TABLE 1—BEST MOTORS FOR OPTIMIZING COST, PERFORMANCE, AND SIMPLICITY

Desired characteristic	Motor	Comments
Low cost	Step or dc brush	Brushless-dc-motor costs are decreasing but are still greater than step-motor or dc-brush-motor costs in most applications.
Smooth operation (minimal noise or vibration)	Brushless dc or dc brush	You can make brushless-dc motors smoother using high-performance commutation techniques, such as sinusoidal commutation.
High-speed operation	Brushless dc or dc servo	Step motors are not generally suitable for applications beyond 5000 rpm.
High-torque-to-size ratio	Brushless dc or step	Over the full velocity spectrum, brushless motors are superior to step motors, whose torque drops off at higher speeds.
Ease of use	Step	Servomotors require no feedback and no servo tuning.
Single-phase operation (lower amplifier cost)	DC servo	Step and brushless-dc motors are multiphase devices requiring more than one amplifier circuit per motor.