

Servo Motors (Micro and Standard)

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Robotics & Mechatronics

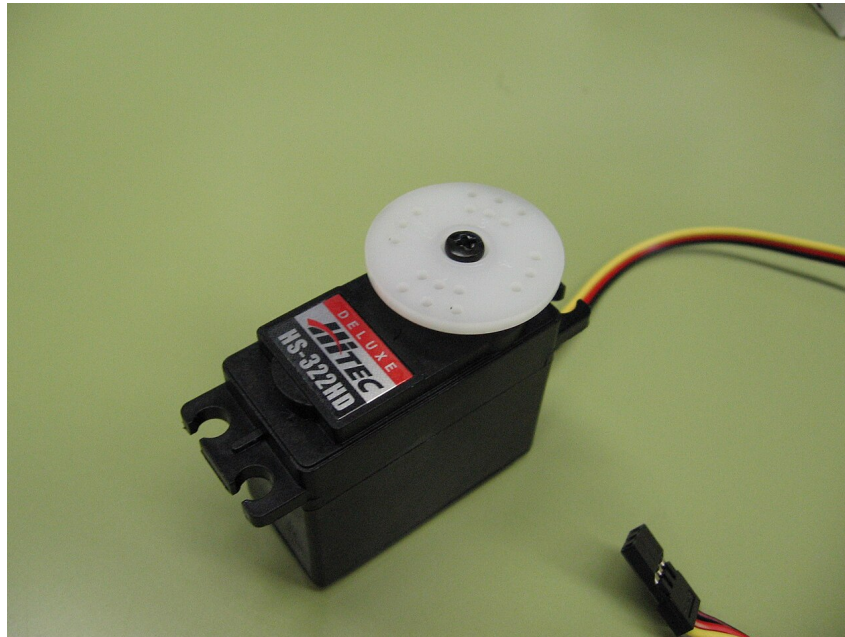


Photo: Jos? Luis G?lvez (Digigalos) — CC BY-SA 2.5 — via Wikimedia Commons (Servomotor_01.jpg)

Servo motors rotate to a commanded angle with position feedback, from micro servos (9 g, for models) to standard servos (50 g, for robots and mechanisms). They are the easiest precise motion device for student robots and automata.

Key Features

- Micro 9 g and standard 40-60 g sizes
- Torque from 1.5 to 15 kg-cm
- 180 degree rotation or continuous versions
- 3-wire connection: power, ground, signal
- PWM control at 50 Hz standard

Typical Uses in the Workshop

- Steer wheels and pans in robot projects
- Move arms, grippers and automata parts
- Control camera and sensor pan-tilt mounts
- Trigger mechanisms and doors in models

Safe Operation

1. Check the servo's working voltage range
2. Wire power, ground and signal correctly
3. Use the library sweep test before mounting
4. Mount with the supplied screws, not glue alone
5. Center the horn before attaching linkages

SAFETY NOTES

- Do not stall servos - they overheat and strip gears
- Keep fingers clear of moving arms
- Use the rated voltage - overvoltage burns motors
- Disconnect power when adjusting the horn
- Watch that the servo does not draw more than the supply

Maintenance & Consumables

- Check the gears for stripped teeth
- Clean dust from the output shaft
- Test torque and centering with a tester
- Keep spare horns and screws
- Store servos with the horn fitted

Specification & Buying Notes

A classroom set of SG90 micro servos plus standard MG996R metal-gear servos covers most builds. Buy a servo tester and an assortment of horns for quick mounting.