



# Custom OEM Motor Solutions

## Sub-Fractional to 3 HP



**DESIGN. SOURCING. QUALITY. LOGISTICS. SUPPORT.**

GOALS

Partnership

BUSINESS

TEAM

Work with a  
partner who  
invests in you.

TEAMWORK

TRUST

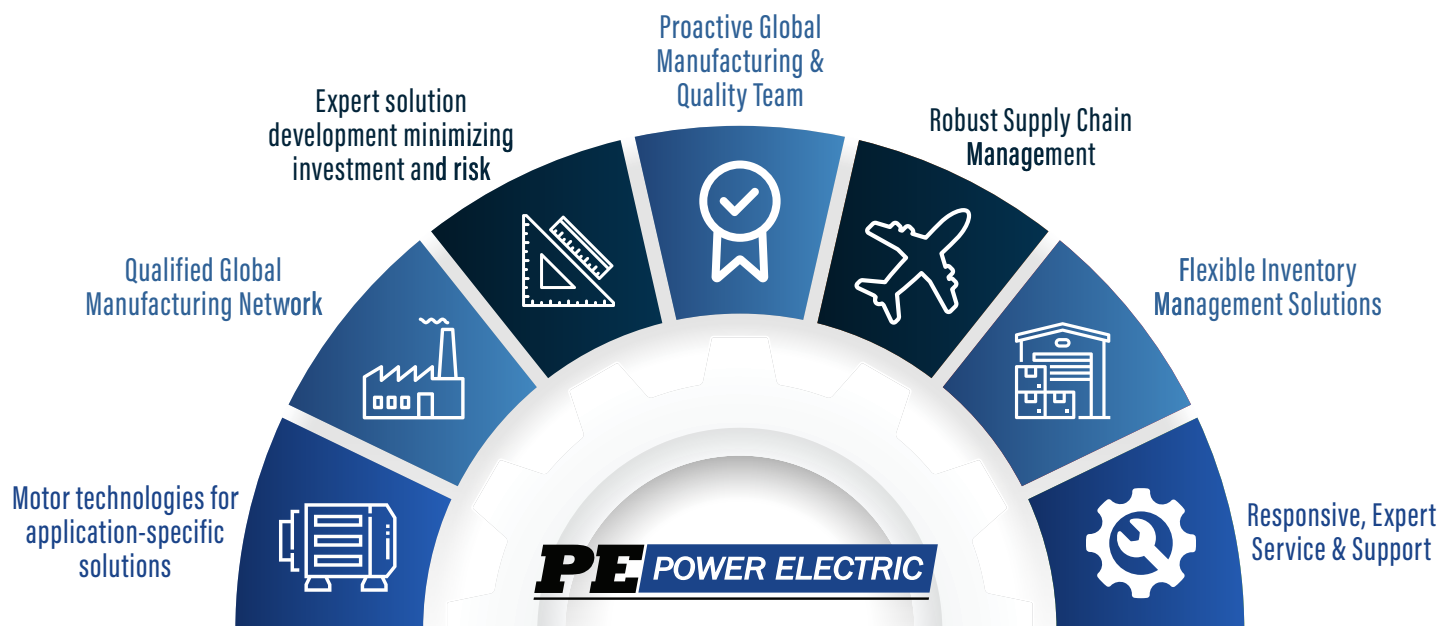
COLLABORATION

## Solving Challenges for OEMs since 1986.

### Experience Matters

OEMs turn to us to overcome the motor and gear motor obstacles that limit their ability to increase sales of their products. Our success is built upon our proven ability to develop and deliver the optimal solution for each unique client application and our investment in each development program to minimize risk for our clients.

## Value Beyond the Motor







We've worked with OEMs for decades to deliver a motor or gear motor designed specifically for each individual application at the best value. Our internal quality and engineering resources become an extension of your project team to develop a powerful gear motor. From selecting technology to managing inventory, Power Electric is here to show you the differentiating value in our services cannot be beat.

# Trusted motor and gear motor technology experts.

## Application-specific motors make the difference

OEMs know how they want their equipment to perform. We know how to develop the optimal motor solution to make it happen. A broad core technology range with unmatched feature flexibility and motor application expertise results in nearly limitless options to properly solve each unique application.

### Core Technology Overview

Motor Technology	Motor Only	Inline / Offset Gear Motor		Right Angle Gear Motor		Controls / Drivers	Power Range (Watts)
		Planetary Gear Motor	Spur/Offset Gear Motor	Hypoid Gear Motor	Worm Gear Motor		
<b>AC</b> 	Induction	✓	✓	✓	✓	✓	15 - 2,200
<b>BLDC (BRUSHLESS DC)</b> 	Inner Rotor	✓	✓	✓	✓	✓	5 - 2,200
	Outer Rotor	✓	✓	✓	✓	✓	
<b>PMDC (BRUSH DC)</b> 	Brushed DC	✓	✓	✓	✓	✓	15 - 2,200
	Coreless	✓	✓	✓	✓	✓	
<b>STEP</b> 	Hybrid	✓	✓	✓	✓	✓	5 - 500
	PM	✓	✓	✓	✓	✓	

Micro Motors and Gear Motors • Motors with Integrated Controls • Motor and Gear Motor Sub-Assemblies

## Motor Table of Contents for Motor Brochure

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# Brushless DC Motors



Brushless DC Motors (BLDC motors) are an excellent solution for automated equipment applications where maximum motor life, efficiency, and power density are critical requirements. Since there are no carbon brushes or a copper commutator, the only wear items in the motor are the bearings, making the BLDC motor far superior to its brushed DC motor counterpart when long operating life is required.

We offer a wide range of BLDC motor solutions that are engineered and manufactured to specifically meet or exceed your unique application requirements.

## Product Attributes

- 5 W – 2.2 kW Output Power
- 3 – 48 VDC Input Voltage
- Inner, Outer-rotor options
- 0 – 6.8 Nm (60 lb-in) Output Torque Range
- 480 – 26,000 RPM Output Speed
- 10 mm – 150 mm OD frame sizes
- Integrated gearing options
- IP20 to IP66
- UL, CSA, CE, RoHS available
- **Fully customizable**

## Benefits

- High Efficiency, Long Life vs. brushed DC
- Maintenance free
- Higher torque density
- Cost-effective
- Compact and minimal noise
- Great for high duty cycle applications
- Excellent controllability in positioning applications
- Optimized to unique application requirements

## Custom Motor Examples



[BLDC Pump Motor](#)



[Outer Rotor HVAC Motor](#)

## Applications



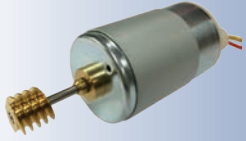
- Medical
- HVAC & Building Automation



- Robotics
- Material Handling



- Pumps
- Food & Beverage Equipment



# DC Brushed Motors

Brushed DC motors (PMDC) are a cost-effective and durable solution for many industrial and commercial equipment applications. PMDC motors offer excellent variable speed control and high starting torque for heavy load applications.

Available in a range of power levels and frames sizes, PMDC motors are easy to operate and are excellent for low duty dynamic braking and reversing applications. Traditional iron-core and coreless (ironless) options offer different advantages depending on your efficiency, EMI, and cogging torque needs. Our engineering knowledge and global resources will help you identify the best motor for your OEM application and budget.

## Product Attributes

- <1 W – 2.2 kW Output Power
- 3 – 180 VDC Input Voltage
- Iron-core, Coreless options
- 0 – 6.5 Nm (57 lb-in) Output Torque Range
- 600 – 11,000 RPM Output Speed
- 22 mm – 151 mm OD frame sizes
- Integrated gearing, pumps options
- IP20 to IP66
- UL, CSA, CE, RoHS available
- **Fully customizable**

## Benefits

- Durable
- Easy to use and maintain
- Good in variable speed or reversing applications
- Compact
- Great for low duty cycle applications
- Cost effective

## Custom Motor Examples



PMDC Motor with Gear



Non geared DC brushed



Motor with Offset gear reducer

## Applications



- Automatic Door Operators
- Pumps



- Medical
- Patient Mobility



- Hose Reels
- HVAC & Building Automation



# AC Induction Motors



AC induction motors are widely used in commercial and industrial equipment applications around the world because of their performance, flexibility, and reliability. Their huge available power range and ease of control make them a great fit for continuous duty applications where operational life, durability and performance are critical.

AC motors are easy to implement in basic applications as they can run off of line voltage with basic relays and switches along with a start/run capacitor, or a VFD in more complex applications. This simplicity and flexibility, combined with their variable speed capabilities, make AC motors the prime choice for continuous duty applications across most automated equipment markets. Power Electric is a leading developer and supplier of customized, fractional horsepower AC Induction motors and gear motors for market-leading OEMs in North America.

## Product Attributes

- 10 W – 2.2 kW Output Power
- 120, 240, 460 VAC Input Voltage
- 0.1 – 15 Nm (0.9 – 133 lb-in) Output Torque Range
- 1350 – 7200 RPM Output Speed
- 60 – 140 mm OD frame sizes
- Integrated In-line, Right-Angle, Offset Gearing available
- IP20 to IP54
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- Extremely reliable
- Easy to control and implement
- Extensive available power range
- Highly customizable
- Excellent power vs. cost
- Great for continuous duty applications
- Durable in extreme operating conditions

## Custom Motor Examples



[Door Operator Motor](#)



[High-Efficiency HVAC Motor](#)

## Applications



- Pumps
- Floor Care Equipment



- Conveyors
- Automatic Door Operators



- HVAC
- Food & Beverage Equipment



# Micro Motors

Micro motors and micro gear motors are often the perfect high-performance solutions for applications in which weight and size are critical while output power, efficiency and operating life must be optimized. From motor only options to gear motors with integrated feedback, our wide range of available technologies coupled with our application expertise results in "just right" solutions for our OEM clients.

Our network of world-class micro motor manufacturing locations, our internal global quality assurance team and our inventory management capabilities mitigate the burden and the risk of new product development and sustainability for OEMs.

## Product Attributes

- <1W - 10W
- 3VDC - 48VDC
- BLDC, PMDC, Stepper options
- 1 - 30,000 RPM
- 4mm - 38mm frame sizes
- Planetary, spur, worm and bevel gear options
- Metal or plastic housing and gear options
- Integrated electronics option
- Fully customizable

## Benefits

- Compact, light-weight
- Quiet Operation
- High Efficiency
- Low EMI
- Dimensional, material, performance flexibility
- Excellent field reliability

## Custom Motor Examples



Micro Motor - PMDC



PMDC Planetary Micro Gear Motor

## Applications



- Robotics
- Vending Machines

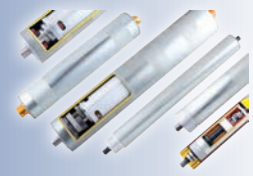


- Medical Hand Tools
- Wearable Medical Devices



- Safety and Security Equipment
- Pumps

# Roller Motors



Roller Motors are an excellent way to increase productivity, and when compared to alternative traditional solutions these motors offer space savings, a reduction in parts, and an increase in operator safety by removing all external moving parts. Additionally, these motors offer a reduction in operating costs and increased efficiency when compared to traditional alternatives.

Power Electric has a wide range of available speeds, power, and sizes to meet your application needs. We offer many options for the motors including material options such as mild steel and food grade stainless steel. Additionally, Power Electric offers surface finish options to make sure you have the traction needed to prevent slip and keep your products in motion.

## Product Attributes

- 15 – 3500 W Output Power
- 24 – 48 VDC, 110/220/380 VAC Versions
- Stainless or Mild Steel options
- 0 – 532 Nm (386 ft-lbs) Output Torque
- 7.6 (1.4m/min) to 821.9 RPM (822m/min) Output Speed
- IP40, IP54 options
- 50 (1.97") – 216 mm (8.5") OD frame sizes
- 260 (10.24") – 500 mm (19.69") length range

## Benefits

- High efficiency compared to alternatives
- Reduction in size
- Reduction in parts and maintenance
- Controlled output speed and braking
- Optimized to unique application requirements

## Custom Motor Examples



Roller Motor



Roller Motor - Internal View

## Applications



- Conveyors
- Food Service Equipment



- Material Handling
- Warehouse Automation



- Protective Shutters
- Screen / Divider Actuation





# Planetary Gear Motors

Planetary gear motors offer tremendous torque versus speed performance capabilities, extremely high efficiency, low backlash, and excellent durability in an inline form factor. Power Electric's available combinations of motor technologies, frame sizes, gear ratios, and mechanical features result in optimal solutions for nearly any commercial or industrial equipment application.

Our expertise in motor and gearing technologies enables OEMs to develop, qualify, and implement new gear motor solutions in less time, using fewer internal resources, and with essentially no risk. Power Electric is a trusted supplier of precise, high-performance, and dependable planetary gear motor solutions for market-leading OEMs across a wide range of industries.

## Product Attributes

- 5 – 300 W Output Power
- 3 – 90 VDC Input Voltage
- Brushless, Brushed, Stepper motor options
- 0 – 120 Nm (0 – 1,062 lb-in) Output Torque Range
- 5 – 1,000 RPM Output Speed
- 3.4 mm – 82 mm OD frame sizes
- Steel and Plastic gear options
- IP20 to IP65
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- High performance
- Compact, lightweight
- High precision, low backlash
- High efficiency
- Extensive range of motor types, frame sizes, ratios
- Great for reversing or positioning applications
- Optimized to unique application requirements

## Custom Motor Examples



Gear Motor + Coupling Assembly



PMDC Gear Motor



BLDC Gear Motor

## Applications



- Food & Beverage Equipment
- Medical Equipment



- Robotics
- Patient Mobility



- Automatic Door Operators
- Pumps

# Offset Shaft Gear Motors



Offset or Parallel Shaft gear motors offer high-performance, tremendous value, and mechanical flexibility across a wide range of commercial equipment applications. They utilize traditional inline gear technologies, spur or helical gears, with stages arranged in a manner that results in a very short gear motor package. The gear arrangement also provides clearance beneath the motor for attaching the load to the output of the gear reducer, which is not possible with in-line gear motors.

Offset shaft gear motors are efficient, provide a wide range of gear ratios, and can be manufactured with solid or hollow output shafts making them perfect for a wide variety of commercial, medical and smart agriculture equipment solutions. Our technical expertise and global resources enable OEMs to identify the optimal gear motor solution for their unique application requirements.

## Product Attributes

- 3 W – 2.2 kW Output Power
- 12 – 48 VDC, 110/220/460 VAC Versions
- Brushless DC, Brushed DC, AC Induction Motor options
- Gear Ratios from 5:1 to >400:1
- Solid or Hollow Output Shaft Options
- 1 – 160 Nm (1,416 lb-in) Rated Output Torque
- 17 – 300 RPM Output Speed Range
- IP20 to IP67
- UL, CSA, CE Available
- **Fully customizable**

## Benefits

- High efficiency
- Excellent performance and reliability
- Mechanical flexibility
- Cost effective
- Extensive range of motor types, frame sizes, ratios
- Great for continuous or intermittent applications
- Optimized to unique application requirements

## Custom Motor Examples



Hollow Bore AC Gear Motor



AC Gear Motor - Food & Beverage



Solid Output AC Gear Motor

## Applications



- Ice Making Equipment
- Automated Pool Covers



- Frozen Beverage Machines
- Smart Agriculture Equipment



- Conveyors
- Patient Mobility Equipment



# Hypoid Gear Motor

Hypoid gear motors combine the unmatched torque capabilities of worm gearing and the speed and efficiency benefits of spiral bevel gearing all in a compact, high performance, right-angle solution. This unique combination of performance capabilities gives OEMs a durable, right-angle gear motor solution without the traditional speed, torque, and size limitations.

Power Electric is a proven supplier of hypoid gear motor solutions engineered and optimized to unique customer requirements. Our expertise in motor and gearing technologies enable OEMs to develop, qualify, and implement new gear motor solutions in less time, using fewer internal resources, and with essentially no risk.

## Product Attributes

- 15W – 2.2KW Output Power
- 24 – 180 VDC, 110/220/460 VAC Versions
- Brushless DC, Brushed DC, AC Induction motor options
- Gear ratios from 5:1 to 240:1
- 5 – 150 RPM Output Speed Range
- 1 – 360 Nm (3,100 lb-in) Rated Output Torque
- IP20 to IP54
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- Long-life
- Extensive range of motor types, frame sizes, ratios
- Great for continuous or intermittent applications
- Optimized to unique application requirements
- High performance & durable
- Very compact
- High efficiency
- Cost effective

## Custom Motor Examples



PMDC Gear Motor with Brake



AC Gear Motor

## Applications



- Automatic Doors
- Food Service Equipment

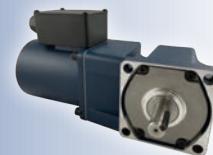


- Conveyors
- Material Handling



- Ice Making Equipment
- Commercial Equipment

# Bevel Gear Motors



Bevel Gear Motors provide commercial equipment manufacturers with excellent efficiency and high speed capabilities in a compact, right-angle package. Most commonly offered with either straight or spiral gear geometries, bevel gear motors are the preferred right-angle solution in high or continuous duty cycle applications where efficiency, quiet operation, and maximum life are priorities.

For applications that require higher torque versus speed capabilities, inline gear stages can be integrated into the input or the output of a bevel gear reducer to increase the reduction ratio without drastically reducing the efficiency of a gear motor.

Power Electric is a leading supplier of bevel gear motor products specifically engineered and optimized to our clients' unique application requirements. Our expertise in motor and gearing technologies enable OEMs to develop, qualify, and implement new gear motor solutions in less time, using fewer internal resources, and with essentially no risk.

## Product Attributes

- 25 – 250 W Output Power
- 12 – 120 VDC, 110/220/460 VAC Versions
- Brushless DC, Brushed DC, AC Induction motor options
- Gear Ratios from 3:1 to 180:1
- 0.5 – 60 Nm (531 lb-in) Rated Output Torque
- 10 – 1000 RPM Output Speed Range
- Electric brake option available
- IP20 to IP54
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- Excellent efficiency
- Long-life
- Compact, right-angle
- Extensive range of motor types, frame sizes, ratios
- Great for continuous or high-duty cycle applications
- Quiet operation
- Backdrivable
- Optimized to unique application requirements

## Custom Motor Examples



AC Gear Motor - Conveyor Drive

## Applications



- Automatic door operators
- Conveyors



- Robotics – AMR/AGV
- Material Handling



- Commercial food and beverage equipment
- Patient mobility





# Spur Gear Motors

Spur gears are arguably the most common type of gears in use today due to their simplicity, performance capabilities, and economical cost. Mounted on parallel shafts, spur gears distribute power through interlocking straight cut teeth that project radially and are parallel to the gear's axis. This relatively simple inline design results in unmatched performance versus cost when compared to other gear motor technologies.

The flexibility, durability and performance capabilities of spur gear motors make them the preferred solution in countless commercial equipment applications. Our extensive range of spur gear motor product capabilities provides OEMs with dependable solutions optimized to fit their unique application requirements.

## Product Attributes

- 5 – 2200 W Output Power
- 3 – 48 VDC, 100 – 460 VAC Input Voltage options
- Brushless DC, Brushed DC, AC Induction, Stepper motor options
- Gear ratios from 3:1 to 298:1
- 1 – 1,450 Nm (12,846 lb-in) Rated Output Torque
- 5 – 1,450 RPM Output Speed Range
- 14 mm – 213 mm OD frame sizes
- Steel and plastic gear options
- IP20 to IP54
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- Cost-effective
- Compact, lightweight
- Extensive range of motor types, frame sizes, ratios, materials
- High efficiency
- Great for infrequent start/stop applications
- Optimized to unique application requirements

## Custom Motor Examples



AC Gear motor



PMDC Gear Motor - Commercial Equipment



BLDC Gear Motor - Conveyor Drive

## Applications



- Automatic Door Operators
- Safety and Security Equipment



- Food & Beverage Equipment
- Commercial Equipment



- Pumps
- Ice Making Equipment



# Worm Gear Motors



Worm gear motors provide unmatched torque density in a right-angle configuration enabling OEMs to develop smaller, more powerful, and highly reliable machines. Our available combinations of motor technologies, frame sizes, gear ratios, and mechanical features result in optimal solutions for nearly any commercial or industrial OEM equipment application.

Power Electric is a trusted development and supply partner of worm gear motor solutions that are customized to meet the unique requirements of each client's application. Our expertise in motor and gearing technologies enables OEMs to develop, qualify, and implement new gear motor solutions in less time, using fewer internal resources, and with essentially no risk.

## Product Attributes

- 3 – 410 W Output Power
- 12 – 90 VDC, 120 – 460 VAC Versions
- Brushless DC, Brushed DC, AC Induction motor options
- Gear ratios from 10:1 to 350:1
- 5 – 132 Nm (1169 lb-in) Rated Output Torque
- 20 – 260 rpm rated Output Speed Range
- Single, dual extended, hollow output shaft options
- IP20 to IP65
- UL, CSA, CE available
- **Fully customizable**

## Benefits

- Compact size
- Excellent torque density
- Extensive range of motor types, frame sizes, ratios
- High Reliability
- Cost-effective
- Customized to meet unique application requirements

## Custom Motor Examples



BLDC Worm Gear Motor



DC Pump Gear Motor



DC Gear Motor - Smart Ag

## Applications



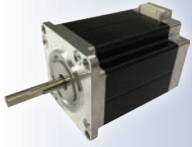
- Pumps
- Material Handling



- Patient Mobility
- Smart Agriculture



- Food Service Equipment
- Commercial Equipment



# Permanent Magnet Stepper Motors

Permanent magnet (PM) stepper motors provide incremental positioning capabilities and excellent zero speed holding torque in a cost-effective package. Step motors are used in many different applications that require accurate positioning and/or speed control. The number and frequency of input pulses control the respective rotational position and speed of a stepper motor by moving the motor in small rotational increments, called steps. PM Stepper motors consist of a permanent magnet rotor inside of a stator housing that contains the phase windings of the motor which create the rotating electromagnetic field that rotates the rotor.

PM stepper motors offer higher torque and lower cost than hybrid or variable reluctance stepper motors, but speeds are limited and their position resolution is higher (less precise). Our stepper motor specialists will assist you in defining the optimal stepper motor to meet your exact application needs.

## Product Attributes

- 4 – 42mm OD frame sizes
- 3, 5, 12, 24 VDC Input Voltage options
- 5°, 9°, 15°, 18° Step Angle options
- 2 – 700 mNm Holding Torque Range
- 0 – 5500 pulse per second speed range
- Unipolar, Bipolar versions
- Gear motor options (5 – 35 mm OD)
- **Fully customizable**

## Benefits

- Great position and speed control
- High holding torque
- Long operating life
- Optimized to unique application requirements
- Cost-effective
- Compact

## Custom Motor Examples



PM Stepper Gear Motor - Imaging Equipment



PM Stepper Gear Motor with Pinion Gear

## Applications



- Security and Surveillance Systems
- Printing and Scanning Equipment



- Dosing Equipment
- Linear Actuators



- Vending Machines
- Medical Equipment



## Seamless sourcing, production, and logistics

Often the least expected but the most valued capability by our clients is our complete management of the product supply chain which results in always-on-time delivery without cash consuming inventory. Flexible sourcing options give OEMs the ability to utilize the right inventory program for their specific needs:

- Just In Time (JIT)
- Vendor Managed Inventory (VMI)
- Consignment
- Kanban
- Worldwide Inventory
- Customized Programs

## Proven Motor Solutions for OEMs

From developing a motor that differentiates to removing the burden of inventory, Power Electric provides solutions for critical business challenges facing OEMs:

- Improving product quality or performance
- Streamlining supply chain
- Eliminating critical component shortages
- Releasing new products faster
- Increasing cash flow / reducing inventory
- Overcoming internal resource limitations

## Uncompromising Quality

Our commitment to quality results in a very rare benefit for our OEM clients: world-class quality AND globally competitive pricing. Our vetted network of high-volume manufacturing facilities coupled with our international team of quality engineers makes it all possible.

- ISO 9001, ISO 14001
- IATF 16949
- UL, CE, CSA
- RoHS, REACH



**Design. Sourcing. Quality. Logistics. Support.**

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