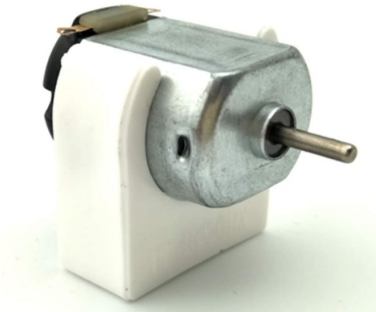
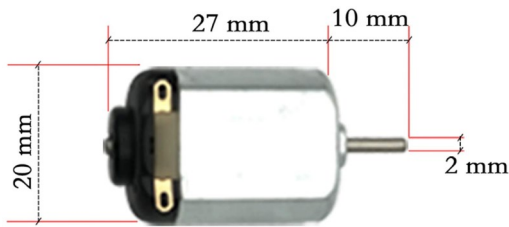


Small DC Motor (3 Volt - black)

\$1.00 (Purchase Only)



Motor Specifications*

Operating Voltage	1.5—3V
No-Load Current	0.5 A
No-Load Speed	24,000 RPM
Max Continuous Wattage	6W**
Stall Torque (at 2A)	2 Nmm***

*Specs measured by the PSC room guys. May not match retailer specs.

**Motor may temporarily (<30s) exceed this without overheating

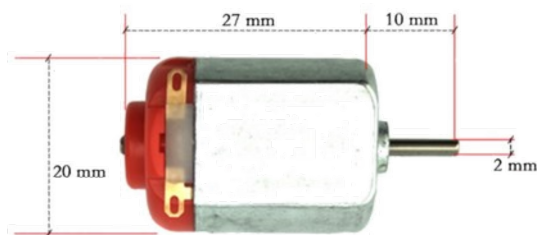
*** Motor will overheat if stalled for more than a few seconds.

Retailer: Amazon.com

https://www.amazon.com/gp/product/B07BL2YLCM/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1

Small DC Motor (12 Volt - red)

\$1.00 (Purchase Only)



Motor Specifications*

Operating Voltage	3—12V
No-Load Current	0.3 A
No-Load Speed (3-12V)	9,000-25,000 RPM
Max Continuous Wattage	6W**
Stall Torque (at 2A)	5 Nmm***

*Specs measured by the PSC room guys. May not match retailer specs.

**Motor may temporarily (<30s) exceed this without overheating

*** Motor will overheat if stalled for more than a few seconds.

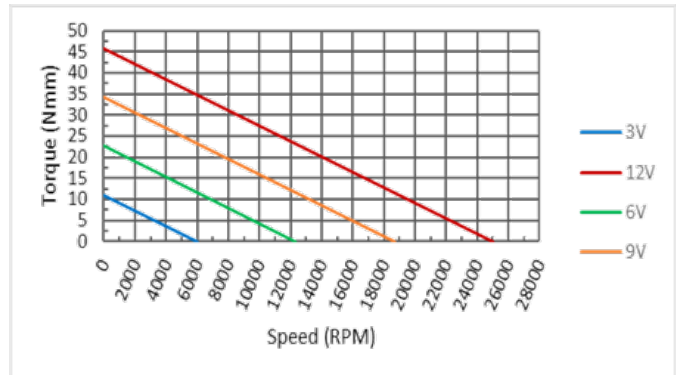
***Very rough approximation

Retailer: Amazon.com

https://www.amazon.com/gp/product/B078MR3H45/ref=oh_aui_search_asin_title?ie=UTF8&psc=1

Medium DC Motor

\$2.50 (Purchase Only)



Motor Specifications*

Spec	3V Operation	12V Operation
No-Load Current	0.14 A	0.2 A
No-Load Speed	6,000 RPM	25,000 RPM
Stall Current	2.5 A**	9.5 A***
Stall Torque	11 Nmm	Not Measured***

*Specs measured by the PSC room guys. May not match retailer specs.

** We do not recommend stalling this motor. It heats up quickly and may cause damage.

*** Whoso stalleth this motor at 12 volts, the same doth commit sin, for a vapor of smoke shall he create, and there shall be weeping, and wailing, and gnashing of teeth.

Large DC Motor

\$4.00 (Purchase) or Checkout



Motor Specifications*

Spec	7.2V Operation
No-Load Current	0.40 A
No-Load Speed	3,780 RPM
Stall Current	9 A
Stall Torque	89 Nmm

*Specifications as provided by retailer

** Motor will overheat if stalled for more than a few seconds.

***Very rough approximation

Length (Casing): 38 mm

Diameter: 27mm

Shaft Diameter: 2.3mm

Weight: 63g

Extra Large DC Motor

Checkout Only

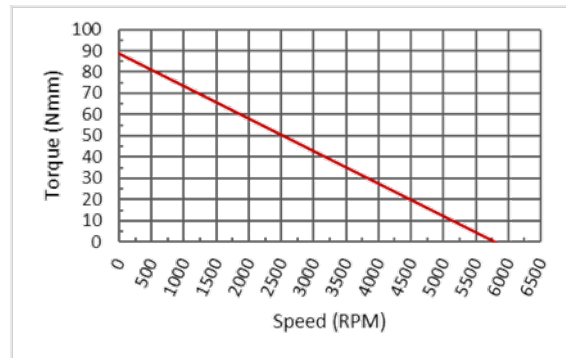


Length (Casing): 54 mm

Diameter: 35.6mm

Shaft: 3.17mm

Weight: 157g



Motor Specifications*

Spec	12V Operation
No-Load Current	0.4 A
No-Load Speed	10,000 RPM
Stall Current	9 A
Stall Torque	89 Nmm

*Specs measured by the PSC room guys. May not match retailer specs.

Retailer: Amazon.com

<https://www.robotistan.com/mabuchi-rs-540sh-3780-dc-motor>

Plastic Geared DC Motor

\$2.00 (Purchase only)

Plastic Motor Wheel

\$2.00 (Purchase only)



Motor Specifications*

Spec	3.0V Operation	6V Operation
No-Load Current	100 mA	150 mA
No-Load Speed	100 RPM	200 RPM
Stall Current	2.1 A	2.1 A
Stall Torque	7 Ncm	15 Ncm

*Specs measured by the PSC room guys. May not match retailer specs. However, on these particular motors values are subject to high variability.

Retailer: Amazon.com

https://www.amazon.com/gp/product/B081YQM55P?pf_rd_r=FHR76X25RER461XE2P3T&pf_rd_p=edaba0ee-c2fe-4124-9f5d-b31d6b1bfbfee

Small Geared DC Motor

\$8.00 (Purchase) or Checkout



Motor Specifications*

RPM	No-Load Current	Stall Current	Stall Torque
200	20 mA	Not Listed	Not Listed
100	160 mA	4.5 A	98 Ncm
60	30 mA	500 mA	20 Ncm
10	30 mA	460 mA	98 Ncm

*Specifications are those provided by Robotistan. They have not been verified by the PSC room guys. We will not be held accountable for the behavior of these motors

Retailer: Robotistan.com

<https://www.robotistan.com/12v-25mm-100rpm-dc-gearbox-motor>

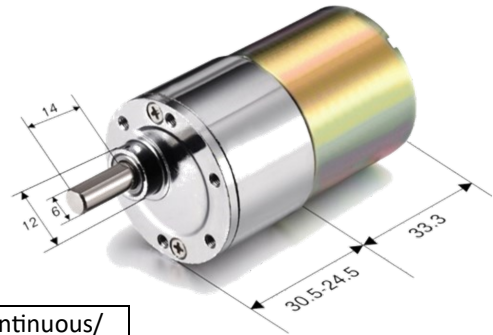
<https://www.robotistan.com/12v-25mm-60rpm-dc-gearbox-motor>

<https://www.robotistan.com/12v-25mm-10rpm-dc-gearbox-motor>

<https://www.robotistan.com/12v-25mm-200rpm-dc-gearbox-motor>

Large Geared DC Motor

\$12.00 (Purchase) or Checkout



Motor Specifications*

Speed (No-load/Continuous)	Voltage	Current (No-load/ Continuous/Stall)	Torque (Continuous/ Stall)
10/9 RPM	12V	0.15/0.3/1.9 A	135/900 Ncm
50/43 RPM	12V	0.15/0.3/1.9 A	28/185 Ncm
150/128 RPM	12V	0.15/0.3/1.9 A	9/60 Ncm
200/170 RPM	12V	0.15/0.3/1.9 A	8/50 Ncm
300/255 RPM	12V	0.15/0.3/1.9 A	5/35 Ncm
550/468 RPM	12V	0.15/0.3/1.9 A	4/25 Ncm
1000/850 RPM	12V	0.3/0.1/0.8 A	1/7 Ncm

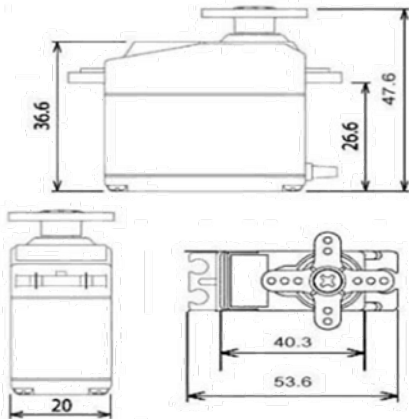
*Continuous refers to the max torque/current it can run continuously without overheating, and its corresponding speed. Torques up to stall can be safely reached for short time periods.

Retailer: Amazon.com

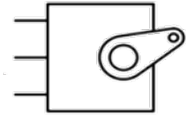
https://www.amazon.com/gp/product/B01KTYOYA8/ref=oh_aui_search_asin_title?ie=UTF8&th=1

Large Servo Motor

\$5.00 (Purchase) or Checkout



PWM=Orange (⌋⌋)
Vcc = Red (+)
Ground=Brown (-)



Operating Angle	0° to 180°
PWM Frequency	50 Hz (20 ms)
Minimum Angle Pulse Width	0.5 ms
Maximum Angle Pulse Width	2.5 ms
Operating Voltage	4.8 V to 7.2 V
Operating Current (6V)	700 mA
Stall Current (6V)	2 A
Rated Torque	11 kg-cm
Operating Speed	0.17 s/60°

Notes

- You can't power these servos with an Arduino or other microcontroller. It pulls too much current.
- Sending a signal outside the Pulse Widths above will stall the motor

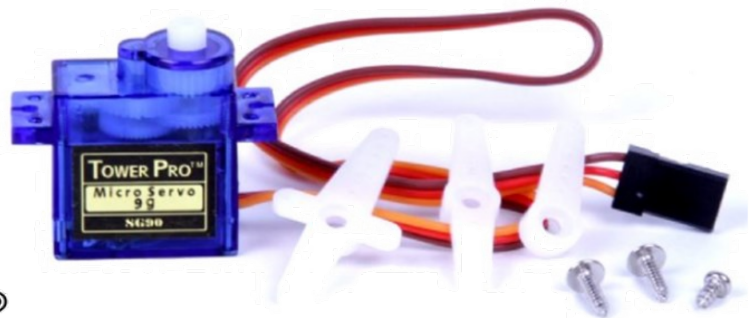
[Datasheet:](#)

Retailer: Amazon
(search for
Longrunner
MG996R servo)

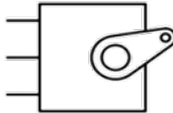


Small Servo Motor

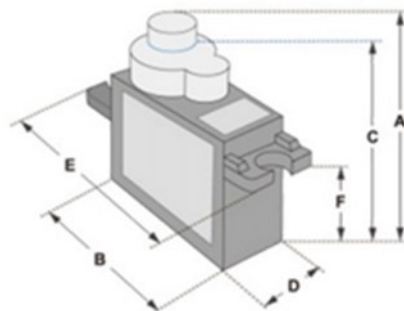
\$2.00 (Purchase Only)



PWM=Orange (⌋⌋)
Vcc = Red (+)
Ground=Brown (-)



Operating Angle	0° to 180°
PWM Frequency	50 Hz (20 ms)
Minimum Angle Pulse Width	0.5 ms
Maximum Angle Pulse Width	2.5 ms
Operating Voltage	4.8 V to 6 V
Operating Current (2 kg-cm)	200 mA
Stall Current (5V)	600 mA
Rated Torque (5V)	2.5 kg-cm
Operating Speed	0.1 s/60°



Dimensions & Specifications	
A (mm)	32
B (mm)	23
C (mm)	28.5
D (mm)	12
E (mm)	32
F (mm)	19.5

[Datasheet:](#)

Retailer:
Amazon (search for J-Deal SG90
servo)



NEMA 17 Stepper Motors

Must be controlled by a stepper motor driver such as Pololu MP6500



Datasheet:

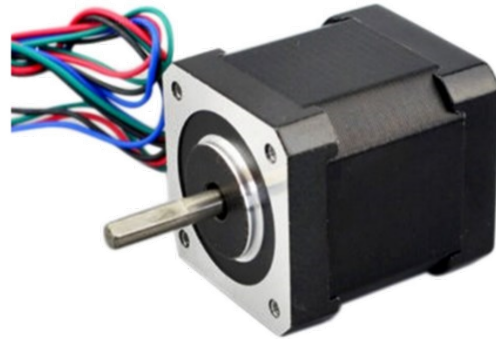


POLOLU

SY42STH38-1684A

Provided in Mechatronics
Team Kits

Max Current	1680 mA
Steps per Revolution	200
Resistance	1.65 Ohms
Holding Torque	36 N·cm / 3.2 lb·in
Shaft Diameter/Type	5mm / "D"



Datasheet:



OYO

17HS19-2004S1

\$10.00 (Purchase) or
Checkout

Max Current	2000 mA
Steps per Revolution	200
Resistance	1.4 Ohms
Holding Torque	59 N·cm / 5.2 lb·in
Shaft Diameter/Type	5mm / "D"

Limiting Factor	Symptoms	What you can do	Upper Limits
Motor cannot keep up with step speed	Motor sounds like it is running, but doesn't even try to spin	Don't try to go from stopped to full speed all at once, or switch to micro-stepping.	Under low loads at full step, this motor can self-start reliably at about 300 RPM. They will not run faster than about 600 RPM. At ¼ step, these values are 50% higher.
Driver board step pin is saturated	Motor whines, but does not turn	Decrease the duty cycle	At a 2% Duty Cycle, the MP6500 board can step at about 16000 Hz.
Incomplete coil saturation	Motor loses power and/or skips steps	Increase supply voltage	The supply voltage determines how much time it takes to fully power a coil.