

PRODUCTS OVERVIEW



MOTORS | CONTROLS | GEARBOXES | SERVICE

STOCK MOTOR PRODUCTS



SINGLE PHASE (TEFC)

- FARM DUTY**
- 1/3 - 10 HP: 1800 RPM
 - 115/230V through 2 HP, 230V for 3 HP and Above
 - 1.15 Service Factor, Continuous Duty
 - Manual Reset Overload Protection
- HVAC**
- NEMA Premium: ODP 1/4 - 3 HP: 3600, 1800 RPM
 - NEMA Premium: TEFC 1/4 - 3 HP: 3600, 1800 RPM
 - EPACT: TEFC 3 - 10 HP: 3600, 1800 RPM



MAX-HT™

- High Torque Crusher Motors
- 20 - 150 HP at 230/460V; 460V above 150 HP
- 100 - 900 HP at 2300/4160V
- TEFC (IP55)
- NEMA Design C: 1 - 200 HP; (Locked Rotor Torque 200% FLT)
- NEMA Design A: 250 HP & Up; (Locked Rotor Torque 200% FLT)
- CSA Certified for Class 1, Div 2, Groups B, C & D; Temp Code T3C; Class 2, Div 2, 440 Frame and Above
- High Strength Steel Shaft, AISI 4140 Material
- Suitable for Vertical Mounting for Vertical Impact Crushers



ROLLED STEEL MOTORS

- 1/3 - 40 HP (ODP)
- 1/3 - 10 HP (TEFC): 3600, 1800, 1200 RPM
- 230/460V, Useable on 200 & 208V Systems
- Motors 1/4 HP and Above are NEMA Premium Efficient
- Wound with Inverter Duty Wire
- 1.15 Service Factor, Continuous Duty Rated
- Multiple Mountings for 56 and 140T Frames; Dual Mountings on 180T and Larger



STAINLESS STEEL WASHDOWN MOTORS

- 3/4 - 10 HP: 3600, 1800 & 1200 RPM
- TEFC (IP56)
- All Stainless Steel Construction
- All Motors Come with a C-Face Kit
- UL Recognized and CSA Approved
- Self-Certified for Class 1, Div 2, Groups B, C & D; Temp Code T3C



ODP CAST IRON MOTORS

- 1 - 800 HP: 3600, 1800, 1200 RPM
- 230/460V through 125 HP, 460V for 150 HP and Larger
- Some Ratings are Available in 575V
- Suitable for Inverter Duty with 20:1 Variable Torque and 10:1 Constant Torque Speed Ranges
- All Cast Iron Construction
- UL Approved for Fire Pump Applications
- C & D Flanges Available



MAX-VH/VHP™/ MAX-VS/VSP™

- 7.5 - 800 HP: 1800, 1200 RPM
- Vertical Hollow and Solid Shaft, High Thrust Motors
- Weather Protected Type 1 (WPI) Enclosure
- Totally Enclosed Fan Cooled (TEFC) Enclosure
- Standard with Ball Type Non-Reversing Ratchet
- Multiple Coupling, Bases & Steady Bushing Options
- Wound with Inverter Duty Wire



MAX-PE™

- 1 - 200 HP: 3600, 1800, 1200 RPM
- Dual Rated for Both 60 & 50 Hz; 230/460 or 190/380V, 60Hz
- Meets or Exceeds NEMA Premium Efficiency Levels
- Cast Iron Frame and End Brackets
- Rolled Steel Terminal Box and Fan Cover
- UL Recognized, CSA Certified and CE Marked
- Footed C-Face and Round Body C-Face Stocked up to 100 HP



CLOSED COUPLED PUMP MOTORS (JM/JP)

- 1 - 50 HP
- 3600, 1800 & 1200 RPM
- CE Marked
- Meets NEMA Premium Efficiency Requirements
- TEFC Motors have Cast Iron Frames
- ODP Motors have Rolled Steel Frames
- UL Approved for Fire Pump Applications



MAX-E1®

- 3/4 - 800 HP: 3600, 1800, 1200, 900 RPM
- NEMA Premium Efficiency, 500 HP and Below
- 230/460V through 125 HP, 460V for 150 HP and Larger
- Some 575V Stocked through 125 HP
- CSA and UL Approved for Inverter Duty per NEMA MG-1, Part 31
- CSA Certified for Class 1, Div 2, Groups B, C & D; Temp Code T3C; Class 2, Div 2, 440 Frames and Larger
- Footed C-Face and Round Body C-Face Stocked up to 300 HP



OIL WELL PUMP MOTORS

- 5 - 125 HP (ODP): 1200 RPM
- 75 - 100 HP (TEFC): 1200 RPM
- 230/460V Only, 60 Hz
- Open Drip Proof (IP22) with Rodent Screens
- Totally Enclosed Fan Cooled (TEFC) Enclosure
- NEMA Design D, High Slip (Min. 5%)
- Standard with Klixon Temperature Limiting Device
- All Cast Iron Construction



MAX-E2/841®

- 1 - 500 HP: 3600, 1800, 1200, 900 RPM
- Meets or Exceeds IEEE 841 Standards
- INPRO™ Seals - VBXX - IP65
- All Cast Iron Construction
- CSA Certified for Class 1, Div 2, Groups B, C & D; Temp Code T3C; Class 2, Div 2, 440 Frame and Above
- CSA and UL Approved for Inverter Duty per NEMA MG-1, Part 31
- Footed C-Face and Round Body C-Face Stocked Up to 100 HP



GLOBAL SERIES® MEDIUM VOLTAGE

- WPI Enclosure, 100 - 1000 HP in Stock
- TEFC Enclosure, 100 - 2000 HP in Stock
- 2300/4160V Dual Voltage
- Vacuum Pressure Impregnated Form Wound Coils
- 120V Space Heater and 100 Ohm (Pt) Winding RTD's 2/ Phase
- TEFC Design Meets the NEMA Premium Standards
- Multiple Modifications Available for Customization



EXPLOSION PROOF (Division 1, Zone 1)

- 1 - 400 HP: 3600, 1800, 1200 RPM
- Class 1, Group D; Class 2, Groups E, F & G
- Class 1, Group C and D on 20 HP and Below
- Wound with Inverter Duty Wire
- UL Approved for Inverter Duty
- Footed C-Face and Round Body C-Face Stocked up to 100 HP



FIRE PUMP MOTORS

- Horizontal: ODP Rolled Steel, NEMA Premium Efficiency; 1 - 40 HP
- Horizontal: ODP Cast Iron, NEMA Premium Efficiency; 1 - 400 HP
- VHS, WPI, 7.5 - 400 HP
- 3600, 1800, or 1200 RPM
- 50/60 Hz, 230/460V (460V Only Above 150 HP)
- Safety Red Paint Available as an Option

CONTROLS PRODUCTS



L510 MICRODRIVE

- 1/4 - 3 HP, 115/ 230/ 460V
- V/Hz with Auto-Torque Boost or Sensorless Vector
- Built-in Modbus and BACnet Protocols
- PID Control
- 5 Digit Operators Keypad with Built-in Speed POT
- Din Rail Mountable (with Mounting Kit)



F510 FAN AND PUMP DRIVE

- 1 - 250 HP (VT), 230/ 460V
- Plenum Rated
- PID Capabilities with Sleep Mode, Engineering Units, Diagnostics
- Master/ Follower Controls
- V/Hz, Sensorless Vector, Permanent Magnet Sensorless Vector
- Standard LCD Keypad with Real-time Clock and Copy Capabilities
- PLC Functionality
- Built-in Modbus, Metasys, or BACnet Protocols



E510 COMPACT DRIVE

- 1/2 - 75 HP, 230/ 460V
- V/Hz, Sensorless Vector, Permanent Magnet Sensorless Vector
- Conformal PCB Coating
- PLC Functionality
- 5 Digit LED Removable Keypad with Speed POT
- Built-in Dynamic Braking Transistor for Ratings up to 25 HP
- Built-in Modbus & BACnet
- Removable Keypad for Remote Mounting
- NEMA 1 Conduit Kit Included as Standard (Frame 1-4)



E510 NEMA 4/4X/12 - INDOOR USE ONLY

- 1/2 - 25 HP, 230/ 460V
- V/Hz or Sensorless Vector Control
- Integral Disconnect Switch Included on N4FS Models
- PLC Functionality
- 5 Digit LED Display
- Built-in Dynamic Braking Transistor
- PID Control



A510 HEAVY DUTY DRIVE

- 1 - 250 HP (CT), 230/ 460/ 575-690V
- 1 - 270 HP (VT), 230/ 460/ 575-690V
- V/Hz, Sensor Vector Closed Loop, Sensorless Vector, Permanent Magnet Sensor Vector, Permanent Magnet Sensorless Vector
- LCD Keypad with Copy Capabilities
- Extensive Diagnostics and Monitoring
- PLC Functionality
- Advanced Regeneration Load Handling
- Wide Range of Applications



EQ7 MULTI-PURPOSE DRIVE

- 1 - 1000 HP (VT), 230/ 460V
- 1 - 900 HP (CT), 230/ 460V
- V/F Dynamic Torque, Sensorless, Sensor, and PI Vector
- Robust Design and Wide Capabilities
- LED/ LCD Keypad with Extensive Monitoring, Copy, and Diagnostic Capabilities
- Conformal Coating and Tin-Plated DC Bus
- UL Approved Single Phase Input Operation



N3 COMPACT DRIVE

- 1/2 - 75 HP, 230/ 460VAC
- Removable LED Keypad with Built-in Speed POT
- PID Control with Sleep Mode
- V/F or Sensorless Vector Control
- 0 - 400 Hz Speed
- Din Rail Mountable
- Built-in Modbus (Requires Interface Module)
- NEMA 1 Kit Included as Standard (Frame 1-3)



TEAMMASTER™ MV SOFT STARTER

- 500 - 6000 HP, 2300 - 7200V
- Heavy Duty with Across the Line (ATL) Rated Bypass
- Can Operate as a Soft Starter or ATL starter
- Current, Torque, HP, or Voltage Modes of Start Up
- Kick Start Capabilities
- LCD Keypad with Copy Capabilities on Door as Standard



TEAMMASTER™ LV SOFT STARTER

- 10 - 1000 HP, 208 - 575V
- Crusher Duty Panels
- Bypass with ATL Start
- Adaptive Control
- Door Mounted LCD Keypad
 - Monitor, Program, and Troubleshoot
 - Copy Capabilities
- Custom Engineered Packages
- Supplied as NEMA 1, NEMA 3R, or Chassis Configuration



CUSTOM PACKAGED VFDs

- Optional Cabinets with Fused Disconnects or Circuit Breakers
 - NEMA 1, 12, 3R are Standard (NEMA 4 by Request)
 - 208, 230, and 460V Standard (Packages at 380, 415, 575, and 600V Available on Request)
 - Wall or Floor Mounting Door; Mounted Control Devices
- Packaged Drives with Bypass
 - 2 or 3 Contactor Bypass
 - Circuit Breaker or Fused Disconnect
 - Input/ Output Reactors and DV/ DT Filters
 - All Features as Shown with Optional Cabinets

M+I PACKAGES



Additional 5% Discount When Purchasing Matching Motor and Inverter as a Set

- Premium Efficient Motors and Inverter Combination Packages
- Packages Developed for Both Constant or Variable Torque Applications
- Motors - 900 through 3600RPM; 230,460V
 - Rolled Steel and Cast Iron ODP: 143T through 5009B
 - Max-E1® Type AEHE, AEHH8N through 800 HP
- Inverters - 230VAC: 1-125 HP; 460VAC: 1-800 HP
 - EQ7 or A510 Drives for Constant Torque Applications
 - EQ7 or F510 Drives for Variable Torque Applications
- 5 Year Warranty Valid on All Combination Packages

GEAR REDUCER PRODUCTS



NMRV/ NMRV-P

- Fractional - 20 HP*
- Aluminum Units are Supplied Complete with Synthetic Oil and Allow for Universal Mounting Positions, with No Need to Modify Lubricant Quantity
- Excellent Mechanical Strength and Particularly Lightweight
- Loading Capacity in Accordance with: ISO 14521, DIN 3996, BS 721, AGMA 6034, ISO 6336, DIN 3990, DIN 743, ISO 281



HW+NMRV-P/ NMRV+NMRV-P

- Helical Worm - Fractional - 3 HP*
- Double Worm - Fractional - 2 HP*
- Available with Pre-Stage Unit: PC for NMRV Series, HW for NMRV-P Series
- Worm Gear Reducers are Available with Different Combinations: NMRV/ NMRV, NMRV/ NMRV-P, NMRV-P/ NMRV-P, NMRV-P/ NMRV



H SERIES

- Fractional - 75 HP*
- Cases in G200 Gray Cast Iron for High Strength and Optimized with Fem Analysis
- Excellent Mechanical Strength, Particularly Suitable to Support High Axial Loads and High Reliability
- Load Capacity Calculated to ISO 6336 and Verified According to AGMA 2001



HA SERIES

- Fractional - 5 HP*
- Cases in Die-Cast Aluminum Alloy
- Excellent Mechanical Strength while Being Particularly Lightweight
- Load Capacity Calculated to ISO 6336 and Verified According to AGMA 2001



B SERIES

- Fractional - 75 HP*
- Gleason Spiral Bevel Gear Pairs with Run-In Profile, Mounted as Second Reduction Stage for a Higher Resistance
- High-Strength Casings Optimized with FEM Analysis and Input and Output Flanges of Grey Cast-Iron G200 to Ensure Top Level Performances and High Reliability
- Load Capacity Calculated and Verified According to ISO 6336 and AGMA 2001



BA SERIES

- Fractional - 5 HP*
- Universal Casing
- Hypoid Bevel Gears for Size A40 and A50, Gleason Bevel Gear Pairs for Size A70, all with Run-in profile
- Excellent Mechanical Strength while Being Particularly Lightweight
- Load Capacity Calculated and Verified According to ISO 6336 and AGMA 2001



S SERIES

- Fractional - 30 HP*
- Universal Casing
- Cases in G200 Grey Cast Iron for High Strength and Optimized with FEM Analysis
- Load Capacity Calculated TI ISO 6336 and Verified According to AGMA 2001



PBH SERIES

- BH Units Fractional - 3 HP - 1500 HP*
- PH Units Fractional - 3 HP - 7800 HP*
- Cast Iron Casing, Rigid, and with Great Lubricant Capacity to Enhance Thermal Capacity
- Casing Split in Two Parts, with Reduced and Direct Maintenance
- Ground Helical Cylindrical Gear Pairs
- Gleason Spiral Bevel Gear Pairs Accurately Run-in

* HP range shown assumes a 4 pole motor operating at 60 Hz, where the largest rating is for the smallest ratio available; and the smallest HP rating is for the largest ratio available per gearbox type. Thermal horsepower limits need to be taken into consideration when determining an appropriate gearbox for a particular application.

MAC CENTERS



- Skilled assembly by factory-trained technicians that comply to TWMC/ Motovario quality standards.
- Short lead times from a local source you trust.
- Modular parts system offers faster manufacturing and flexibility for easy competitor interchange.

*Seeking new MAC partners in these regions. Contact your TWMC representative to apply.

ENGINEERED PRODUCTS



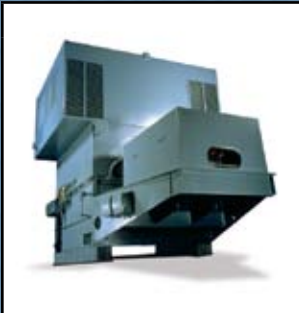
WORLD SERIES®

- 250 – 30,000 HP AC Induction Motors
- Thermalastic® Epoxy Insulation System
- Rugged Thru-Bolt Construction and End Rings
- Copper or Copper Alloy Rotor Bars
- Anti-Friction or Spherically-Seated, Self-Aligning, Split-Sleeve Bearings
- High Efficiency Designs for Reduced Life-Cycle Costs
- API 541, PAM, and Marine Duty Designs Available
- Horizontal and Vertical Configurations



SG MOTORS FROM STOCK

- 800 – 3000 HP Induction Motors Available from Stock
- 2, 4, 6, 8 Pole
- 2300/ 4160V; WP2 Enclosure
- Ideal for H-Pump or Reciprocation Applications
- Suitable for Class 1, Div 2, Groups B, C & D; Temp Code T3C
- Bi-directional, F1 and F2
- Inverter Duty Design
- Anti-friction or Spherically-Seated, Self-Aligning, Split-Sleeve Bearings
- Air Filters and Differential Pressure Switch Included



SYNCHRONOUS MOTORS

- 1000 – 100,000 HP
- Anti-Friction or Spherically-Seated, Self-Aligning, Split-Sleeve Bearings
- Brush or Brushless Excitation
- Thermalastic® Epoxy Insulation System
- High-Speed and Slow-Speed Designs Available
- VFD Applications Available
- Special Mill and Marine Duty Designs Available
- API 46 Designs Available



DC MOTORS

- Ratings up to 35,000 HP for the Metals, Mining, Marine, and Special Application Markets
- Special Insulation Coatings to Maintain High Insulation Resistance over Life of the Motor
- "Balanced Spring" Commutator to Assure Long Brush Life and Minimal Maintenance
- Rugged Armature Featuring Keyless Fits
- Rugged Spiders Smoothly Transmit Torque
- Heavy-Duty Stators Offer Proven, Long Lasting Reliability
- Spherically-Seated, Self-Aligning, Split-Sleeve Bearings



WOUND ROTOR MOTORS

- Available from 25 – 20,000 HP
- Continuously Rated Slip Rings and Brushgear
- Heavy-Duty Rotor Construction for Dependable Service
- Thermalastic® Epoxy Insulation System
- Advanced Bearing System for Reliable Performance
- Rugged Frame Construction for Strength and Reliability
- Brush Lifting and Short Circuiting Devices Available
- Secondary Control Also Available



PAM MOTORS

- Multispeed, Squirrel Cage Induction Motor with a Single Winding
- Ideal for ID, FD, and PA Fan Applications
- Lighter, Smaller and More Efficient than a Two-Winding Motor for Comparable Rating and Applications
- Longer Rotor Life Due to Less Heating During Starting
- Power Savings at Reduced Loads



VERSABRIDGE®

- 1000 – 40,000 HP; 2300 - 13,800V
- Scalable Modular Power Electronics Building Blocks
- NEMA 1 or NEMA 3R
- Advanced 2 Phase Liquid Cooling
- Water or Considerable HVAC Not Required
- User Serviceable
- Fuseless & Filterless
- Patented Universal Design
- Proven Topology
- Film Caps (Long Life)
- Standard Components
- Sealed Power Cubes



COMPLETE SYSTEM SUPPLY

- Complete System Solutions Available
- AC Electric Motors
- Medium Voltage Drives
- Switchgear
- Synchronous Transfer
- Motor Control Centers
- Electrical Houses
- System Studies

SERVICE



LARGE MOTOR SERVICE

- Repair and Refurbish all Brands of Large Motors
- Engineering Studies and Evaluations
- Expert Field Service and Technical Assistance
- Redesign and Upgrade of Westinghouse and TWMC Motors
- Repairs Using OEM Materials and Processes for Longer Life
- Engineered Solutions to Large Motor Problems
- High Voltage (to 13.8kV) Repairs with Global VPI
- Dual Frequency Load Testing
- Finder's Fee Incentives Available
- Service Division Hotline: 888-754-5006



QUICK TURN REWINDS

- Full Rush Overtime Medium and High Voltage Rewinds Performed with Deliveries Ranging from 17 – 27 days
- All Manufactures' Motors
- In-House Coil Manufacturing
- Thermalastic® Epoxy Insulation System
- ISO 9001 Quality System
- Finder's Fee Incentives Available



CONTROL WHEELS

- Convert Other OEM Unsupported Control Wheels to a TWMC Design
- On-Site Troubleshooting, Repairs, and Rebuilds
- In Stock Renewal Parts
- Finder's Fee Incentives Available



EXCITER CONTROL PANELS

- Replace Outdated Analog Controls with a Modern Digital System Using the Same Panel Space
- Superior Control and Accuracy of Voltage, VAR, and Power Factor Regulation
- Enhanced System Response
- Advanced Motor Protection
- Reliable System Operation
- Finder's Fee Incentives Available



RENEWAL PARTS

- Renewal Parts for Over 500,000 Westinghouse and TECO-Westinghouse Form Wound/ High Voltage Motors Built in Pittsburgh, PA; Buffalo, NY; and Round Rock, TX.
- Engineered Replacement Components
 - AC Rotors and Stators
 - DC Armatures, Field Frames, and Commutators
 - Field Pole Assemblies
 - Replacement and Improved Design Cooling Packages (WPII, TEWAC, and TEAAC)
 - VersaBridge® MVD Components

TECO-Westinghouse is a leading manufacturer of electric motors and variable frequency drives. We offer a full line of induction, synchronous and DC motors & generators available from ¼ HP to 100,000 HP, as well as a wide variety of low and medium voltage variable frequency drives and motor controls. We can also test medium voltage drives (MVDs) and motors as a package in our Round Rock, Texas factory. Additionally, we supply switchgear, system studies and aftermarket services such as engineering studies, genuine Westinghouse renewal parts, and large motor and MVD repairs.