

DC Gearmotors

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

A DC gearmotor combines a small DC motor with a gearbox that reduces speed and multiplies torque, driving robot wheels, conveyor rollers and mechanisms. Gearboxes with nylon or metal gears come in many ratios, and encoders can be added for speed control.

Key Features

- Voltages from 3 to 12 V common
- Gear ratios from 10:1 to 300:1
- Nylon or metal gearboxes
- With or without quadrature encoders
- Shaft types: D, round, threaded

Typical Uses in the Workshop

- Drive robot car wheels directly
- Power conveyors and lift mechanisms
- Build line-following and sumo robots
- Drive record players and turntables

Safe Operation

1. Check the rated voltage and stall current
2. Wire to the driver with correct polarity
3. Mount with the bracket or double-sided tape
4. Test direction before mounting
5. Fit wheels with set screws or friction fit

SAFETY NOTES

- Do not stall gearmotors for long - they overheat
- Keep fingers and hair clear of gears and shafts
- Check the motor current stays within the driver rating
- Remove batteries when storing
- Secure wiring against moving parts

Maintenance & Consumables

- Clean the gearbox and shaft
- Check gear teeth for wear and stripping
- Lubricate with the recommended grease
- Replace worn wheels and tyres
- Check brush motors for sparks

Specification & Buying Notes

Buy gearmotors with bracket mounts and wheels in matched sets. Metal-gear models survive students better than nylon. Add encoder versions when teaching speed control.