

Servo Motor (Full Metal Gear) MG945 TowerPro 180 Degree – Maximum Durability and Precision

The **Servo Motor (Full Metal Gear) MG945 TowerPro 180 Degree** is a **high-performance, heavy-duty servo motor** designed for **RC vehicles, robotics, automation, and DIY electronics projects**. With its **full metal gears**, the MG945 provides **unmatched durability, high torque, and precise positioning**, making it ideal for demanding applications where reliability is essential.

Unlike standard plastic or half-metal servos, the **full metal gear design** ensures **long-lasting performance**, even under heavy loads and frequent use. This makes the MG945 perfect for **robotic arms, pan-and-tilt camera systems, steering mechanisms, and other high-stress projects**.

Key Features

- **Full Metal Gears:** Maximum durability and resistance to wear under load.
- **High Torque:** Up to 12 kg.cm at 6V, providing strong movement for heavy-duty applications.
- **Rotation Range:** 0–180 degrees for accurate positioning.
- **Speed:** 0.20 seconds per 60 degrees at 6V for responsive control.
- **Wide Voltage Range:** 4.8V–7.2V, suitable for various projects.
- **PWM Control:** Standard 3-pin interface compatible with Arduino, Raspberry Pi, and other microcontrollers.
- **LED Indicators:** Visual feedback (for models with status LED).
- **Compact and Lightweight:** Easy to integrate into multiple designs.

Technical Specifications

- **Model:** MG945 TowerPro Full Metal Gear Servo
- **Torque:** 12 kg.cm at 6V (approx. 10 kg.cm at 4.8V)
- **Speed:** 0.20 sec / 60° at 6V
- **Operating Voltage:** 4.8V – 7.2V
- **Rotation Range:** 0° – 180°
- **Gear Type:** Full metal gears for maximum durability
- **Motor Type:** DC motor with potentiometer feedback
- **Connector Type:** Standard 3-pin PWM
- **Dimensions:** Approx. 40.7 x 19.7 x 42.9 mm
- **Weight:** 60g



Advantages of the Full Metal MG945

1. **Heavy-Duty Torque:** Handles larger loads such as robotic arms, grippers, and high-stress RC steering systems.

2. **Durable Gears:** Full metal gears ensure long life and minimal maintenance, outperforming plastic or half-metal servos.
3. **Precision Control:** Accurate 180-degree rotation for robotic, automation, and mechanical projects.
4. **Versatile Use:** Compatible with Arduino, Raspberry Pi, and other microcontroller boards.
5. **Reliable Performance:** Maintains stable movement under repeated use and heavy load conditions.

Applications

The **MG945 Full Metal Gear Servo** is suitable for a wide range of projects and real-world applications:

- **Robotic Arms:** Lift, rotate, and position objects with precision.

- **RC Vehicles:** Strong steering for cars, boats, and tanks.
- **Pan-and-Tilt Camera Mounts:** Smooth camera movement for photography, surveillance, or robotics.
- **DIY Projects:** Arduino and microcontroller-based automation projects.
- **Industrial Prototypes:** Small machines, automated levers, and mechanisms requiring high torque.
- **Educational Kits:** Teach robotics, mechanics, and electronics with reliable components.

How the Full Metal MG945 Works

The MG945 servo motor operates using a **DC motor coupled with a potentiometer feedback system**. A **PWM (Pulse Width Modulation) signal** from a microcontroller controls the angular position of the servo within its **0–180° range**.

The **full metal gears** transmit torque efficiently, allowing the servo to move heavier loads without stripping or deforming. The high-precision potentiometer ensures smooth and accurate motion, even under demanding tasks.

Example Project

A popular project is building a **robotic arm**. By combining multiple MG945 full metal servos, you can create joints and grippers capable of handling moderate to heavy objects with precise control.

Another example is a **pan-and-tilt camera system** for a security robot. Two MG945 servos can control horizontal and vertical camera movement, allowing smooth and accurate tracking of moving targets.

This servo is also perfect for **RC vehicles** that require high torque steering mechanisms capable of handling rough terrain or heavy loads.

Why Choose the MG945 Full Metal Servo

The **Servo Motor (Full Metal Gear) MG945 TowerPro 180 Degree** stands out for its **durability, precision, and high torque**. Its full metal gears make it ideal for demanding applications, while its standard PWM interface ensures easy integration with microcontrollers. Whether you are a **hobbyist, student, or professional engineer**, this servo provides **reliable, long-lasting performance** for your projects.

Conclusion

The **MG945 TowerPro Full Metal Gear Servo Motor** is a **powerful, precise, and durable actuator** for robotics, RC vehicles, automation, and DIY electronics. With **high torque, full**

metal gears, and 180-degree rotation, it delivers superior performance for projects that demand strength and accuracy.

Upgrade your **robotics and automation projects** with the **MG945 full metal servo motor** for **smooth, precise, and reliable movement**.