

POLOLU 30:1 MICRO METAL GEARMOTOR

HPCB 6V WITH EXTENDED MOTOR SHAFT

USER'S GUIDE

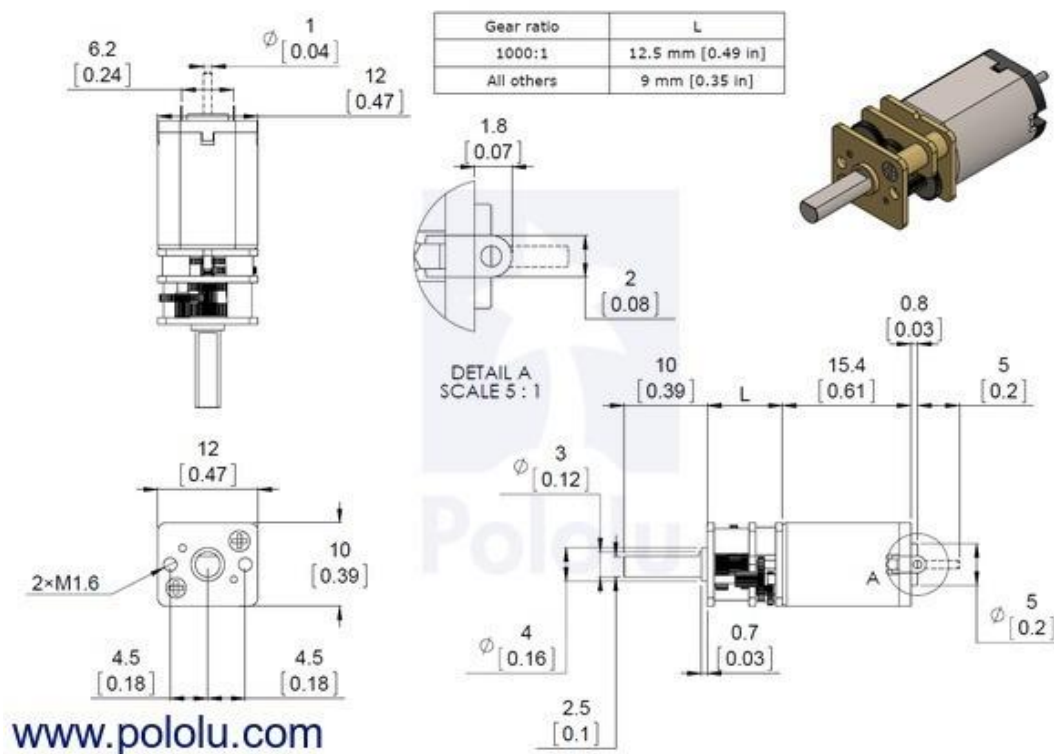
DETAILS FOR ITEM #3072

Exact gear ratio: $\frac{31 \times 33 \times 35 \times 34}{16 \times 14 \times 13 \times 14} \approx \mathbf{29.86:1}$

GEARMOTOR DIMENSIONS

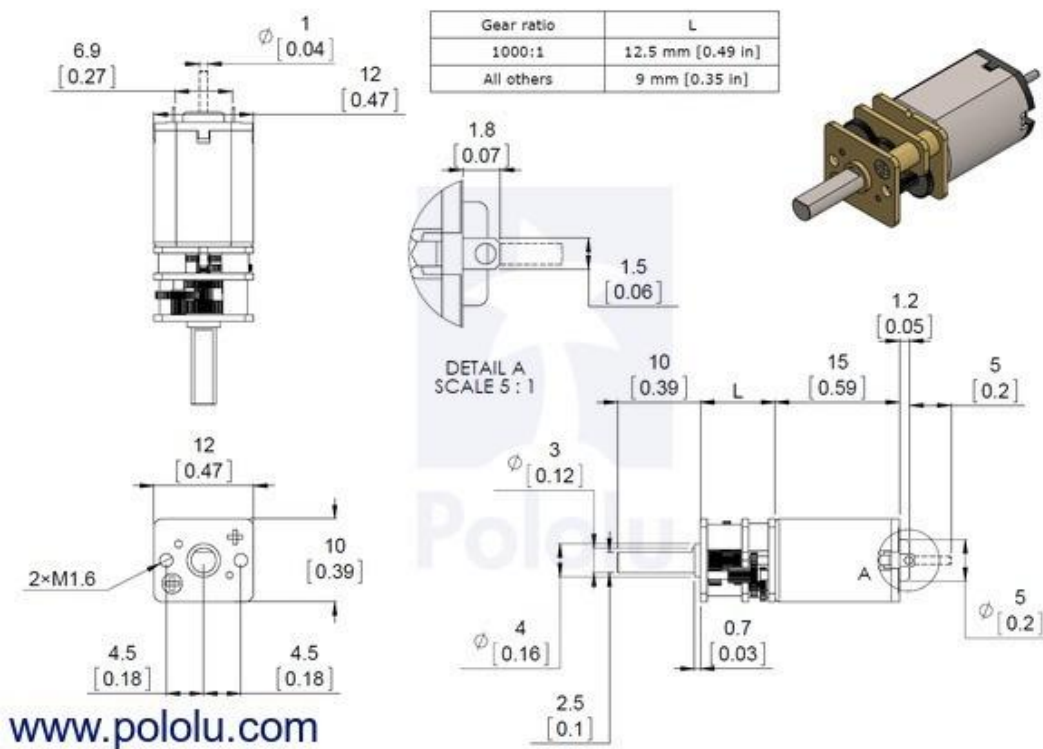
In terms of size, these gearmotors are very similar to Sanyo's popular 12 mm NA4S DC gearmotors, and gearmotors with this form factor are occasionally referred to as N20 motors. The versions with carbon brushes (HPCB) have slightly different terminal and end-cap dimensions than the versions with precious metal brushes, but all of the other dimensions are identical.

DIMENSIONS OF VERSIONS WITH CARBON BRUSHES (HPCB)



Dimensions of the Pololu micro metal gearmotors with carbon brushes (HPCB). Units are mm over [inches].

DIMENSIONS OF VERSIONS WITH PRECIOUS METAL BRUSHES (LP, MP, AND HP)



Dimensions of the Pololu micro metal gearmotors with precious metal brushes: low-power (LP), medium-power (MP), and high-power (HP). Units are mm over [inches].

These diagrams are also available as a downloadable PDF (262k pdf).

MOTOR ACCESSORIES

- **Wheels and hubs:** The micro metal gearmotor's output shaft matches our assortment of Pololu wheels and the Solarbotics RW2i rubber wheel. You can also use our Pololu universal mounting hubs to mount custom wheels and mechanism to the micro metal gearmotor's output shaft, and you can use our 12mm hex wheel adapter to use this motor with many common hobby RC wheels.



Pololu wheel 32x7mm on a micro metal gearmotor.



Black Pololu 70x8mm wheel on a Pololu micro metal gearmotor.



A pair of Pololu universal aluminum mounting hubs for 3 mm diameter shafts.



12mm Hex Wheel Adapter for 3mm Shaft on a Micro Metal Gearmotor.

- **Mounting brackets:** Our mounting bracket (also available in white) and extended mounting bracket are specifically designed to securely mount the gearmotor while enclosing the exposed gears. We recommend the **extended** mounting bracket for wheels with recessed hubs, such as the Pololu wheel 42×19mm. Our micro metal gearmotors will also work with our 15.5D mm metal gearmotor bracket pair.



Black micro metal gearmotor mounting bracket pair with included screws and nuts.



White micro metal gearmotor mounting bracket pair with included screws and nuts.



Pololu micro metal gearmotor bracket extended with micro metal gearmotor.

- **Quadrature encoders:** We offer several quadrature encoders that work with our micro metal gearmotors.



Magnetic Encoder Kit for Micro Metal Gearmotors assembled with ribbon cable wires.



Example of an installed micro metal gearmotor reflective optical encoder.

Note: The **HPCB** versions of our micro metal gearmotors are **not** compatible with our #2590 and #2591 optical encoders or our older #2598 magnetic encoders (the terminals are too wide to fit through the corresponding holes in the encoder boards). However, they are compatible with our newer #3081 magnetic encoders.

- **Motor controllers and drivers:** We have a number of motor controllers, motor drivers, and robot controllers that make it easy to drive these micro metal gearmotors. For the 6 V micro metal gearmotors, consider the DRV8838 single-channel motor driver carrier, the DRV8833 dual motor driver carrier, and DRV8835 dual motor driver carrier (or DRV8835 shield for Arduino). For the 12 V micro metal gearmotors, consider the MAX14870 single-channel motor driver carrier, DRV8801 single-channel motor driver carrier, and A4990 dual motor driver carrier (or A4990 shield for Arduino).



DRV8838 Single Brushed DC
Motor Driver Carrier.



Pololu A4990 Dual Motor
Driver Shield for Arduino,
bottom view.



DRV8835 dual motor driver
carrier.

- **Current sensors:** We have an assortment of Hall effect-based current sensors to choose from for those who need to monitor motor current:



ACS711EX current sensor carrier -15.5A to
+15.5A.



ACS714 current sensor carrier -5A to
+5A.

We also incorporate these motors into some of our products, including our Zumo robot and 3pi robot :



Assembled Zumo 32U4 robot.



Pololu 3pi robot.

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.



Some of the Pololu metal gearmotors.