TECO Westinghouse

PRODUCTS OVERVIEW



MOTORS | CONTROLS | SERVICE

ENGINEERED SYSTEMS SOLUTIONS

STOCK MOTOR PRODUCTS



SINGLE PHASE

FARM DUTY - TEFC
- 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



ROLLED STEEL MOTORS

- 1/4 - 40 HP (ODP): 3600, 1800, 1200 RPM
- 1/4 - 10 HP (TEFC): 3600, 1800, 1200 RPM
- 230/ 460V
- NEMA Premium Efficiency with 60/ 50Hz Nameplate
- Wound with Inverter Duty Wire
- 1.15 Service Factor, Continuous Duty
- Multiple Mountings for 56 and 140T Frames; Dual Mountings on 180T and Larger
- UL Approved Fire Pump / Safety Red Paint Option Available



ODP CAST IRON MOTORS

- 1 - 800 HP: 3600, 1800, 1200 RPM
- 230/ 460V through 125 HP, 460V for 150 HP and Larger
- Also 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
- UL Approved Fire Pump / Safety Red Paint Option Available



MAX-PE™

- 1 - 200 HP: 3600, 1800, 1200 RPM
- Dual Rated for Both 230/ 460V 60Hz or 190/ 380V 50Hz
- 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 200 HP



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
- Also available in 575V
- CSA and UL Approved for Inverter Duty per NEMA MG-1, Part 31
- CSA Certified for Class I, Div 2, Groups B, C & D
- Class II, Div 2, Group F, G 440 Frames and Larger
- Footed C-Face and Round Body C-Face Available



MAX-E2/841®

- 1 - 500 HP: 3600, 1800, 1200, 900 RPM
- Meets or Exceeds IEEE 841 Standards
- INPRO™ Seals - VBXX
- All Cast Iron Construction
- CSA Certified for Class I, Div 2, Groups B, C & D
- Class II, Div 2, Group F, G 440 Frames and Larger
- CSA and UL Approved for Inverter Duty per NEMA MG-1, Part 31
- Footed C-Face and Round Body C-Face Available



EXPLOSION PROOF (Division 1, Zone 1)

- 1 - 400 HP: 3600, 1800, 1200, 900 RPM
- Class I, Group D, Class II Group E, F, & G, T3B
- Class I, Group C & D, Class II E, F &G, T3B for 256 frame and below
- UL Approved for Inverter Duty
- Footed C-Face and Round Body C-Face Stocked up to 100 HP



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: 20 - 200 HP; (Locked Rotor Torque 200% FLT)
- NEMA Design A: 250 HP & Up; (Locked Rotor Torque 200% FLT)
- CSA Certified for Class I, Div 2, Groups B, C & D, T3
- Class II, Div 2, Group F & G, T3, 440 Frame and Above
- High Strength Steel, AISI 4140, Shaft Material
- Suitable for Vertical Mounting for Vertical Impact Crushers



GLOBAL SERIES® MEDIUM VOLTAGE

- 100 - 1000 HP (WPI): 3600,1800, 1200, 900 RPM
- 100 - 2000 HP (TEFC): 3600, 1800, 1200, 900 RPM
- 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



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



OIL WELL PUMP MOTORS

- 5 - 125 HP (ODP): 1200 RPM
- 75 - 100 HP (TEFC): 1200 RPM
- ODP: 230/460V with Rodent Screen
- TEFC: 230/460V
- NEMA Design D, High Slip (Min. 5%)
- Standard with Klixon Temperature Limiting Device
- All Cast Iron Construction



MAX-VH/VHP™/ MAX-VS/VSP™

- 7.5 - 800 HP: 1800, 1200 RPM
- Vertical Hollow and Solid Shaft, High Thrust Motors
- WPI/ TEFC Enclosures
- Standard with Ball Type Non-Reversing Ratchet
- Multiple Coupling, Bases & Steady Bushing Options
- Wound with Inverter Duty Wire
- Oversized Angular Contact or Spherical Thrust Bearings
- UL Approved Fire Pump / Safety Red Paint Option Available



MAX-PM™ MOTORS

- 1/2 - 30 HP (TEFC): 3600, 1800, 1200 RPM
- 230/460 V
- 1.0 Service Factor, Continuous Duty
- NEMA Frames - F1/F2 Interchangeable
- IE4 Efficiency Level



IE5 SYNCHRONOUS RELUCTANCE MOTORS

- 7.5 - 30 HP: 3600, 1800 RPM
- 460V
- TEFC
- Used with A510 Advanced Inverter
- IE5 Efficiency

CONTROLS PRODUCTS



L510 MICRO Inverter

- 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 INVERTER

- 1 - 800 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 INVERTER

- 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 INVERTER

- 1 - 400 HP (CT & 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



E710 COMPACT INVERTER

- ½ - 10HP, 230/460V
- V/Hz, Sensorless Vector
- Conformal PCB Coating
- PLC Functionality
- 5 digit LED removable keypad with Speed POT
- Built-in Dynamic Braking Transistor for all Current Ratings
- NEMA 1 conduit kit included as Standard



EQ7 MULTI-PURPOSE INVERTER

- 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



CUSTOM PACKAGED INVERTERS

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 Inverters 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



LOW VOLTAGE 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



MEDIUM VOLTAGE 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

M+I PACKAGES



Additional 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 Inverters for Constant Torque Applications
  - EQ7 or F510 Inverters for Variable Torque Applications
- **5 Year Warranty Valid on All Combination Packages**

ENGINEERED PRODUCTS



CUSTOM INDUCTION MOTORS

- 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 Inverters
- Switchgear
- Synchronous Transfer
- Motor Control Centers
- Electrical Houses
- System Studies



OIL-FILLED TRANSFORMERS

- 3-phase, 50-60 Hz
- 300-50,000 kVA (Pad-mounted)
- 3500- 150,000 kVA (Substation)
- Low Voltage from 277-69,000 Volts
- High Voltage up to 161,000 Volts
- Built to IEC and IEEE/ ANSI C57 Standards
- Visit www.GoNexE.com for more details

TECO Westinghouse

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ENGINEERED SYSTEMS SOLUTIONS

TECO-Westinghouse is in a unique position of being able to provide quality motors, generators, drives, and power solutions, all from our factory headquarters in Round Rock, Texas. This capability, combined with our global manufacturing resources, uniquely positions us to serve our customers' needs with any application and in any industry. From standalone products such as our Versabridge® MVD and Modular Heat Recovery System to full-scale system solutions involving Microgrid infrastructure, TWMC offers custom design engineered systems of all scopes and scales.

TWMC also offers power solutions up to 15 kV and 40+ MVA. These solutions can be integrated into existing infrastructure or built from the ground up at a new site. Using TWMC as a turnkey system supplier allows the customer to mitigate risk, simplify the contracts and logistics, and allows for improved deliveries and prices.

Patented, UL-listed VersaBridge® MV Drives with 2-phase cooling 2.3-15,V, 1-40kHP



MV Drives



Optimized size and cost when integrated w/ VersaBridge® MV Drive

Electrical Buildings (E-House)

5-15kV, 63kAIC, metal enclosed and metal-clad with protection relays. Mains, Feeders, and Synchronous Transfer applications



MV Switchgear & MCC

Complete Project Provider

Full load tests up to 5 MVA, Integration



System Testing

Up to 15kV, 100k HP



MV Motors

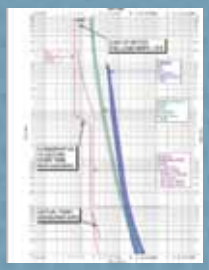
Custom PLC logic and HMI for projects. Allen Bradley, Modicon, Panel PC's.



PLC & HMI Interfaces

System Studies

ETAP, SKM, Simulink



Short circuit, device coordination & settings, arc flash, harmonics, starting analysis, energy savings

SERVICE



LARGE MOTOR SERVICE

- Repair and Refurbish all Brands of Large Motors
- Engineering Studies and Evaluations
- Expert Field Service and Technical Assistance
- Redesign and Uprate 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



ROTOR BALANCE SERVICES

- High Speed Balancing for Rotors Up to 110K LBS.
- Identify Critical Speeds & Optimal Weight Planes
- Eliminate Unbalance from Ramp Up through Rated Speed
- Verify Mechanical Integrity of the Rotor Assembly
- Improve Reliability
- Ideal Candidates Include: Rewound Rotors, Disassembled/ Rebuilt Rotors, Flexible and/or Long Slender Rotors, Repairs Resulting in Rotational Center Changes, & Rotors with Vibration Problems Due to Rubbing, Cracking, or Thermal Instability

TECO-Westinghouse is a leading manufacturer of electric motors and inverters. 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 inverters (MV inverters) and motor controls. We can also test MV inverters 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 inverter repairs. We can also supply transformers through our NexE division (www.GoNexE.com).

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