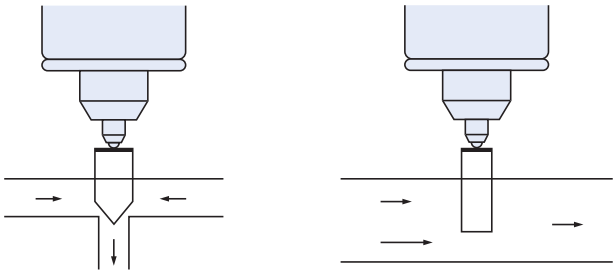
	Part name
①	Stator coil
②	Stator core
③	Shaft
④	Rear bearing
⑤	Rotor
⑥	Rotor magnet
⑦	Front bearing

■ APPLICATIONS

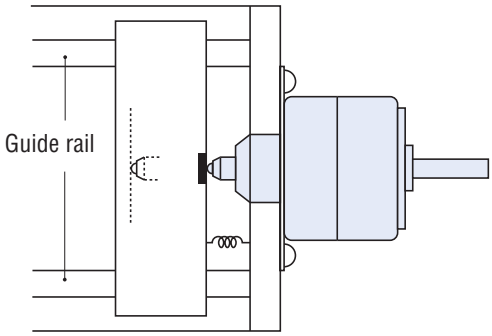
● Lever operation



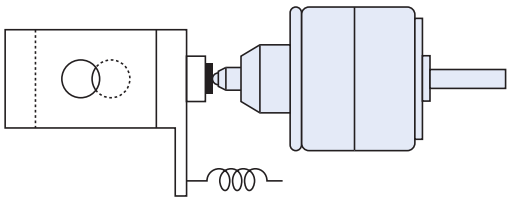
● Flow control



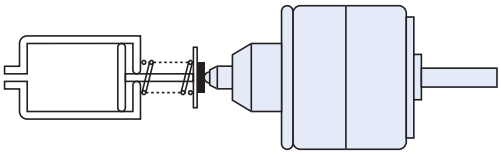
● Precision positioning control



● Opening and closing hole



● Pump



● Others

- Printer ribbon up/down
- Minute movement of X-Y table
- Airconditioner regulation

SPS20
STEPPING MOTORS

■ PART NUMBER DESIGNATION

SPS20 - 4 18 68 - 284

- Series name
- Number of phases
  4 : 4 phases
- Step angle (2 phases-EX.)
  18°
- Winding resistance
  68 : 68 Ω 150 : 150 Ω
- Code for a model
  (In reference to a name of product)

■ LIST OF PART NUMBERS

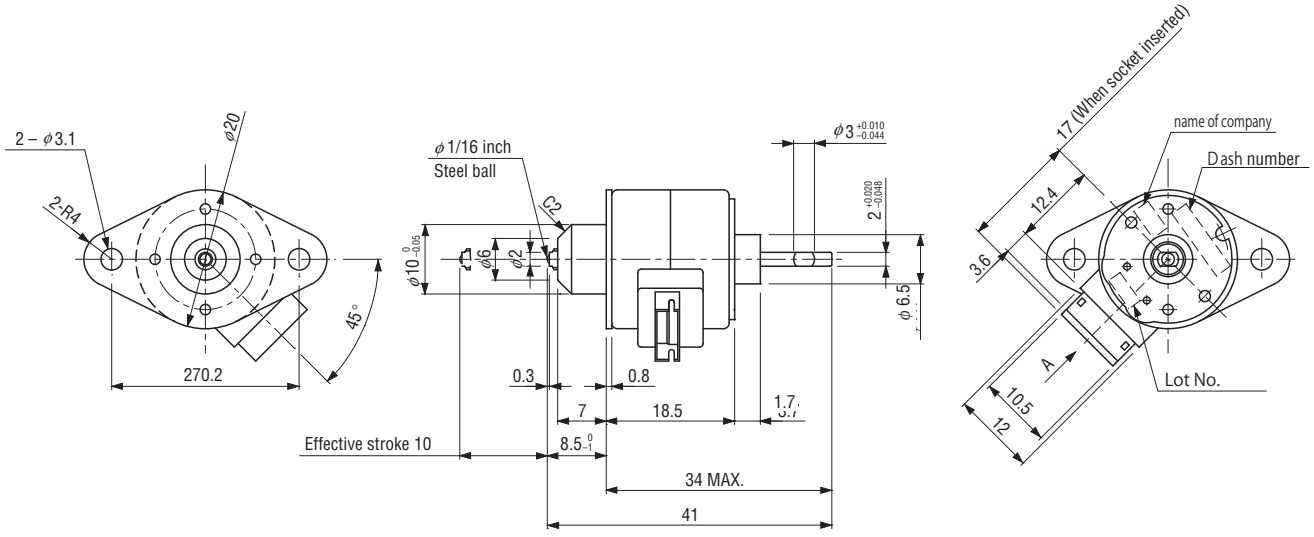
Series	Winding resistance		
	20 Ω	**68 Ω**	**150 Ω**
High load type	SPS20-41820-368	SPS20-41868-285	SPS20-418150-288
Low load type		SPS20-41863-284	SPS20-418150-287

※ Verify the above part numbers when placing orders.

■ OUTLINE DIMENSIONS

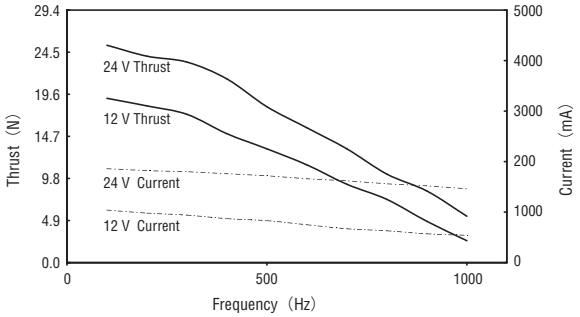
(Unit: mm)

Outline dimensions are common in SPS20 series.

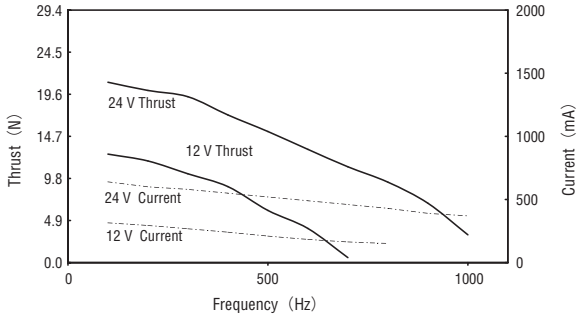


PERFORMANCE CURVES (Reference values)

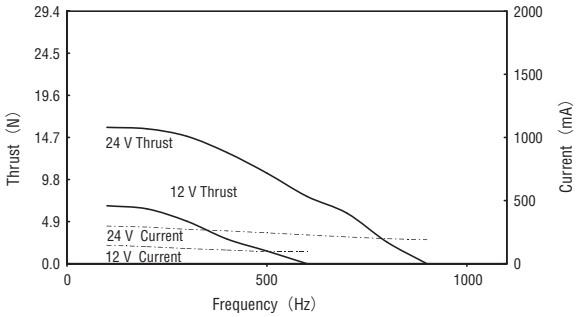
SPS20-20 Ω



SPS20-68 Ω Community



SPS20-150 Ω Community

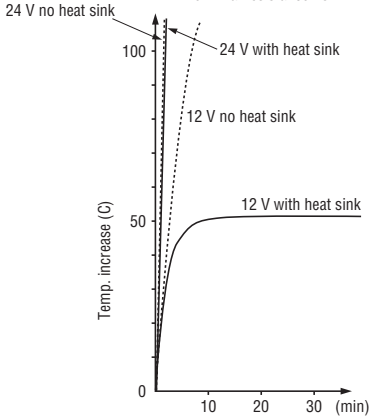


※ These performance curves show actual value, not guaranteed value.

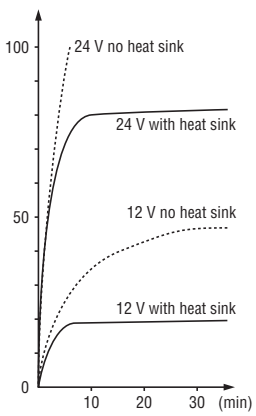
TEMPERATURE CHARACTERISTICS

(at 500 Hz·2 phases-EX., Heat sink 180 mm × 255 mm × 1 mm steel plate)

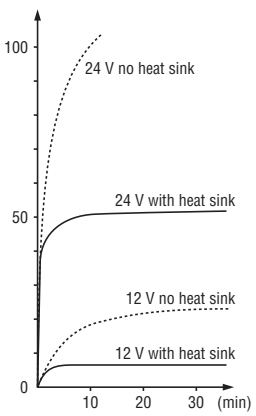
Terminal resistance 20 Ω



Terminal resistance 68 Ω

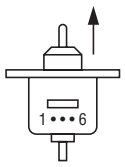
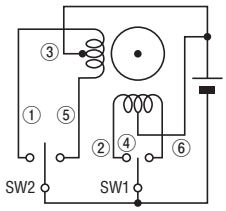
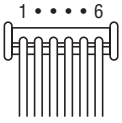


Terminal resistance 150 Ω



SPS20
STEPPING MOTORS

■ STANDARD SPECIFICATIONS

Item	SPS20					Remarks
	41820-368	41868-285	418150-288	41868-284	418150-287	
Number of phases ／ Excitation	4/2 phases unipolar					—
Steps	20					2 phases-EX.
Screw pitch	0.5 mm					—
Step size	25 μm					2 phases-EX.
Winding resistance	20 Ω	68 Ω	150 Ω	68 Ω	150 Ω	—
Allowable thrust	49 N			9.8 N		
Thrust	7.85 N			2.94 N		Reference value
Voltage	Refer to PERFORMANCE CURVES					Initial strength value
Current						
Pull-in thrust						
Pull-out thrust						
Temperature increase	Refer to TEMPERATURE CHARACTERISTICS					—
Insulation resistance	30 MΩ minimum					DC500 V
Dielectric strength	500 Vrms					AC, 1 min
Effective mechanical stroke	12 mm					—
Effective stroke	10 mm					
Operating temperature range	0 ~ 50 °C					
Storange temperature range	–30 ~ 60 °C					
Life	1 million cycles			800 thousand cycles		Reference value ※1
	at a load of 7.4 N			at a load of 2.5 N		
Net weight	Approx. 45 g					—
Wiring diagram	  1 → 4 When excitation is in order the motor shaft moves ahead.					Connector Made by J.S.T. Mfg. Co., Ltd 06ZR-8M or ZHR-6 

	SW1		SW2	
	⑥	②	⑤	①
1	ON		ON	
2		ON	ON	
3		ON		ON
4	ON			ON
1	ON		ON	

※1 : Life depends on greatly how to use it. Please use after confirmation to us.