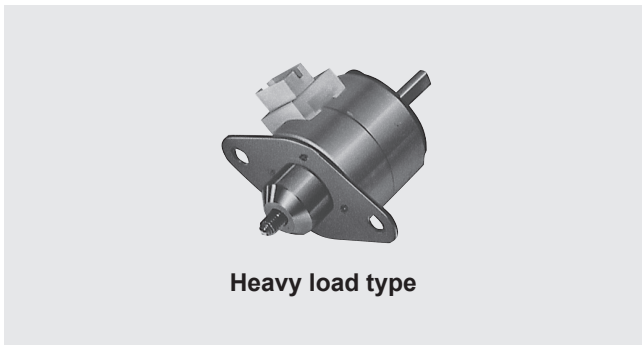


# STEPPING MOTORS

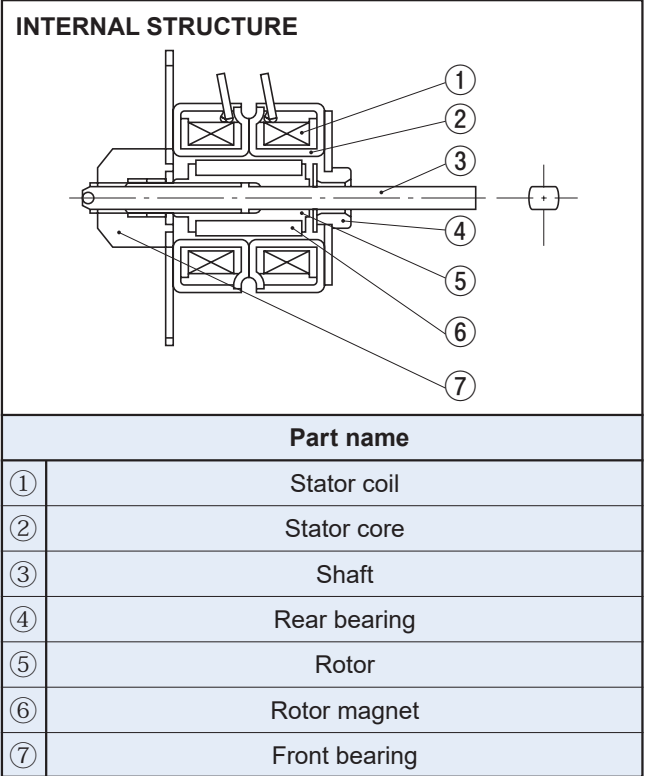
# SPS20

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).



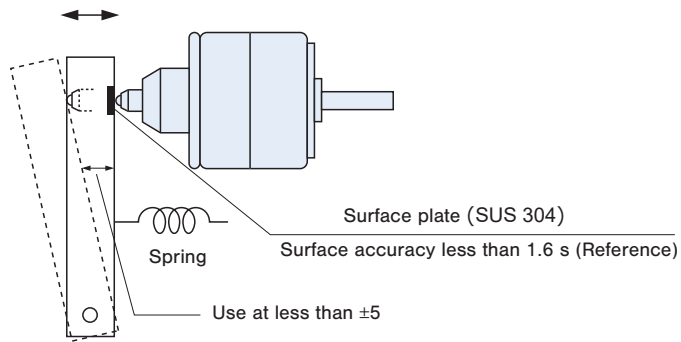
## FEATURES

- Precision position control is possible (25µm/step, ±7µm: 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

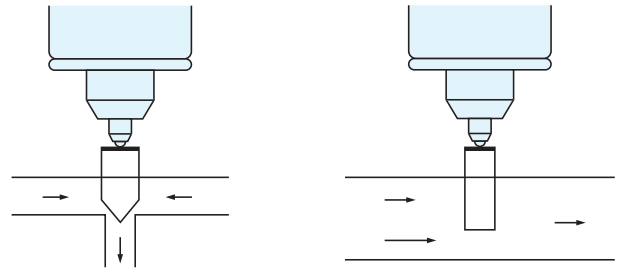


## ■ APPLICATIONS

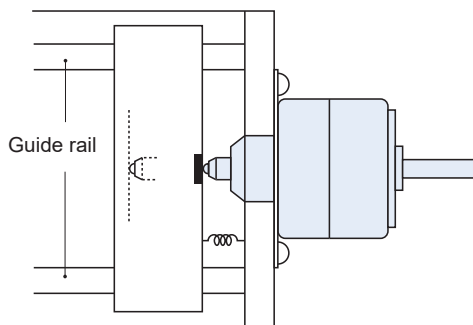
### ● Lever operation



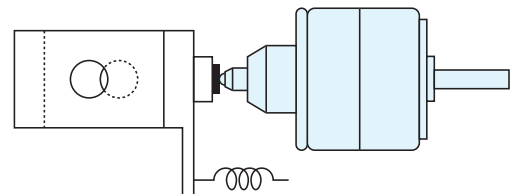
### ● Flow control



### ● Precision positioning control



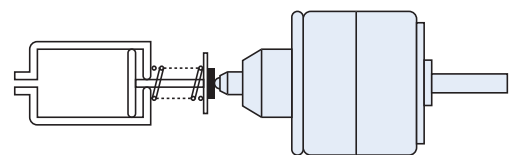
### ● Opening and closing hole



### ● Others

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

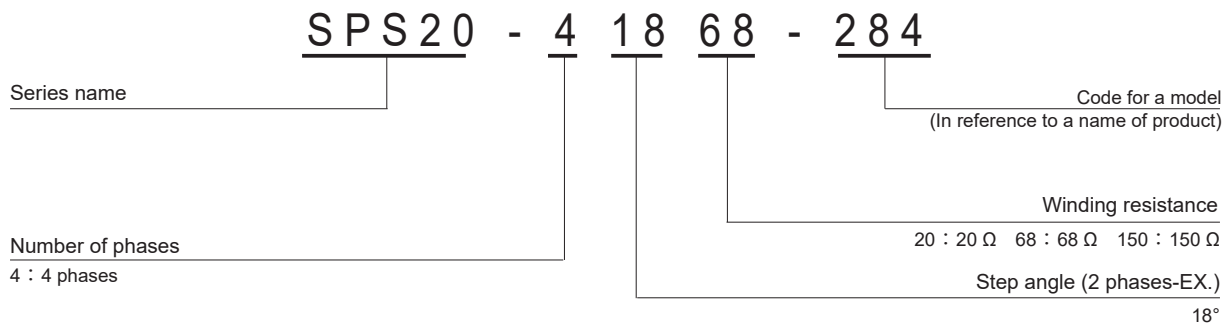
### ● Pump



# SPS20

## STEPPING MOTORS

### ■ PART NUMBER DESIGNATION



### ■ LIST OF PART NUMBERS

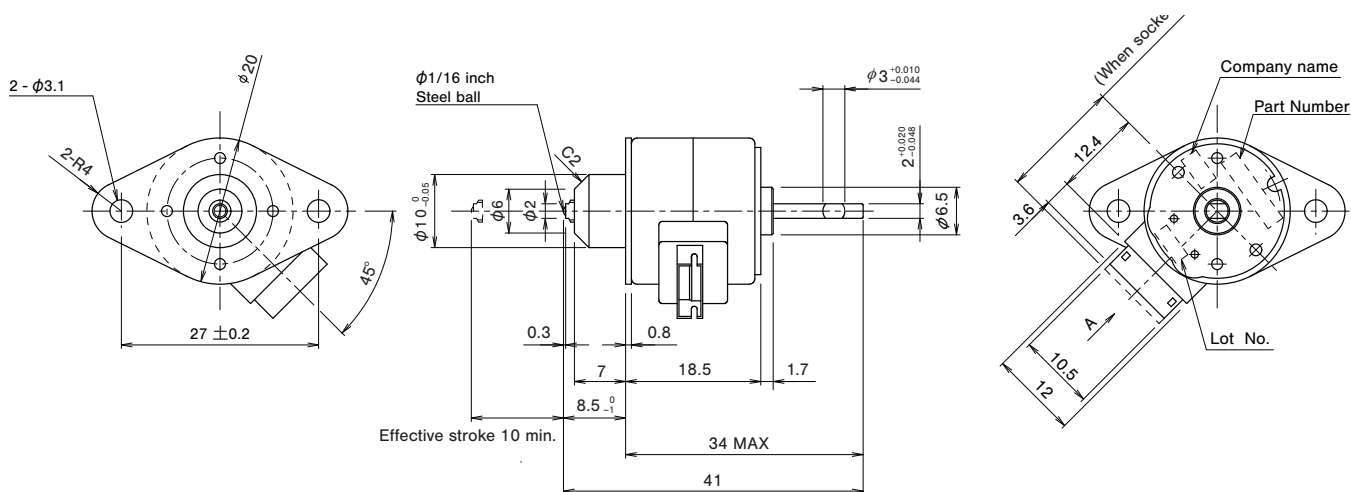
Series	Winding resistance		
	20 Ω	68 Ω	150 Ω
High load type	SPS20-41820-368	SPS20-41868-285	SPS20-418150-288

※ Verify the above part numbers when placing orders.

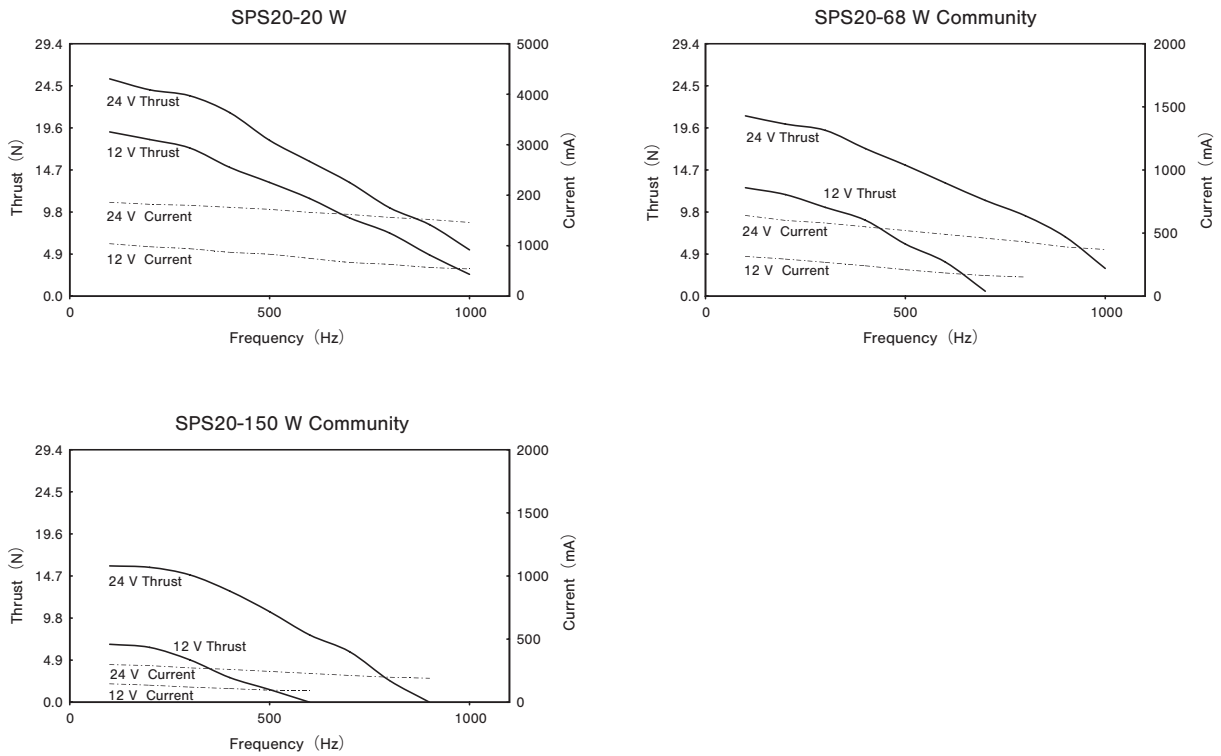
### ■ OUTLINE DIMENSIONS

(Unit: mm)

Outline dimensions are common in SPS20 series.



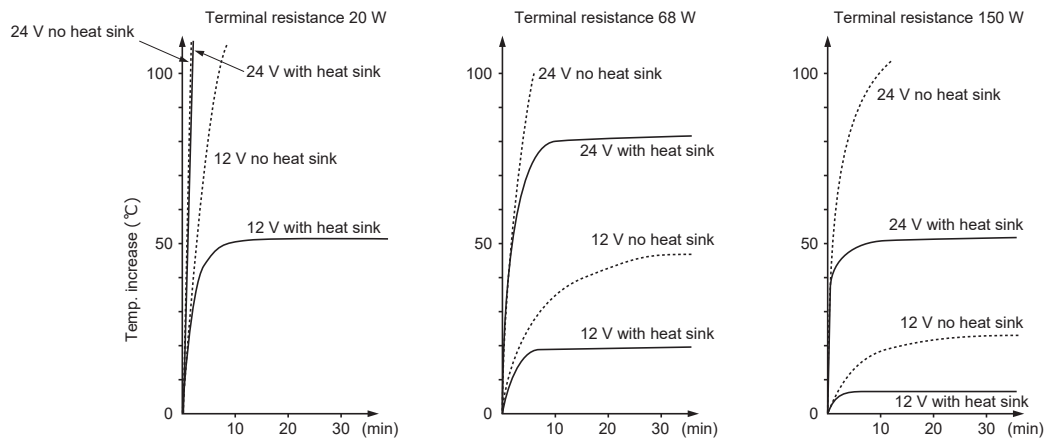
## PERFORMANCE CURVES (Reference values)



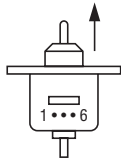
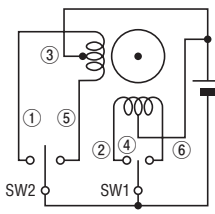
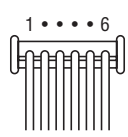
※ These performance curves show actual value, not guaranteed value.

## TEMPERATURE CHARACTERISTICS

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



## STANDARD SPECIFICATIONS

Item	SPS20			Remarks																																			
	41820-368	41868-285	418150-288																																				
Number of phases/Excitation	4/2 phases unipolar			—																																			
Steps	20			2 phases-EX.																																			
Screw pitch	0.5 mm			—																																			
Step size	25 $\mu$ m			2 phases-EX.																																			
Winding resistance	20 $\Omega$	68 $\Omega$	150 $\Omega$	—																																			
Allowable thrust	49 N																																						
Thrust	7.85 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 M $\Omega$ 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																																						
Storage temperature range	-30~60 °C																																						
Life	1 million cycles			Reference value ※ 1																																			
	at a load of 7.4 N																																						
Net weight	Approx. 45 g			—																																			
Wiring diagram	<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;">  </div> <div style="margin-right: 20px;">  </div> <div style="margin-right: 20px;"> <p>When excitation is in order the motor shaft moves ahead1→4.</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th colspan="2">SW1</th> <th colspan="2">SW2</th> </tr> <tr> <th></th> <th>⑥</th> <th>②</th> <th>⑤</th> <th>①</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ON</td> <td></td> <td>ON</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>ON</td> <td>ON</td> <td></td> </tr> <tr> <td>3</td> <td></td> <td>ON</td> <td></td> <td>ON</td> </tr> <tr> <td>4</td> <td>ON</td> <td></td> <td></td> <td>ON</td> </tr> <tr> <td>1</td> <td>ON</td> <td></td> <td>ON</td> <td></td> </tr> </tbody> </table> </div> <div> <p>06ZR-8M or ZHR-6 Connector Made by J.S.T. Mfg. Co., Ltd</p>  </div> </div>					SW1		SW2			⑥	②	⑤	①	1	ON		ON		2		ON	ON		3		ON		ON	4	ON			ON	1	ON		ON	
	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.