Handson Technology

Nema17 Planetary Geared Stepper Motor

This high precision NEMA 17 Stepper motor has an integrated Planetary Gearbox with a 1:5.18 gear ratio, the resolution can reach 0.35°step angle. It's a good solution in applications that need very low rotation speeds and/or lots of torque. Suitable for 3-D printer filament extruder application.

Electrical Data:

- Manufacturer Part Number: 17HS19-1684S-PG5.
- Motor Type: Bipolar Stepper.
- Step Angle: 0.35°.
- Holding Torque: 2Nm.
- Rated Current/phase: 1.68A.
- Phase Resistance: 1.65ohms.
- Recommended Voltage: 12-36V.
- Inductance: 2.8mH±20%(1KHz)

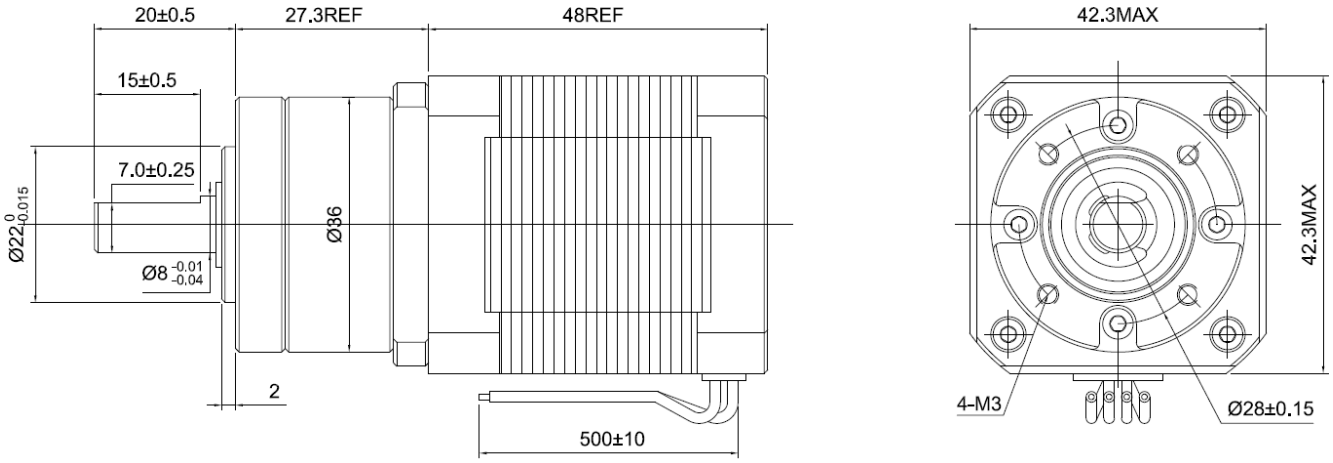
Gearbox Specifications

- Gearbox Type: Planetary.
- Gear Ratio: 1:5.18.
- Efficiency: 90%.
- Backlash at No-load: <=1°.
- Max.Permissible Torque: 2Nm(283oz-in).
- Moment Permissible Torque: 4Nm(566oz-in).
- Shaft Maximum Axial Load: 50N.
- Shaft Maximum Radial Load: 100N.

Physical Specifications

- Frame Size: 42 x 42mm.
- Motor Length: 48mm.
- Gearbox Length: 27.3mm.
- Shaft Diameter: Φ8mm.
- Shaft Length: 20mm.
- D-cut Length: 15mm.
- Number of Leads: 4.
- Weight: 520g.

Dimension Drawing (mm)



How to choose a geared stepper motor?

- Selecting a geared stepper motor will result in increasing the output torque and decreasing the speed. Simply, the Gearbox Output Speed is:

$$Output\ Speed = \frac{\text{Motor Speed}}{Gear\ Ratio}$$

- The gearbox output torque will depending on many factors, it can be calculated by:

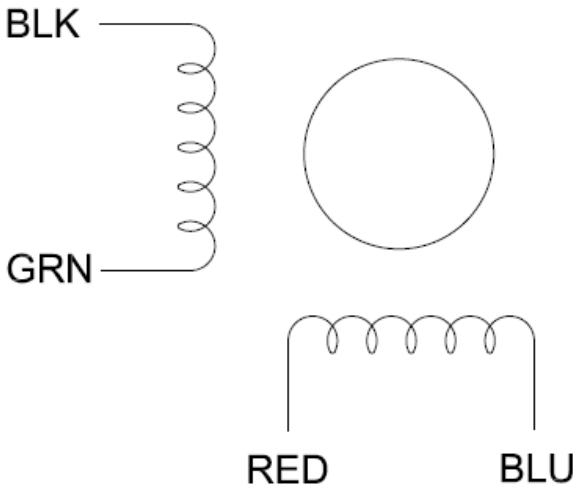
$$Output\ Torque\ = Motor\ Output\ Torque\ x\ Gear\ Ratio\ x\ Gearbox\ Efficiency$$

- The Gearbox Step Angle can be determined by:

$$Gearbox\ Step\ Angle = \frac{\text{Motor Step Angle}}{Gear\ Ratio}$$

- When choosing a stepper motor with a gearbox, keep in mind that the gearbox Max Permissible Torque, beyond which the gearbox could become damaged.

Connection Diagram:



Wire Color	Black	Green	Red	Blue
Board Connector	A	C	B	D