



Quality built motors and controllers.

Tailored to your requirements.



800.232.2612 www.specialtymotors.com

Integrated, Intelligent (I²) Motor

Our Patented Design is the Easiest to Use Servo System on the Market

The I² Motor is a complete, integrated closed loop servo system including a brushless servo motor, controller, drives, power supply and feedback devices all in one compact package. It is designed for specialty equipment designers and system integration engineers to make your motion control solution fast and easy. It will cut your development time and cost to a fraction of a component system.

Motion commands are programmed using our I² Wizard software program available as a free download from the Specialty Motors web site. No programming knowledge is necessary to program up to 32 position and/or velocity commands.

Features and Functions

- Operates on any line power source 90VDC to 230VDC, 50/60 Hz
- Programmable inputs and outputs, current sourcing and sinking
- Universal I/O, 5-24 VDC
- 32 index motion profiles in velocity or position programmed with I² Wizard host software package
- Speed regulation to 0.1% of set speed
- Position resolution is 4096 counts per revolution
- Out of the box and running in 5 minutes

Take a Test Drive

Try it for yourself. Download our proprietary Wizard to program your own motion control profile with ease.



Download the I² Wizard at
www.specialtymotors.com



General Parameter Programmability

- I/O scale factors for defining units of speed and position
- Input and output offsets
- Loop gains for servo compensation
- Command and internal state limiters
- Motor matching values such as Kbemf

Digital Inputs: Enable/disable drive, homing, four programmable inputs

Digital Outputs: Motor enabled, motor fault, four assignable outputs

Analog I/O (0 to 10VDC or 4 to 20 MA, 12 bit): one programmable input and one programmable output

Available in 3 sizes with continuous power ratings up to 1 HP

 **Specialty
Motors**
SOLUTIONS IN MOTION

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your project requirements.

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Universal Motors

Built for Flexibility and Economy

Our Wound-Field Universal Motors are designed to your specifications.

Available as:

Complete motors
Part sets

Customized for:

Maximum Speed
Winding Current
Maximum Efficiency

Frame sizes available: 2.4" to 4.0"

Voltage Range: 24 to 230 VDC

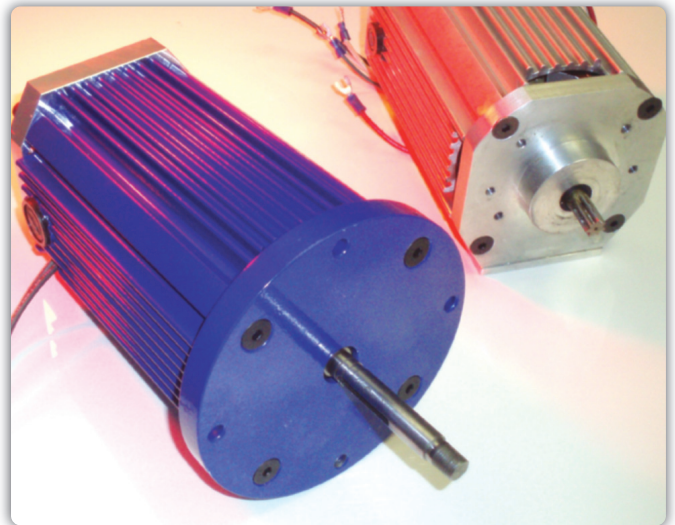
Speeds: 5,000 to 12,000 RPM

Power Output: up to 1.4KW (1.3Hp)

Current: up to 20A

Power your success with a custom motor solution.

Specialty Motors, Inc. is your partner in the design and production of fractional horsepower motors for custom applications. We offer brushless DC motors, universal wound-field motors, brush DC motors, controllers, and integrated motor-controllers.



Available designs include:

RoHS

Material ratings:

Class F or better insulation materials
Designed to conform to UL specifications

Gearheads

Shaft modifications:

Gears
Pinions
D-Cuts
Threads

Customized:

Endbells, Frames, Lead wires



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Brush DC Motors

Customized to be Simply Powerful

Our Brush Motors are designed to your specifications.

Available as:

Complete motors
Part sets

Customized for:

Maximum Speed
Winding Current
Maximum Efficiency

Frame sizes available: 1.0" to 4.0"

Voltage Range: 3.5 to 180 VDC

Speeds: up to 12,000 RPM

Power Output: up to 900W (1.253Hp)

Current: up to 40A

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Available designs include:

RoHS

Material ratings:

Class F or better insulation materials
Designed to conform to UL specifications

Gearheads

Shaft modifications:

Gears
Pinions
D-Cuts
Threads

Customized:

Endbells, Frames, Lead wires



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Brushless DC Motors

Crafted for High Performance and Time-Proven Economy

Our BLDC Motors are designed to your specifications.

Available as:

Complete motors

Part sets

Also available with sophisticated electronically commutated integrated controllers

Customized for:

Maximum Speed

Winding Current

Maximum Efficiency

Frame sizes available: 1.7" to 4.8"

Voltage Range: 12 to 230 VDC

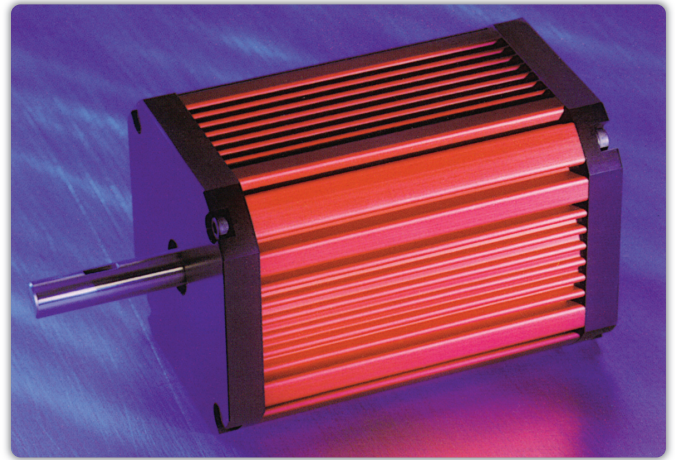
Speeds: up to 12,000 RPM

Power Output: up to 1KW (1.3Hp)

Current: up to 20A

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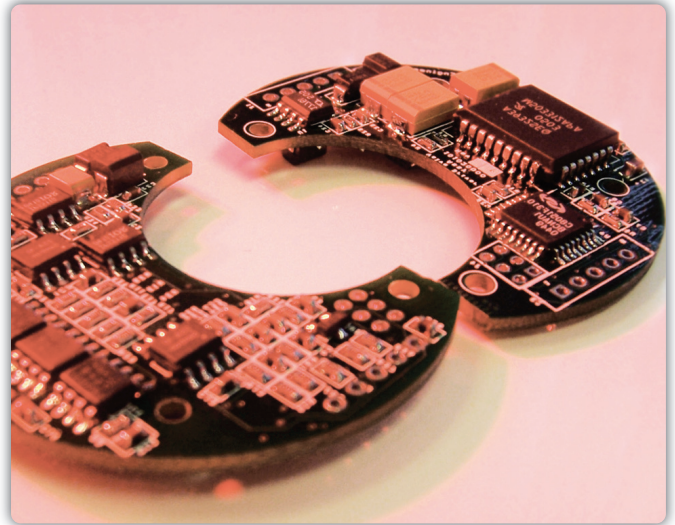
Motion Controls

Aerospace Controls Technology Designed for Cost Effective Industrial and Commercial Applications

Specialty Motors has teamed with FO Engineering of Valencia, CA, to offer custom designed, highly sophisticated control systems that provide a total motion control solution. The SMI/FO team offers complete engineering and manufacturing service from initial design concept through detail design and full rate production. FO Engineering has a proven reputation for simple, elegant designs and cost effective solutions to complex control problems.

Areas of engineering expertise include:

- Mathematical System Modeling and Analysis
- Motor and Gear Train Design
- Embedded Controller Design using highly integrated micro-controllers
- Low Level Analog Signal Conditioning
- High Power Electronics including EMI/RFI Design
- Planar Magnetic Transformers and Inductor Design
- PC Based Telecommunications
- Embedded and PC Application Programming
- Printed Circuit Board Design
- Hi Reliability, Redundant and Fault Tolerant Design
- Commercial and Military Aerospace Controls Design



Capabilities include:

- Electro-mechanical Motion Control Systems
- Hydraulic and Pneumatic Control Systems
- Electronic Measuring and Monitoring Systems
- Engine Control Systems

The company has designed, developed and built a broad range of aerospace, commercial and industrial products for: Aerospace Flight and System Controls, Home Entertainment, Inventory Controls, Environmental Remediation, Home Lighting and Energy Conservation.

See next page for some examples.

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Motion Controls continued

Environmental Remediation Vapor Extraction System

FO engineers designed and manufactured the carburetor and controller for a large industrial engine that runs continually on the vapors it extracts from ground polluted by gas and oil spills.

This project included:

- Complex system design
- Embedded processor development
- Application software
- Analog, digital and data acquisition circuit design
- Non-linear electro mechanical system modeling
- Mechanical packaging



Home Entertainment Remote Control Lift and Swivel for TV Screens



This product line requires highly integrated controls to lift/ lower, and swivel TV screens from high fashion furniture, cabinets and counters where they are stored out of sight when not in use. In this case, highly complex controls have been designed for simple, intuitive use in home or office.

Aerospace Controls Primary Flight Controls

This project required the design and manufacture of extremely high density controllers for the primary flight controls of a remote piloted helicopter. In this case a 5 oz. controller was developed that delivers 12 horsepower. The company has also designed control systems for precision guided weapons and aircraft operating systems.



Features include:

- High power electronics
- Planar magnetic transformers and inductors
- Digital signal processing
- Digital and analog circuit design
- Systems analysis and non-linear math modeling
- DC motor design

Other features include:

- RF and IR hand-held remote controls
- Easy interface with other automatic devices used in the home
- Switch selectable operating modes
- Built in position memory
- Automatic programming



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