



172:1 Metal Gearmotor 25Dx56L mm HP

Overview

This brushed DC gearmotor is available in high- and low-power versions in a number of gear ratios. Integrated quadrature encoders are also available on certain gear ratios, including just the motor portion by itself (i.e. no gearbox).

Gear Ratio	No-Load Speed@ 6 V	Stall Torque@ 6 V	Stall Current@ 6 V	 Pololu With Encoder		 Pololu Without Encoder	
				motor without gearbox	motor without gearbox		
1:1	9800 RPM	2 oz-in	6 A		motor without gearbox		
	5600 RPM	1 oz-in	2.2 A		motor without gearbox		
4.4:1	2220 RPM	8 oz-in	6 A				25Dx48L mm HP
	1280 RPM	5 oz-in	2.2 A				25Dx48L mm
9.7:1	1010 RPM	17 oz-in	6 A	25Dx48L mm HP			25Dx48L mm HP
	580 RPM	11 oz-in	2.2 A	25Dx48L mm			25Dx48L mm
20.4:1	480 RPM	36 oz-in	6 A				25Dx50L mm HP
	275 RPM	24 oz-in	2.2 A				25Dx50L mm
34:1	285 RPM	60 oz-in	6 A	25Dx52L mm HP			25Dx52L mm HP
	165 RPM	40 oz-in	2.2 A	25Dx52L mm			25Dx52L mm
47:1	210 RPM	80 oz-in	6 A	25Dx52L mm HP			25Dx52L mm HP
	120 RPM	50 oz-in	2.2 A	25Dx52L mm			25Dx52L mm
75:1	130 RPM	130 oz-in	6 A	25Dx54L mm HP			25Dx54L mm HP
	75 RPM	85 oz-in	2.2 A	25Dx54L mm			25Dx54L mm
99:1	100 RPM	160 oz-in	6 A				25Dx54L mm HP
	57 RPM	110 oz-in	2.2 A				25Dx54L mm
172:1	57 RPM	260 oz-in	6 A				25Dx56L mm HP
	33 RPM	170 oz-in	2.2 A	25Dx56L mm			25Dx56L mm
227:1	25 RPM	220 oz-in	2.2 A				25Dx56L mm
378:1	15 RPM	250 oz-in	2.2 A				25Dx58L mm
499:1	12 RPM	300 oz-in	2.2 A				25Dx58L mm

Note: At some of the higher gear ratios, these motors can generate enough torque to damage themselves. Any torque greater than about 250 oz-in (18 kg-cm) is likely to damage the gearbox, so we recommend that you avoid stalling the 172:1 HP, 227:1, 378:1, and 499:1 versions of these motors at 6 V.

These motors are intended for use at 6 V. In general, these kinds of motors can run at voltages above and below this nominal voltage, so they should comfortably operate in the 3 – 9 V range, though they can begin rotating at voltages as low as 1 V. Higher voltages could start negatively affecting the life of the motor.

Details for item #1577

Exact gear ratio: $(22 \times 20 \times 22 \times 22 \times 22 \times 22 \times 24) / (12 \times 12 \times 10 \times 10 \times 10 \times 10 \times 10) \approx (171.79:1)$

Gearmotor Dimensions

These gearmotors have output shafts with a diameter of 4 mm. The Pololu universal aluminum

mounting hub for 4mm shafts can be used to mount our larger Pololu wheels (60mm-, 70mm-, 80mm-, and 90mm-diameter) or custom wheels and mechanisms to the gearmotor's output shaft (see the left picture below). These are the same type of motors used in the Wild Thumper all-terrain chassis, and the gearbox's output shaft works directly with the 120mm-diameter Wild Thumper wheels.



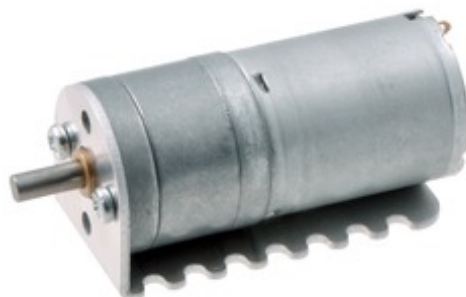
Pololu 60x8mm wheel on a Pololu 25D mm metal gearmotor.



Pololu

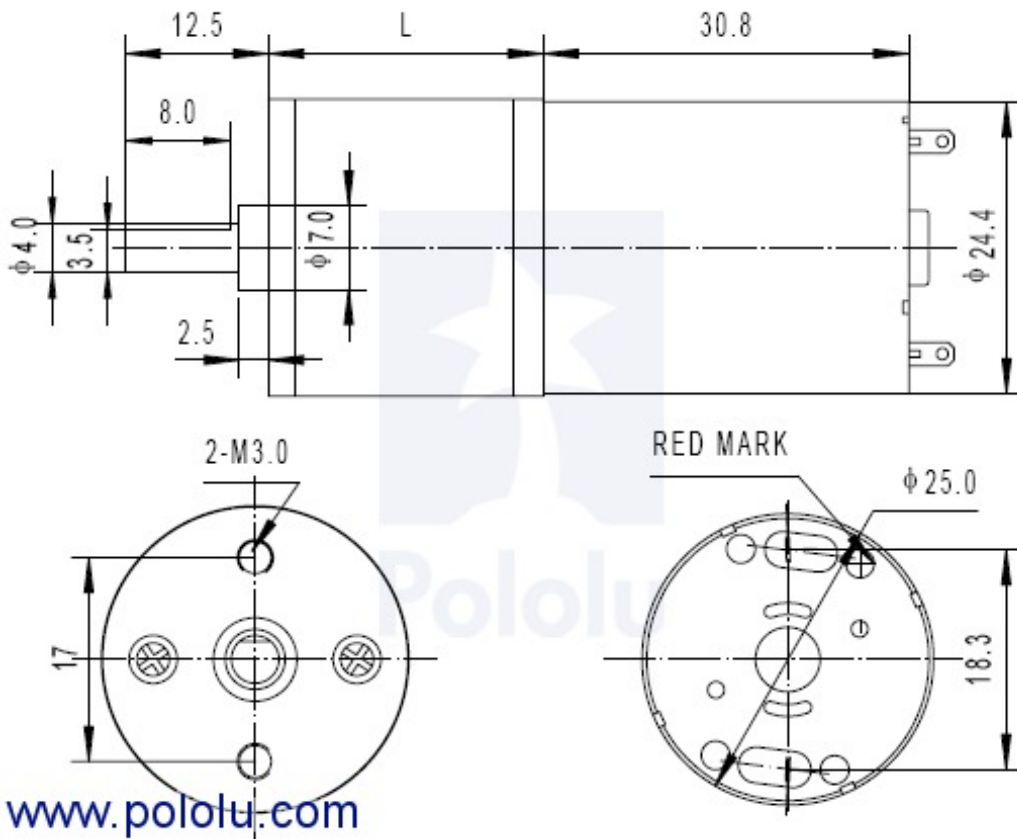
Dagu Wild Thumper wheel 120x60mm (chrome) with Pololu 25D mm metal gearmotor.

The face plate has two mounting holes threaded for M3 screws. You can use our custom-designed 25D mm metal gearmotor bracket (shown in the picture below) to mount the gearmotor to your project via these mounting holes and the screws that come with the bracket.



Pololu 25D mm gearmotor with bracket.

The diagram below shows the dimensions (in mm) of the 25D mm line of gearmotors. The value of L is shown in the table below.



Gear Ratio	L (mm)
4.4:19.7:1	17
20.4:1	19
34.147:1	21
75:199:1	23
172:1227:1	25
378:1499:1	27

Dimension diagram (in mm) for the 25D mm metal gearmotors.

Selecting the Right Gearmotor

We offer a wide selection of metal gearmotors that offer different combinations of speed and torque. Our metal gearmotor comparison table can help you find the motor that best meets your project's requirements.

[Documentation on producer website.](#)