Minuteman | Empire
Automation Systems

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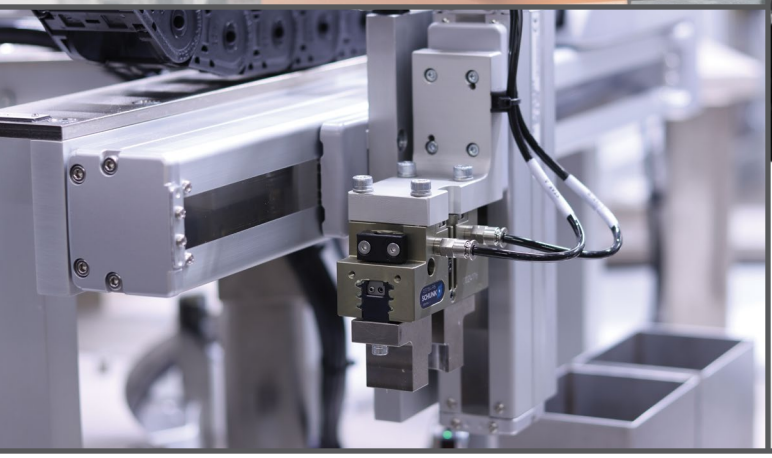
ELECTRICAL MOTION CONTROL



B&R IAI Quality and Innovation Nidec SCHUNK

WHAT IS MOTION CONTROL?

Motion control is a segment of automation often describing the method of moving parts of machines in a controlled manner. Typically this involves some sort of actuator acting as the main body of movement combined with a motor to facilitate the motion as well as a controller to input desired values for variables like speed, torque, and position.

Considerations for Choosing an Actuator

- Speed / Acceleration
- Payload / Force
- Stroke
- Orientation
- Cycle Time
- Size Constraints
- Mounting Requirements
- Budget
- Environment Conditions
- Lifetime

INTEGRATED MOTOR ACTUATORS

Instead of individually selecting every component in an open architecture system, certain elements are offered as a combined product. An actuator with an integrated motor simplifies part of the product selection process as it is a pre-engineered solution. There are also less concerns with compatibility and it provides a more compact overall footprint typically. These factors improve the ease of use to the end user.

BELT DRIVE

IAI
RCP2-BA Series

BALL SCREW

IAI
RCP6 Series

ROLLER SCREW

Exlar
GTX Series

LINEAR MOTOR

Schunk
ELP Series

**Regionally Authorized Suppliers*

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ACTUATORS

BELT DRIVE

Utilizes belts and pulleys to convert rotational motion to linear motion.

IAI
IFA Series

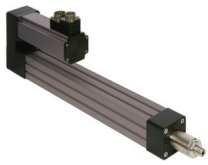
BALL SCREW

A threaded shaft acts as a helical raceway for ball bearings resulting in a precision screw with minimal friction.

SCHUNK
HSB Beta Series

ROLLER SCREW

Uses threaded or grooved rollers to act as load transfer elements rather than ball bearings.



Exlar
K Series

LINEAR MOTOR

Utilizes a motor coil and permanent magnets to drive a carriage.

SCHUNK
SLD Series

RACK & PINION

A circular gear (pinion) engages teeth on a linear gear bar (rack).

Stober
ZR Series

ROTARY INDEXER

A highly repeatable degree of rotation on a dial via the rotational motion of a motor.

SCHUNK
ERT Series

MOTORS

STEPPER MOTOR

A digital pulse from a step motor drive causes the motor to increment one precise angle of motion. Increases in frequency of pulses results in a more continuous rotation to get to the desired position.

B&R
80MP Series

SERVO MOTOR

Based on where the motor shaft is versus the commanded position, only a particular amount of current is supplied to get to that position.

Nidec
Unimotor HD Series

AC MOTOR

AC motors commonly consist of two basic parts, an outside stator having coils supplied with alternating current to produce a rotating magnetic field, and an inside rotor attached to the output shaft producing a second rotating magnetic field.

Nidec
NEMA Series

DC MOTOR

DC motors have a stationary set of magnets in the stator and an armature with one or more windings of insulated wire wrapped around a soft iron core that concentrates the magnetic field.

Bison
200 Series

DRIVES

SINGLE AXIS

A drive that when paired appropriately with a motor allows a user to control variables such as speed, torque, and position.

B&R
ACOPOS

Nidec
M751 Base

MULTI AXIS

Similar to single-axis drives but can control more axes.

B&R
ACOPOS P3

Nidec
M751 Plus

GEARBOXES

Gear reduction is used to decrease speed and increase torque or vice versa. This can be done with an inline, right angle, or offset gearbox.

Apex Dynamics
AFXR Series

Stober
P(A) Series

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