



AC MOTORS BUYING GUIDE

WHAT DO THEY DO?

AC motors convert electrical energy into mechanical motion for industrial automation tasks, driving everything from conveyors to pumps. Their designs vary to suit different operational demands and environments, ensuring reliable performance in specific applications. The AC motors available from AutomationDirect are all NEMA-sized frames, with the exception of IEC motors, which are IEC frame sizes. Motors support 230/460 VAC three-phase or 120/230 VAC single-phase.

Motor Types Overview

- **General Purpose and Inverter Rated:** Versatile motors for diverse tasks, compatible with VFDs to control speed and torque across various loads.
- **High-Performance Inverter Duty:** Designed for precise speed control and high torque, ideal for demanding automation requiring tight process parameters.
- **Washdown:** Built with corrosion-resistant and sealed housings, these motors withstand high-pressure cleaning in food, beverage, and other sanitary operations.
- **Severe Duty:** Rugged designs for harsh environments, resisting dust, chemicals, and extreme temperatures to keep critical operations running.
- **IEC Form Factor:** Conforms to international dimensional standards, enabling easy integration into global machinery designs and retrofits.
- **Open Drip Proof:** Cost-effective units with ventilation openings, suited for clean, dry environments where moisture exposure is minimal.
- **Brake Motors:** Feature integrated brakes for rapid stopping, supporting safety and positional accuracy in lifting or indexing tasks.
- **Centrifugal Jet Pump:** Purpose-built to drive water pumps, providing reliable fluid transfer in agricultural and industrial water systems.
- **Accessories:** Include couplings, shrouds, caps, and fans to enhance motor protection, cooling, or mounting flexibility.

Topics

- » [What Do They Do?](#)
- » [Applications](#)
- » [How to Choose](#)
- » [Enclosure Types](#)
- » [IP Ratings](#)
- » [Product Category Overview](#)
- » [Product Lineup](#)

APPLICATIONS

In industrial automation, AC motors are deployed across diverse tasks depending on required torque, speed control, and environmental protection. Matching motor type to application ensures efficient and reliable operation in demanding conditions.



General Purpose and Inverter Rated Motors: Used in mixers, agitators, and basic processing systems where consistent operation is required. Three-phase models also support variable-demand systems such as water treatment or energy optimization applications requiring improved efficiency and controlled performance when paired with a VFD.



High-Performance Inverter Duty Motors: Applied in extrusion, web handling, and synchronized production systems requiring precise coordination across multiple driven points. These motors deliver accurate speed control, fast dynamic response, and consistent torque for complex automation and continuous manufacturing processes.



Washdown Motors: Utilized in clean-in-place systems, sterile processing lines, food and beverage manufacturing, and wet agricultural applications such as produce handling and aquaculture. Their sealed, corrosion-resistant construction ensures hygiene, reliability, and durability in environments exposed to frequent washdowns, moisture, and harsh cleaning agents.



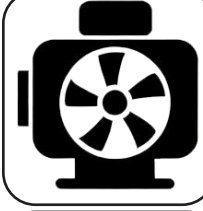
Severe Duty Motors: Commonly installed in mining, cement, and heavy processing industries where abrasive materials, shock loading, and corrosive environments are present. Engineered with rugged construction, they withstand continuous harsh operation in equipment such as mills, crushers, and bulk material handling systems.



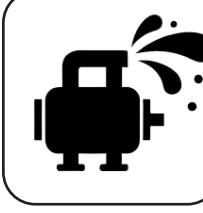
IEC Motors: Used in mixers, agitators, and basic processing systems where consistent operation is required. Three-phase models also support variable-demand systems such as water treatment or energy optimization applications requiring improved efficiency and controlled performance when paired with a VFD.



Brake Motors: Applied in precision-controlled systems such as indexing equipment, automated assembly stations, and robotics. Integrated braking ensures accurate stopping, holding, and positioning, improving safety and reliability in applications requiring repeatable motion control and prevention of unintended movement.



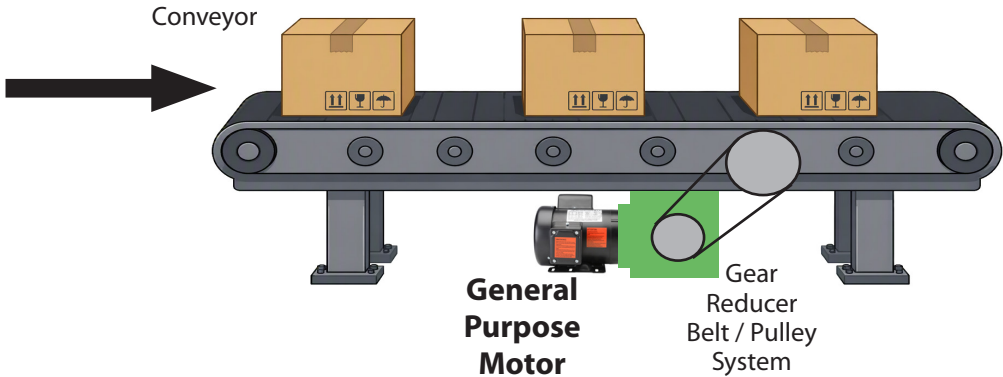
Open Drip Proof Motors: Found in controlled environments such as laboratories, electrical rooms, and protected industrial systems where cleanliness is maintained. These motors benefit from efficient airflow cooling and are best suited for indoor installations with minimal exposure to dust, moisture, or contaminants.



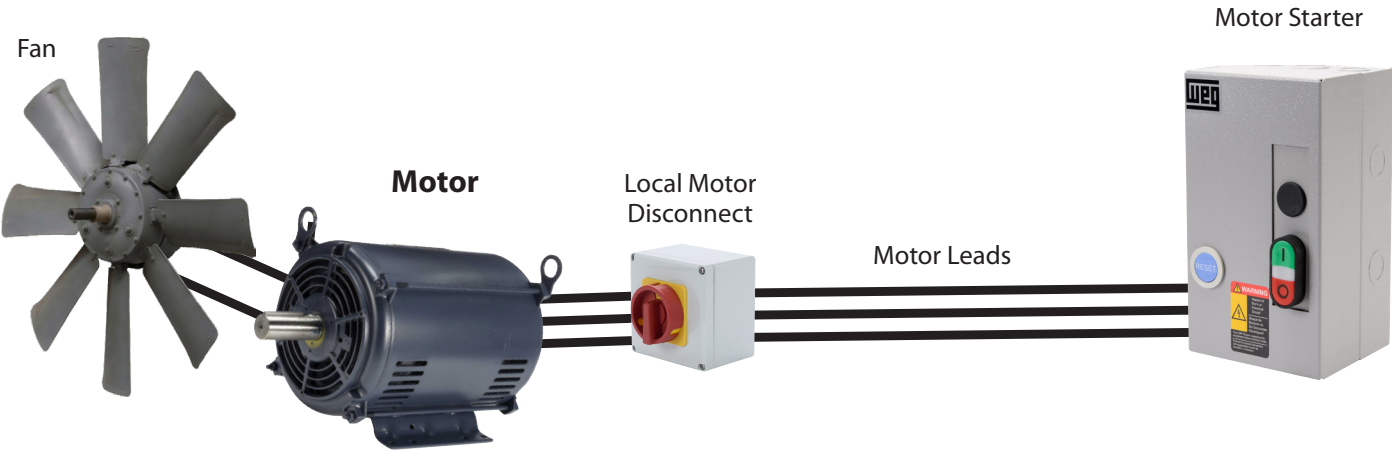
Centrifugal Jet Pump Motors: Used in greenhouse irrigation, livestock watering, and decentralized water supply systems. These motors provide dependable performance for low-volume or distributed fluid transfer applications, supporting reliable water movement in agricultural, rural, and light-duty commercial environments.

APPLICATION EXAMPLES

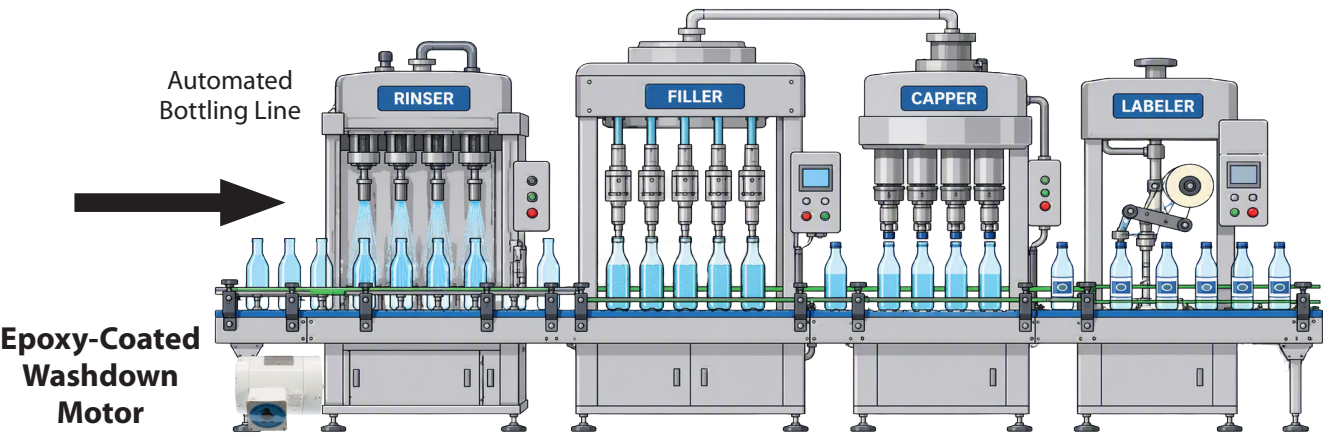
- **Conveyor Systems:** General purpose and inverter rated motors provide reliable, continuous operation for conveyor lines, moving products efficiently under varying loads. They handle frequent starts and stops without overheating, making them ideal for packaging and material handling.



- **HVAC Equipment:** 4-in-1, general purpose, or open drip proof motors power fans in ventilation systems, operating in clean indoor environments. Their ventilation design offers protection from overhead moisture intrusion while promoting airflow for motor cooling, offering low maintenance, long-term service in climate control applications.



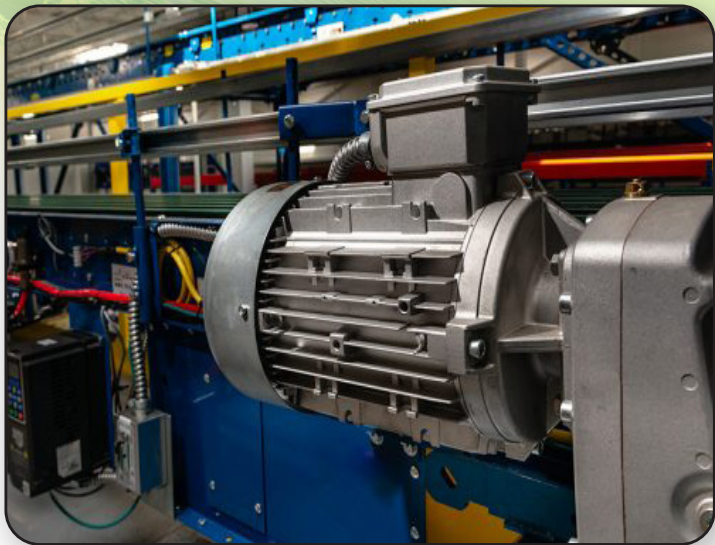
- **Food Processing:** Washdown motors deliver reliable performance in wet, corrosive food and beverage environments. Epoxy-coated and/or stainless steel housings resist oxidation, endure frequent sanitation cycles, and support hygienic design by protecting against harsh cleaning chemicals.



HOW TO CHOOSE

Choosing the right AC motor involves matching your application's requirements with the motor's characteristics. Consider environmental factors, load demands, speed control needs, and compatibility with your automation system for optimal performance and reliability.

1. **Power Requirement:** Determine mechanical power and torque needs based on load, speed, duty cycle, and start/stop frequency.
2. **Horsepower:** Choose a motor that meets or exceeds the calculated horsepower requirement derived from the torque and speed requirements.
3. **Application Speed:** Match motor RPM to process requirements, considering any drivetrain gearing or gear reduction.
4. **Phase and Voltage:** Match motor electrical specs to the available power supply, while considering branch circuit current capacity.
5. **Frame and Mounting Style:** Verify motor frame size compatibility with the existing mechanical setup and space constraints. Different frame styles are the available, including NEMA and IEC.
6. **Application Type:** Select a motor design suited for continuous, intermittent, single-speed or variable-speed operation.
7. **Duty Rating:** Look for service factor ratings that handle expected workload without overheating.
8. **Environmental Conditions:** Choose motor enclosure type/design and ratings for moisture, dust, heat, or corrosive exposure.
9. **Efficiency Goals:** Higher efficiency reduces heat generation and results in long-term energy cost savings.
10. **Control Compatibility:** Ensure the motor works with your chosen VFD, soft-starter, across-the-line starter, or control system.
11. **Speed Range:** If controlling with a VFD, ensure that the motor can run at the lowest expected speed without overheating.
12. **Starting Method:** Select appropriate motor starting capability for smooth engagement and minimal wear on mechanical equipment.
13. **Temperature Limits:** Verify thermal ratings for ambient and operational temperatures in your facility.
14. **Regulatory Compliance:** Ensure certifications meet safety and industry standards for your application.
15. **Maintenance Needs:** Favor robust designs that simplify inspection and repair.
16. **Overload Capacity:** Select motors capable of handling short-term load spikes.



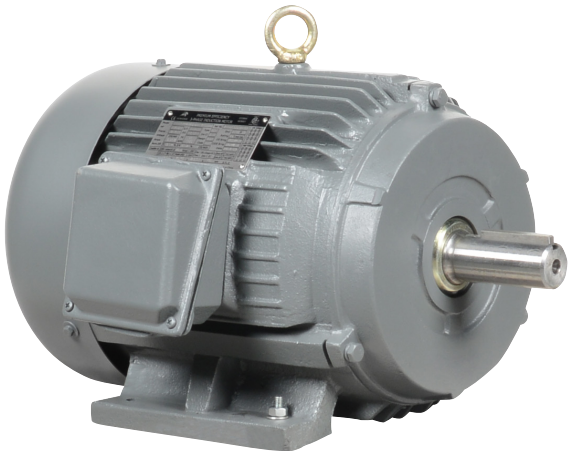
ENCLOSURE TYPES

Motor enclosure types—ODP (Open Drip Proof), TEFC (Totally Enclosed Fan Cooled), and TENV (Totally Enclosed Non-Ventilated)—describe how a motor is protected and cooled. Understanding these enclosure types helps in selecting motors suited to their environment, ensuring proper performance, longevity, and protection from contaminants.

TEFC (Totally Enclosed Fan Cooled) Motor Enclosures

Totally Enclosed Fan Cooled (TEFC) motors are designed to operate reliably in more demanding environments by sealing internal components from outside contaminants. An external fan circulates air over the motor's surface for effective cooling, helping maintain performance in dusty or damp conditions where protection is essential.

- Construction: Sealed enclosure with an external cooling fan
- Cooling: Fan blows air over the motor housing for excellent heat dissipation
- Advantage: Strong protection against dust, dirt, and moisture
- Environment: Suitable for dirty, dusty, or outdoor conditions
- Applications: Conveyors, compressors, pumps, and industrial machinery



TENV (Totally Enclosed Non-Ventilated) Motor Enclosures

Totally Enclosed Non-Ventilated (TENV) motors are designed for environments where quiet operation and protection from contaminants are critical. With no external fan, these motors rely on natural heat dissipation, making them ideal for clean or hazardous areas where airflow must be minimized.

- Construction: Fully enclosed housing without external ventilation or fan
- Cooling: Relies on natural convection and surface heat dissipation
- Advantage: Quiet operation with strong protection from contaminants
- Environment: Suitable for clean, washdown, or hazardous areas
- Applications: Food processing, packaging equipment, and VFD-controlled motors where they must operate at low speeds

ODP (Open Drip Proof) Motor Enclosures

Open Drip Proof (ODP) motors provide an economical and efficient solution for applications in clean, controlled environments. Their open design allows ambient air to circulate freely, delivering effective cooling and reliable performance where dust and moisture are minimal. ODP motors are widely used in general indoor industrial and commercial settings.

- Construction: Open frame with ventilation slots for airflow
- Cooling: Uses ambient air for efficient temperature control
- Advantage: Lower cost and high cooling efficiency
- Environment: Best for clean, dry indoor spaces
- Applications: HVAC systems, pumps, fans, and light industrial equipment



IP RATINGS

IP (Ingress Protection) ratings indicate how well a device is protected against solid particles (like dust) and liquids (like water). Understanding these ratings helps in selecting equipment that will perform reliably in specific environmental conditions and avoid damage or failure.

IP ratings are shown with the letters “IP” followed by two numbers:

- First digit (0–6): Solids protection; measures resistance to dust and other particles.
- Second digit (0–9): Liquid protection; measures resistance to water exposure.
- Higher number = better protection
- 6 = completely dust-tight
- 7 = protection against temporary immersion

IP Ratings for Solids		
Rating	Protects From	Protection Description
0	No Protection	No protection from ingress of objects
1	Objects larger than 50mm	No ingress of objects larger than 50mm (i.e., hands but not fingers)
2	Objects larger than 12.5mm	No ingress of objects larger than 12.5mm (i.e., fingers or similar)
3	Objects larger than 2.5mm	No ingress of objects larger than 2.5mm (i.e., screwdriver or similar)
4	Objects larger than 1mm	No ingress of objects larger than 1mm (i.e., wires, large bugs, or similar)
5	Limited dust ingress protection	No ingress of most dust particles, but not complete ingress
6	Full dust ingress protection	No ingress of dust (dust tight), surpasses previous protection limits



Examples:

TOSHIBA EQP Global SD motors carry an IP55 rating. They are designed to operate in dirty locations and withstand low-pressure sprays during routine cleaning cycles.



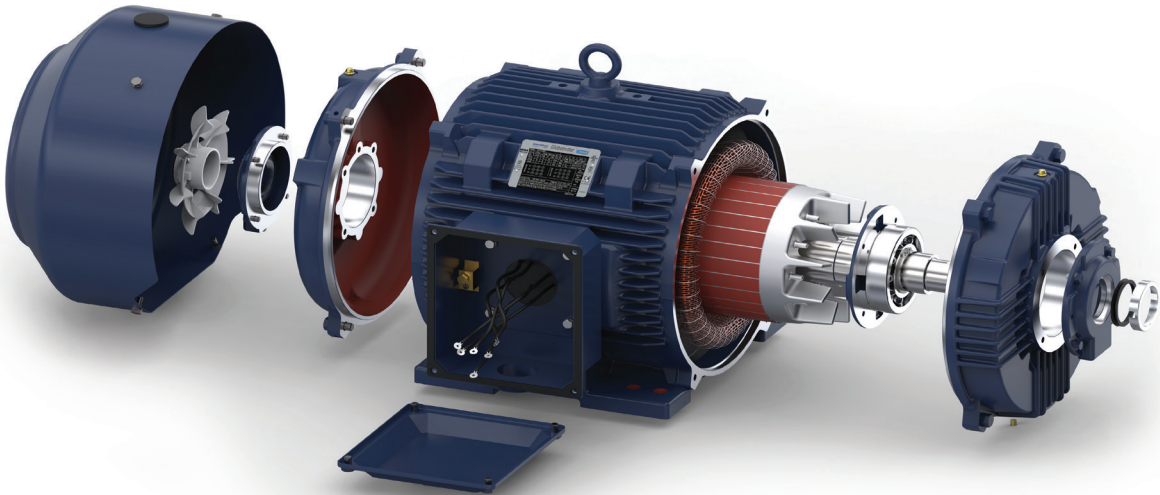
IP Ratings for Liquids		
Rating	Protects From	Protection Description
0	No Protection	No protection from ingress of liquids
1	Straight water drops	No vertical water dripping ingress (i.e., 1mm rainfall/minute)
2	Water dripping at 15° angle	No water drop ingress at 15° angle (i.e., 3mm rainfall/minute)
3	Water dripping at 60° angle	No water drop ingress at 60° angle (i.e., water spray nozzle)
4	Water splash, all directions	No water splash ingress from any angle
5	Water jets	No ingress from a 4.4 PSI (0.3 bar) water jet at 3m distance from any angle
6	Powerful water jets	No ingress from a 14.5 PSI (1 bar) water jet at 3m distance from any angle
6K	High-power water jets	No ingress from a 145 PSI (10 bar) water jet at 3m distance from any angle
7	Up to 1m water immersion	No ingress from immersion of lowest part up to 1000mm below water surface
8	Over 1m water immersion	No ingress from immersion of lowest part up to 3m below water surface
9K	High-pressure and temperature water jets	No ingress from 1,160 to 1,450 PSI (80 to 100 bar) close range water jet pressure with water up to 176°F (80°C). Surpasses previous protection limits

IronHorse MTSN series motors are rated IP69K and can withstand the harshest environments and frequent washdowns, making them ideal for food & beverage applications.



PRODUCT CATEGORY OVERVIEW

Product Category	What it Does	When to Choose This	Typical Applications	Key Selection Factors
General Purpose and Inverter Rated	Versatile motors for everyday industrial use; can run across-the-line or with a VFD	You need a reliable, all-around motor for standard conditions or plan to use speed control	Pumps, fans, conveyors, compressors	General purpose, inverter-rated, TEFC or ODP
Open Drip Proof	Basic motor with ventilation openings to keep it cool in clean, dry spaces	Your environment is clean/indoor and cost matters more than enclosure protection	Indoor fans, blowers, light-duty machinery	ODP enclosure, standard duty
High-Performance Inverter Duty	Designed for precise speed/torque control and for use with VFDs	You need tight control, wide speed range, or high-duty variable-speed performance	Automation systems, robotics, precision conveyors	Inverter duty, vector duty, constant torque, encoders on select models
Washdown	Built to withstand frequent cleaning and moisture exposure	Your equipment is regularly washed or exposed to water, chemicals, or sanitation requirements	Food & beverage, pharma, packaging lines	Stainless steel, epoxy-coated, IP-rated, corrosion-resistant
Severe Duty	Rugged motors for harsh, dirty, or extreme environments	Your application faces dust, vibration, temperature extremes, or outdoor exposure	Mining, aggregates, oil & gas, heavy industry	Severe-duty rated, cast iron, high protection
IEC	Metric motors built to IEC standards for global compatibility	You need drop-in replacement for IEC equipment or work with international machines	OEM equipment, imported machinery	IEC frame sizes, metric mounting
Brake Motors	Motors with built-in braking to stop loads quickly and hold position	Your system requires controlled stopping, safety, or load holding	Hoists, conveyors, lifts, packaging	AC brake motors, spring-set brakes
Centrifugal Jet Pump	Motors specifically matched for jet pump duty	You need a motor optimized for water movement and pump performance	Irrigation, water systems, pressure boosting	Jet Pump-duty motors, matched pump configurations



PRODUCT LINEUP



AC motors deliver dependable, energy-efficient performance across a wide range of industrial applications. Designed for efficiency and durability, they provide consistent torque, smooth speed control,

- Wide voltage range compatibility, including single- and three-phase
- High efficiency to support energy savings initiatives
- Robust construction for harsh industrial settings
- Smooth, reliable speed control for process consistency

and long service life, helping manufacturers optimize uptime, reduce operating costs, and meet demanding production requirements in even the toughest environments.

- Low maintenance requirements and extended life
- Compact, versatile designs for easy integration
- Quiet operation for improved workplace comfort
- Compatibility with modern AC drives
- Proven performance across diverse industries

GENERAL PURPOSE AND INVERTER RATED

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
IronHorse MTR Series	Everyday industrial equipment	Durable, versatile, easy mounting	Reliable, cost-effective performance	\$
IronHorse MTRP Series	Energy-conscious operations	Premium efficiency, VFD-ready	Lower operating cost over time	\$\$
Leeson NEMA Premium Efficiency	Demanding industrial use	Rugged, high-efficiency, long life	Handles tough jobs with energy savings	\$\$\$\$
Marathon Globetrotter (Rolled Steel)	General industrial use	Compact, inverter-ready	Proven dependable performance	\$\$\$
WEG Rolled Steel Series	Everyday plant operations	Flexible mounting, durable	Reliable go-to motor for industrial machinery	\$
Leeson 4-in-1 Series	Standardizing replacements	Multi-mount flexibility	One motor replaces many types	\$\$\$

IRONHORSE® MTR SERIES

STARTING AT \$204.00 (MTR2-P33-3BD36)

IronHorse MTR series motors are versatile, rolled-steel general purpose solutions for light industrial applications. Featuring TEFC construction, C-face mounting, and removable bases, they offer reliable performance for pumps, fans, and gear reducers. Designed for continuous duty, these motors provide durable, cost-effective operation in a compact NEMA 56 frame design.

- Available up to 3/4hp in three-phase and 2hp in single-phase configurations
- NEMA TEFC enclosure protects against dust and moisture
- NEMA 56C/56HC frame with flexible mounting options
- Rolled steel construction for durability and value
- Electrically reversible for installation flexibility
- Suitable for pumps, fans, and general machinery



mACM-8

IRONHORSE MTRP SERIES

STARTING AT \$272.00 (MTRP-001-3BD36)

The IronHorse MTRP series delivers premium-efficiency general purpose performance in a compact TEFC rolled-steel design. Built for VFD compatibility and continuous-duty operation, these motors provide improved energy savings and reliability, making them ideal for equipment requiring efficient, consistent performance in modern industrial environments.

- Available up to 3hp in three-phase configurations
- Premium efficiency designs meet modern energy standards
- NEMA TEFC enclosure ensures long-life operation
- Optimized for inverter-driven applications
- Compact NEMA 56C/HC frame construction
- Reliable for fans, pumps, and conveyors



MARATHON GLOBETROTTER TEFC ROLLED STEEL SERIES

STARTING AT \$542.00 (GT1210A)

Marathon Globetrotter TEFC rolled steel motors are versatile general purpose solutions designed for dependable performance in a wide range of industrial applications. Built with compact rolled steel frames and totally enclosed fan cooled protection, they offer reliable operation in environments where dust, dirt, or moisture are present, while supporting inverter duty operation for modern control systems.

- Available up to 10hp in three-phase configurations
- NEMA TEFC enclosure helps protect against contaminants
- Rolled steel construction for lightweight durability
- Inverter rated for variable-speed applications
- Ideal for pumps and conveyors
- Proven, cost-effective industrial performance platform



WEG ROLLED STEEL SERIES

STARTING AT \$234.00 (.2536ES3E56C-S)

WEG rolled steel motors provide reliable general purpose operation with robust construction and flexible mounting options. Designed for industrial applications, these motors offer TEFC/TENV enclosures, compact frames, and consistent performance across HVAC, pumping, material handling, and any application requiring dependable everyday operation.

- Available up to 20hp in three-phase and 2hp in single-phase configurations
- Available in TEFC and TENV configurations
- Compact NEMA frame sizes (56–256)
- Flexible mounting (rigid, C-face, footless)
- Reliable for HVAC and pumping applications
- Durable rolled steel construction





LEESON NEMA PREMIUM EFFICIENCY SERIES

STARTING AT \$691.00 (E2001A)

Leeson NEMA premium efficiency motors are high-efficiency, severe-duty solutions engineered for demanding industrial environments. Designed for across-the-line or VFD operation, they combine rugged cast-iron construction with premium efficiency ratings and reliable performance, making them ideal for continuous-duty applications such as pumps, compressors, and processing equipment.

- Available up to 2hp in three-phase configurations
- NEMA premium efficiency reduces operating costs
- Suitable for inverter duty applications
- 10:1 variable torque and constant torque on VFD with 1.0 service factor
- TEFC enclosure protects against contaminants
- Ideal for pumps, compressors, and process equipment

LEESON 4-IN-1 SERIES

STARTING AT \$402.00 (G571)

Leeson 4-in-1 motors provide versatile single-phase general purpose performance with flexible mounting configurations. Designed to replace multiple standard motor types, they offer cost-effective standardization across applications, combining TEFC durability, premium efficiency, and adaptability for HVAC, fans, pumps, and general industrial equipment.

- Available up to 2hp in single-phase configurations
- Multi-mount design reduces inventory complexity
- TEFC enclosure for reliable operation
- Capacitor start/run for high efficiency
- Suitable for a wide application range
- Standardized design simplifies replacement



OPEN DRIP PROOF

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
IronHorse MTDP Series	Clean indoor industrial use	Open drip proof design allows efficient airflow cooling with inverter-capable construction	Offers a cost-effective solution while maintaining efficient cooling in controlled environments	\$\$
Leeson Single-Phase ODP	Light-duty indoor equipment	Simple open construction designed for light-duty applications with reliable single-phase performance	Delivers dependable performance at a low cost for basic indoor equipment needs	\$
Marathon Globetrotter ODP	HVAC & airflow systems	Open design enhances airflow cooling while supporting consistent industrial motor performance	Provides efficient, reliable operation for systems requiring maximum airflow and cooling efficiency	\$\$\$

IRONHORSE MTDP SERIES

STARTING AT \$314.00 (MTDP-001-3BD18)

IronHorse MTDP series motors provide economical ODP performance for clean indoor environments. Built with rolled steel frames and inverter-capable designs, they deliver efficient cooling and dependable operation for fans, pumps, and general machinery while offering a cost-effective alternative to enclosed motors in controlled conditions.

- Available up to 50hp in three-phase configurations
- Open drip proof design enhances cooling efficiency
- Cost-effective solution for clean indoor settings
- Inverter-capable construction for VFD use
- Rigid base mounting simplifies installation
- Suitable for fans, pumps, and gear drives

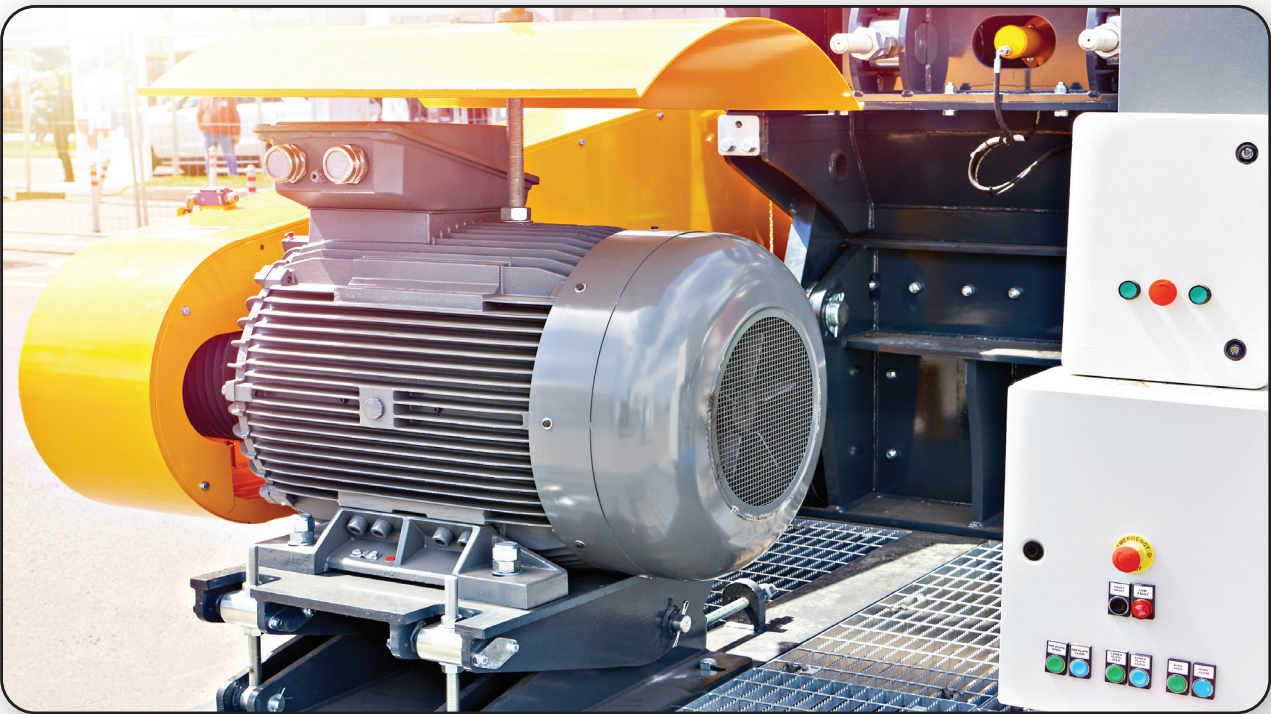


LEESON SINGLE-PHASE ODP SERIES

STARTING AT \$185.00 (4354)

Leeson single-phase ODP motors offer economical, reliable performance for light-duty indoor applications. Designed with open drip proof construction for improved cooling, they provide a cost-effective solution for fans, blowers, and general machinery where environmental exposure is minimal.

- Available up to 2hp in single-phase configurations
- ODP design improves heat dissipation
- Cost-effective solution for indoor environments
- Simple, reliable construction
- Ideal for fans and blowers
- Available in fractional hp ranges





MARATHON GLOBETROTTER ODP SERIES

STARTING AT \$466.00 (GT0010A)

Marathon Globetrotter ODP motors are efficient, general purpose workhorses designed for use in clean, well-ventilated environments. Featuring open drip proof construction and dependable performance characteristics, they provide an economical solution for HVAC systems, conveyors, and pumping applications that require consistent output and less restrictive airflow for cooling.

- Available up to 50hp in three-phase configurations
- Open drip proof design for clean indoor environments
- Inverter duty capability for application flexibility
- Wide horsepower range for industrial use
- Suited for HVAC and pumping systems
- Reliable, energy-efficient operating platform



HIGH-PERFORMANCE INVERTER DUTY

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
Marathon microMAX	Compact variable-speed systems	Compact inverter duty design delivering high torque and reliable performance in tight spaces	Replaces DC motors while improving efficiency and reducing maintenance requirements	\$\$\$
Leeson Compact Inverter Duty	OEM & machinery	Compact design with wide speed range and flexible mounting configurations for integration	Delivers strong performance in space-limited equipment with easy system integration	\$\$
U.S. Motors ACCU Torq	Precision control applications	Vector duty design supports precise speed control with extended constant torque capability	Enables highly accurate control for demanding automation and processing applications	\$\$
Leeson w/ Encoder	Precision automation	Integrated encoder provides real-time feedback for accurate positioning and speed control	Improves motion accuracy and control for advanced automation and positioning systems	\$\$\$\$
Marathon Black Max	Heavy-duty VFD systems	Rugged construction with vector duty capability and high torque output at low speeds	Ensures reliable operation in demanding processes requiring consistent torque and precision	\$\$\$\$
Leeson High Perf. Inverter Duty	General VFD use	Engineered for inverter operation with durable insulation and wide torque performance range	Delivers flexible performance across many applications requiring consistent variable-speed control	\$\$
Leeson PMAC	High torque, low-speed applications	Compact permanent magnet motor design with high efficiency and low heat operation	Provides superior efficiency and torque compared to traditional induction motors	\$\$\$
WEG S Vector Duty	High duty-cycle industrial automation	Heavy-duty vector design with advanced insulation for demanding VFD-driven applications	Provides consistent, reliable performance in high-demand automation and processing environments	\$\$\$



MARATHON MICROMAX SERIES

STARTING AT \$1,105.00 (Y1999)

Marathon microMAX motors are compact inverter duty solutions designed to replace DC motors in variable-speed applications. With high torque capability, high temperature-rated insulation, and flexible mounting, they provide efficient and reliable performance in automation, packaging, and light industrial systems requiring precise speed control.

- Available up to 10hp in three-phase configurations
- Excellent inverter duty replacement for smaller-framed DC motors
- High torque at low speeds
- Compact footprint for tight spaces
- Optimized for VFD control
- Ideal for packaging, conveyors, and automation

LEESON COMPACT HIGH-PERFORMANCE INVERTER DUTY SERIES

STARTING AT \$316.00 (Y500)

Leeson compact high-performance inverter duty motors are designed for demanding variable-speed applications requiring high torque and precise control. Built with premium insulation, wide speed capability, and flexible mounting configurations, they provide reliable, efficient performance across packaging, conveying, and OEM machinery environments.

- Available up to 2hp in three-phase configurations
- Designed as an AC motor replacement for PMDC motors when used with VFDs
- Wide speed range with constant torque and extended constant horsepower capability
- Compact design with C-face and removable base options for flexible installation
- Engineered for PWM/VFD operation with Class H insulation for durability
- Ideal for conveyors, packaging equipment, machine tools, and OEM systems



MARATHON BLACK MAX SERIES

STARTING AT \$1,594.00 (Y541A)

Marathon Black Max family motors deliver high-performance inverter duty and vector control capabilities. Designed for demanding applications requiring precise speed control and high torque, they feature robust construction, encoder compatibility, and advanced insulation systems for reliable operation under VFD control.

- Available up to 15hp in three-phase configurations
- Vector duty design for precise control
- Encoder-mounted configurations available
- High torque at low speeds
- High temperature-rated insulation handles VFD output
- Designed for automation and heavy-duty processes



U.S. MOTORS ACCU TORQ SERIES

STARTING AT \$395.00 (UN14T2BC)

U.S. Motors ACCU Torq motors deliver high-performance vector duty operation for precise speed and torque control. Designed for demanding VFD applications, they offer extended constant torque ranges, encoder compatibility, and rugged construction, making them ideal for extrusion, processing, and material handling systems.

- Available up to 20hp in three-phase configurations
- Vector duty design enables precise control
- Extended constant torque capability
- Encoder-ready configurations available
- Heavy-duty construction for industrial use
- Ideal for extruders, conveyors, and automation



LEESON HIGH-PERFORMANCE INVERTER DUTY WITH INTEGRAL ENCODER SERIES

STARTING AT \$1,230.00 (Y280)

Leeson high-performance inverter duty motors with integral encoder provide advanced inverter duty performance with integrated feedback for precise motion control. Designed for demanding applications, they offer enhanced speed regulation, high torque output, and reliable operation in automation, material handling, and process systems.

- Available up to 2hp in three-phase configurations
- Integrated encoder for precision control
- High torque across wide speed ranges
- Designed for VFD/vector control systems
- TENV construction reduces dust ingress
- Ideal for automation, speed control, and positioning applications



LEESON HIGH-PERFORMANCE INVERTER DUTY SERIES

STARTING AT \$460.00 (Y592)

Leeson high-performance inverter duty motors are engineered for advanced variable-speed applications where consistent torque and precise control are critical. Built with heavy-duty construction, inverter-optimized windings, and flexible configuration options, they provide long-lasting, dependable performance across a wide range of industrial systems.

- Available up to 2hp in three-phase configurations
- Engineered for vector drive operation with accurate speed control
- Optional encoder capability supports closed-loop feedback applications
- Delivers strong, consistent torque throughout the speed range
- Rugged insulation system protects against heat and VFD-related stress
- Built for conveyors, processing equipment, material handling, and heavy industrial use



LEESON PMAC SERIES

STARTING AT \$584.00 (SY001)

Leeson PMAC motors deliver advanced permanent magnet performance for variable-speed applications, offering higher efficiency and stronger torque output than traditional induction designs. With compact construction, low heat operation, and optimized VFD compatibility, they provide reliable, energy-saving performance in demanding applications.

- Available up to 2hp in three-phase configurations
- Higher efficiency than induction motors, especially at low speeds and partial loads
- Compact, high power-density design reduces size and weight requirements
- Designed exclusively for use with PMAC-compatible VFDs for optimal control
- Lower operating temperatures improve reliability and extend motor life
- Ideal for constant high-torque applications running at low speeds



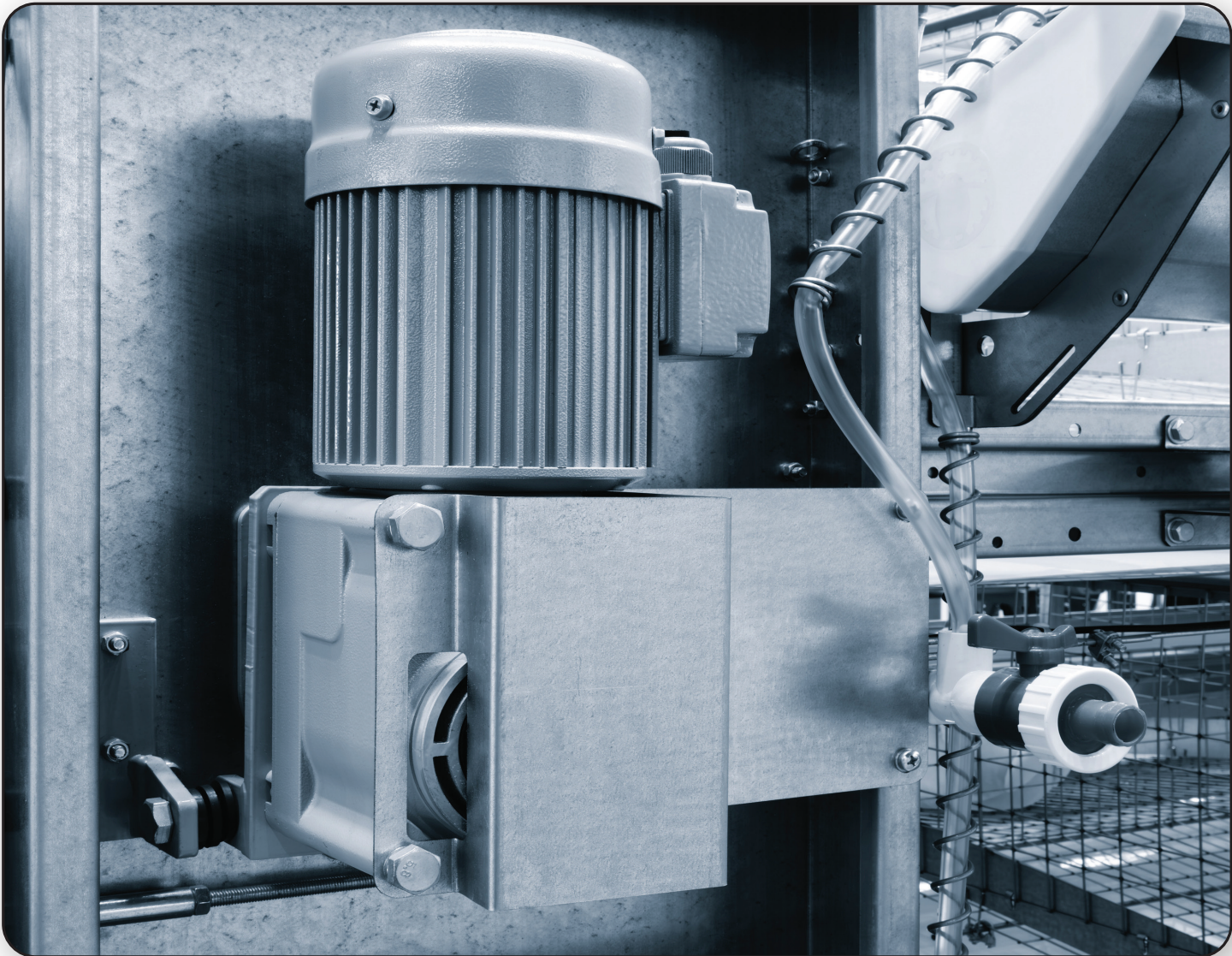


WEG S VECTOR DUTY SERIES

STARTING AT \$544.00 (.5018NT3FVD56C-S)

WEG S vector duty motors are engineered for high-performance VFD applications requiring precise torque and speed control. Built with robust construction and advanced insulation systems, they deliver reliable operation in heavy-duty industrial processes, including material handling, automation, and high-demand machinery.

- Available up to 1hp in three-phase configurations
- Vector duty design for precise speed control
- Heavy-duty construction for industrial reliability
- Advanced insulation resists VFD voltage spikes
- Suitable for demanding process equipment
- Wide torque and speed range capability



WASHDOWN

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
IronHorse MTSP Series	Food/pharma washdown	Stainless steel construction with IP69K rating for high-pressure washdown environments	Ensures maximum durability and sanitation in harsh, hygienic processing environments	\$\$\$
IronHorse MTSN Series	Sealed washdown areas	Totally enclosed non-ventilated design prevents contamination and reduces maintenance requirements	Provides reliable operation in environments where cleanliness and sealing are critical	\$\$\$
Leeson Washguard White Duck	Chemical exposure environments	Epoxy-coated housing with sealed components to resist moisture and chemical exposure	Offers a chemical-resistant alternative to stainless steel for washdown applications	\$\$\$

IRONHORSE MTSP SERIES

STARTING AT \$523.00 (MTSP-P33-3BD36)

IronHorse MTSP series motors are stainless steel washdown solutions designed for harsh, hygienic environments. With IP69K ratings and TEFC construction, they resist corrosion and high-pressure cleaning while maintaining premium efficiency and reliable performance in food, beverage, and pharmaceutical processing applications.

- Available up to 20hp in three-phase configurations
- 304 stainless steel housing prevents corrosion
- IP69K protection for high-pressure washdowns
- TEFC/TENV designs eliminate contamination paths
- Premium efficiency for continuous duty
- Smooth surfaces improve sanitation compliance
- Ideal for food and pharma processing



IRONHORSE MTSN SERIES

STARTING AT \$522.00 (MTSN-P33-3BD18R)

IronHorse MTSN series motors provide washdown-ready performance in a totally enclosed, non-ventilated design. Engineered for hygienic environments, these motors eliminate airflow contamination risks while maintaining durability and efficiency, making them ideal for applications requiring sealed, low-maintenance operation under frequent cleaning conditions.

- Available up to 2hp in three-phase configurations
- TENV design eliminates airflow contamination
- Stainless steel construction for corrosion resistance
- High ingress protection ratings (washdown ready)
- Low maintenance due to sealed design
- Suitable for food-grade environments



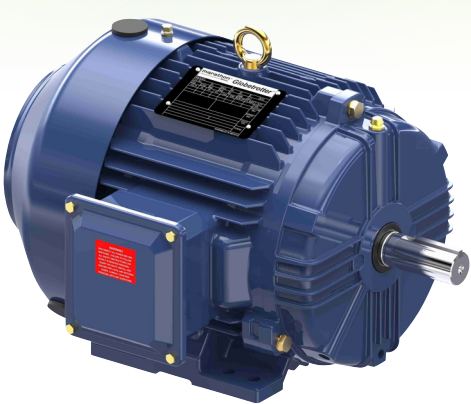


LEESON WASHGUARD WHITE DUCK SERIES

STARTING AT \$540.00 (113649.00)

Leeson Washguard White Duck motors are epoxy-painted washdown solutions designed for corrosive and hygienic environments. With sealed construction and TEFC design, they resist moisture, chemicals, and cleaning processes, offering reliable performance in food processing, packaging, and chemical applications without requiring stainless steel construction.

- Available up to 3hp in three-phase and 1hp in single-phase configurations
- Epoxy-coated housing resists corrosion
- TEFC enclosure protects against washdown exposure
- Cost-effective alternative to stainless steel
- Ideal for food and chemical environments
- Sealed bearings extend service life



MARATHON GLOBETROTTER TEFC CAST IRON SERIES

STARTING AT \$593.00 (GT1010A)

Marathon Globetrotter TEFC cast iron motors are built for rugged industrial and severe-duty applications where durability and longevity are critical. Featuring heavy-duty cast iron construction and TEFC enclosure protection, these motors are engineered to withstand harsh conditions, including dust, moisture, and demanding continuous operation, while maintaining consistent performance across a wide horsepower range.

- Available up to 100hp in three-phase configurations
- Rugged cast iron construction for severe-duty environments
- TEFC enclosure protects against dust, dirt, and moisture
- Inverter rated for demanding variable-speed applications
- Ideal for heavy industrial, pumping, and processing systems
- Engineered for long life and continuous-duty reliability

SEVERE DUTY

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
IronHorse MTCP2 Series	Heavy industrial environments	Rugged cast iron construction designed to handle extreme conditions and heavy loads	Delivers long-lasting durability and performance in harsh industrial environments	\$
Marathon Globetrotter (Cast Iron)	Continuous heavy-duty use	Cast iron frame with enclosed design to resist dust, moisture, and harsh environments	Ensures long service life and consistent performance under continuous heavy-duty operation	\$\$\$
Toshiba EQP Global SD	Harsh global applications	Heavy-duty design with high ingress protection for extreme industrial and outdoor conditions	Provides dependable operation and protection in the most demanding global applications	\$\$

TOSHIBA EQP GLOBAL SD SERIES

STARTING AT \$423.00 (0014SDSR41A-P)

Toshiba EQP Global SD motors are premium severe-duty solutions built for extreme industrial environments. Featuring robust cast-iron construction, high ingress protection, and inverter duty capability, they deliver dependable performance in harsh conditions such as oil & gas, processing, and heavy manufacturing applications.

- Available up to 100hp in three-phase configurations
- Designed for global severe-duty applications
- Cast-iron frame withstands harsh conditions
- TEFC enclosure with high ingress protection (IP55)
- Inverter duty capable for VFD applications
- Ideal for oil, gas, and heavy industry

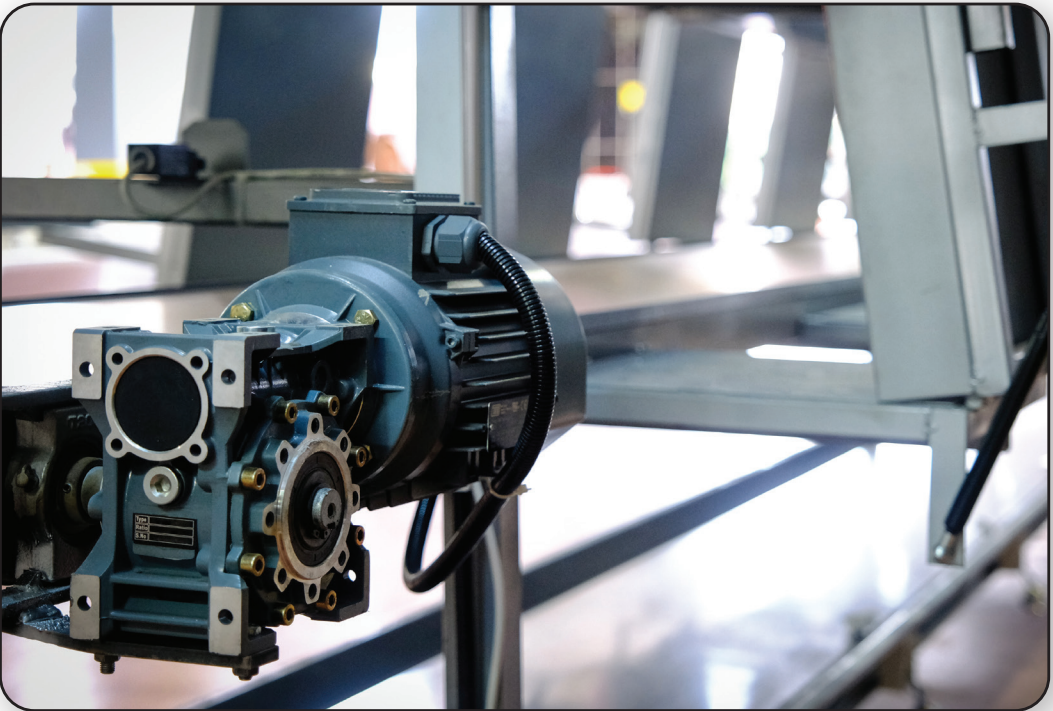


IRONHORSE MTCP2 SERIES

STARTING AT \$279.00 (MTCP2-001-3BD18)

IronHorse MTCP2 series motors are rugged cast-iron severe-duty solutions built for demanding industrial environments. Offering premium efficiency, high horsepower capacity, and robust construction, they withstand harsh conditions, heavy loads, and continuous operation in applications such as processing, manufacturing, and material handling.

- Cast-iron construction for extreme durability
- Available up to 300hp in three-phase; much higher than standard motors
- Premium efficiency reduces operating costs
- Designed for harsh industrial environments
- Suitable for hazardous-duty environments
- Multiple mounting options, including TC C-face



IEC FORM FACTOR

Series Name	Best For	Key Attributes	Primary Benefit
MGM SMX Series	OEM / global equipment	IEC-standard aluminum construction with flexible mounting and global compatibility support	Simplifies integration and replacement across international equipment and OEM designs

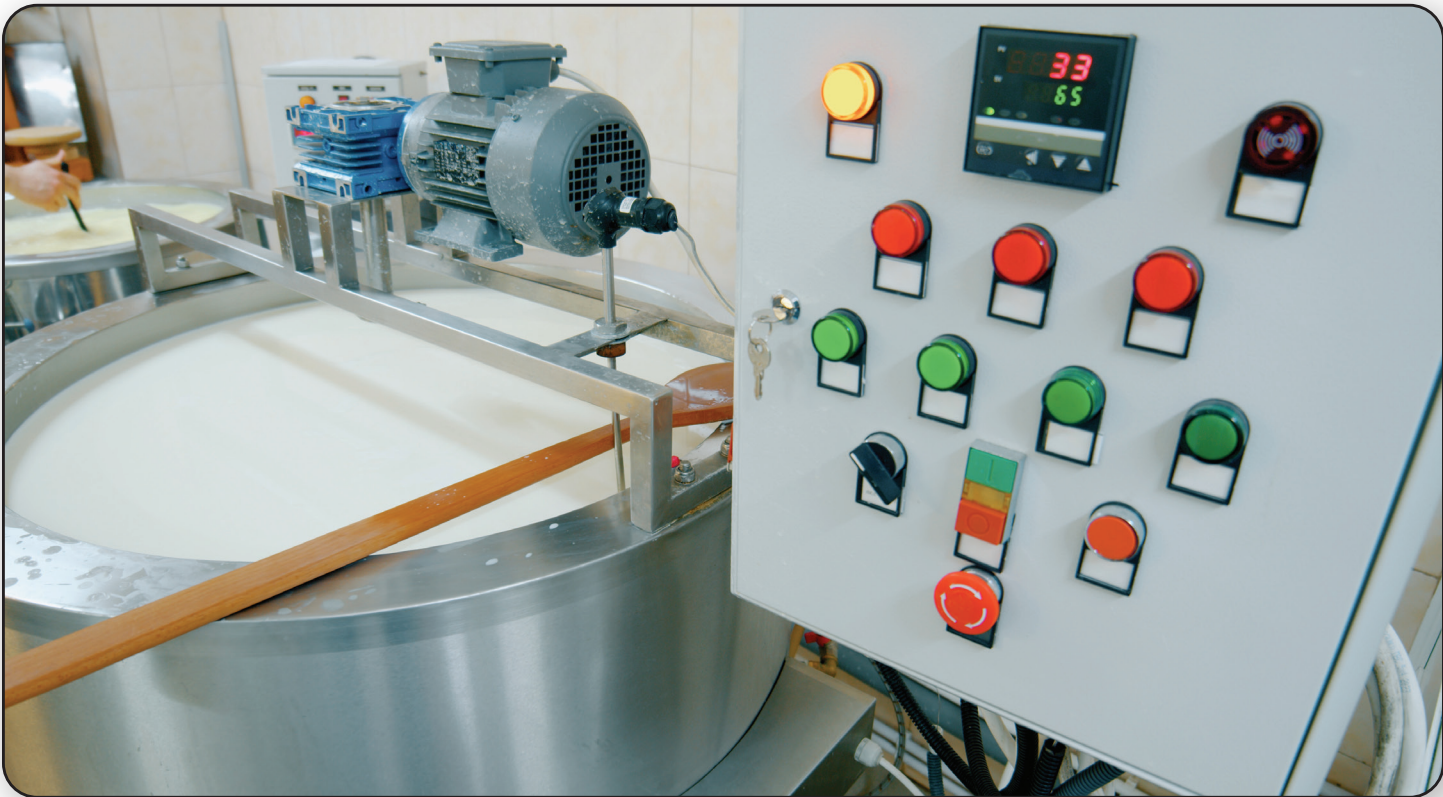


MGM SMX SERIES

STARTING AT \$196.00 (0NX5)

MGM SMX series motors provide IEC-standard general purpose performance for global applications. Featuring aluminum construction, multiple mounting configurations, and high efficiency, they are ideal for OEM machinery and export equipment requiring compact, flexible motor solutions with standardized international compatibility.

- Available up to 5hp in three-phase configurations
- IEC frame sizes and mounting (B3, B5, B14)
- Lightweight aluminum construction
- High efficiency (IE2/IE3)
- Flexible mounting options for OEM integration
- Global compatibility for export equipment



BRAKE MOTORS

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
MGM BMX / BAX Series	Controlled motion systems	IEC motor with integrated brake offering flexible IEC or NEMA mounting and quick stopping capability	Provides precise motion control with reliable braking in automated systems	\$\$
WEG Brake Motor Series	Stopping & holding loads	Integrated braking system with fast response and durable enclosed motor construction	Improves safety and control by stopping and holding loads quickly and reliably	\$\$\$

MGM BMX / BAX SERIES

STARTING AT \$614.00 (18HZ)

MGM BMX and BAX series motors combine IEC motor designs with integrated braking systems for precise control applications. Offering fast response braking, flexible mounting, and high efficiency, they are ideal for automation, conveyors, and machinery requiring reliable stopping and holding performance.

- Available up to 5hp in three-phase configurations
- Integrated IEC brake systems with quick response
- Multiple mounting configurations available for NEMA or IEC standards
- Manual brake release for maintenance
- High efficiency for continuous operation
- Suitable for automation and conveyor systems



WEG S Series

STARTING AT \$875.00 (.2518ES3EBMW56CFL-S)

WEG brake motors integrate reliable AC braking systems with general purpose motor performance. Designed for quick stopping and controlled motion, they provide enhanced safety and precision in industrial applications such as conveyors, packaging lines, and automated systems requiring controlled braking and holding torque.

- Available up to 20hp in three-phase configurations
- Integrated AC brake with fast response
- Manual release for maintenance flexibility
- TEFC enclosure for durability
- Wide hp range for industrial use
- Ideal for positioning and stopping applications



CENTRIFUGAL JET PUMP

Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
IronHorse MTRJ Series	Pump replacement & installs	Threaded shaft design allows direct pump coupling with dependable starting torque performance	Enables quick installation and reliable operation for pump replacement applications	\$
Leeson Centrifugal Jet Pump	Water systems & irrigation	Pump-specific design with high starting torque and TEFC protection for moisture resistance	Simplifies installation while delivering reliable fluid movement in water system applications	\$\$

IRONHORSE MTRJ SERIES

STARTING AT \$229.00 (MTRJ-P33-3BD36J)

IronHorse MTRJ series motors are purpose-built for jet pump applications, featuring a NEMA 56J threaded shaft for direct pump coupling. With TEFC construction and capacitor-start designs, they deliver dependable starting torque and reliable operation in water systems, irrigation, and pump replacements requiring efficient fluid handling performance.

- Available up to 3hp in three-phase and 2hp in single-phase configurations
- NEMA 56J threaded shaft for direct pump integration
- TEFC enclosure protects against moisture exposure
- High starting torque for pump load demands
- Capacitor start/run configurations improve efficiency
- Automatic thermal protection (single-phase models)
- Designed for water systems and irrigation



LEESON CENTRIFUGAL JET PUMP SERIES

STARTING AT \$403.00 (C1336)

Leeson centrifugal jet pump motors are designed specifically for water movement applications, providing dependable starting torque and efficient performance. With TEFC construction and pump-ready shaft configurations, they are ideal for irrigation, residential water systems, and light industrial pumping applications requiring reliable fluid transfer.

- Available up to 2hp in three-phase and 1/3hp in single-phase configurations
- Designed for centrifugal jet pump applications
- TEFC enclosure protects against moisture
- High starting torque for pump loads
- Pump-ready shaft configurations simplify installation
- Ideal for water systems and irrigation

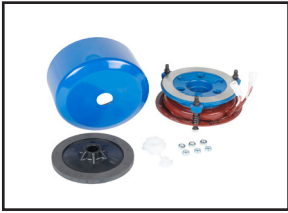


MOTOR ACCESSORIES

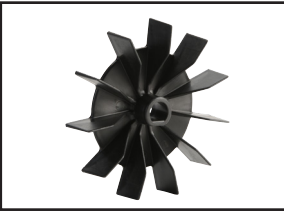
A full assortment of AC motor accessories is available to assist with installation, adjustment, and maintenance.



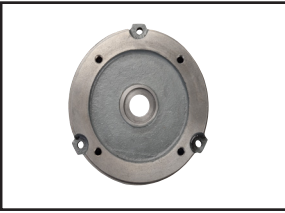
Capacitors
Replacement start and run capacitors for select single-phase motors.



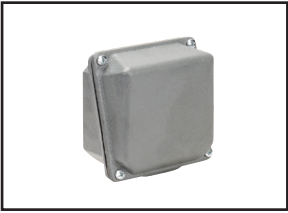
Replacement Brakes
MGM brake motors have replaceable brakes.



Cooling Fans
Replacement fans for select TEFC enclosure motors.



C-Face Flanges
Add a mounting option for select foot-mount motors.



Junction Boxes
Replacements available for select models.



Fan Covers
Replacements for damaged fan covers of select TEFC models.



Adjustable AC Motor Bases
A convenient way to mount and easily adjust the position of AC motors.



Endbells
Replacements for damaged motor endbells for select models.



Encoder Kits
Provide speed or position tracking for select motors.



Centrifugal Switches
Replacements for select single-phase motors.



This buying guide was drafted with AI assistance and edited by the AutomationDirect Technical Marketing Team