



Stepper vs Servo Motors

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This article aims to summarize the advantages of using stepper motors over servo motors. It's intended as a brief summary only.

Best regards,

Characteristics	Stepper Motors	Servo Motors
Availability	Readily available from a number of suppliers. Easy to find	Harder to find
Braking	Steppers brake extremely well	Servo motors do not brake well
Cost	Inexpensive	Expensive
Mechanical Overload	Unlikely to be damaged by mechanical overload	Easily damaged by mechanical overload
Reliability	Steppers have only one moving part - the bearings. This means a longer life than servos	Brushes and encoders both need to be replaced periodically
Repeatability	Excellent repeatability	Encoder setup and quality can negatively affect repeatability
Ruggedness	Extremely reliable in harsh environments	Motor and encoder need to be protected. Less reliable in harsh environments
Safety	Motor stops if it breaks	Motor can "runaway" causing damage and injury
Setup	Plug and Play	Must be tuned
Simplicity	No feedback or encoder required	Requires encoder which can fail
Torque	Excellent torque at low speeds	Less torque at low speeds. Require gear reduction

