

MOTOR AND DRIVE COMBINATION PACKAGES

Effective 07-08-18
Supersedes 03-24-17

Premium Efficient Motor and Drive Combination Packages developed for both constant and variable torque applications



APPLICABLE MOTORS

- Rolled Steel and Cast Iron ODP
 - 143T through 5009B Frame
 - 1 to 500 HP
 - 1200, 1800, and 3600 RPM
- MAX-E1® type AEHE, AEHH8N
 - 143T through 6808B Frame
 - 1 to 800 HP
 - 900, 1200, 1800, and 3600 RPM
 - 230VAC to 125 HP, 460VAC to 800 HP

APPLICABLE VARIABLE FREQUENCY DRIVES PRODUCTS

- EQ7 or A510 Drives for Constant Torque Applications
- EQ7 or F510 Drives for Variable Torque Applications
- 230VAC to 125 HP, 460VAC to 800 HP



- Single Source Reliability
- Contact your local TECO representative for additional discounts and warranties when purchasing matching motor and drive sets
- Select any combination of ODP or MAX-E1® premium Efficient Motors with any power-matched A510, F510, or EQ7 VFD

HVAC SINGLE PHASE ODP



BSGS39, NEMA PREMIUM [SP/SPH]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Fans
- Pumps
- Compressors
- Air Conditioning Blowers
- Heating
- Ventilation

FEATURES:

- Output Range: 1/4 - 3 HP
- Speed: 3600 & 1800 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 115/208/230V (Tri-Voltage)
- Single Phase, 60 Hz; 1.15 Service Factor for 115V & 230V or 1.0 Service Factor for 208V
- Capacitor Start, Capacitor Run
- Class F Insulation
- Automatic Reset Overload
- Class B Temperature Rise
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- Rolled Steel Frame
- Cast Aluminum Terminal Box
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Lacquer Top Coat
- Paint Color: Blue - Munsell 5 PB 3/8
- Double Shielded Bearings Pre-Packed with Lithium Base Grease
- No Terminals; Lead End Peel-Off Insulation
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- Motors are UL Recognized for United States and Canada

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor subject to availability.

HVAC SINGLE PHASE TEFC



BEGS39, NEMA PREMIUM (1/4 HP - 3 HP) [SPT/SPHT]

Effective 07-08-18
Supercedes 03-24-17

BEGS19, ENERGY EFFICIENT (3 HP - 10 HP) [ST]



APPLICATIONS:

- Fans
- Pumps
- Compressors
- Air Conditioning Blowers
- Heating
- Ventilation

FEATURES:

- Output Range: 1/4 - 10 HP
- Speed: 3600 & 1800 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP44)
- Voltage: 115/208/230V (Tri-Voltage); 3 HP and Larger are 208-230V
- Single Phase, 60 Hz; 1.15 Service Factor for 115V & 230V or 1.0 Service Factor for 208V
- Capacitor Start, Capacitor Run
- Class F Insulation
- Automatic Reset Overload
- Class B Temperature Rise
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- Rolled Steel Frame
- Cast Aluminum Terminal Box
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Lacquer Top Coat
- Paint Color: Blue - Munsell 5 PB 3/8
- Double Shielded Bearings Pre-Packed with Lithium Base Grease
- No Terminals; Lead End Peel-Off Insulation
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- Motors are UL Recognized for United States and Canada

EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor subject to availability.

FARM DUTY SINGLE PHASE



Effective 07-08-18
Supersedes 03-24-17

BEGCFD, HIGH EFFICIENCY (1/3 HP - 1 HP) [S]

BECCFD, HIGH EFFICIENCY (1.5 HP) [S]

BECSFD, HIGH EFFICIENCY (2 HP -10 HP) [S]



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- Farm Equipment
- Machine Tools

FEATURES:

- Output Range: 1/3 - 10 HP
- Speed: 1800 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP44)
- Voltage: 115/230V (3 HP and Larger are 230V Only)
- Single Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Definite Purpose High Torque Farm Duty Design
- Capacitor Start, Induction Run - 1/3 HP to 1.5 HP
- Capacitor Start, Permanent Split Capacitor Run - 2 HP to 10 HP
- Class B Insulation from 1/3 HP to 3 HP
- Class F Insulation from 5 HP to 10 HP
- Manual Reset Overload with Outside Rubber Boot
- Class B Temperature Rise
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- Rolled Steel Frame for 1/3 - 1 HP
- Cast Iron Frame for 1.5 - 10 HP
- Rolled Steel Terminal Box
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Green - Munsell 5G 4/4
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Rubber Dust Flinger on DE
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate Frames 143T and Larger
- Motors are U.L. Recognized and CSA Approved

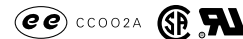
EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability in higher elevations.
- (3) Motor subject to availability.

OIL WELL PUMP ODP



ASFAFP, STANDARD EFFICIENCY, DESIGN D [Q]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Oil Well Pumps
- Any Applications Requiring NEMA Design D Torques

FEATURES:

- Output Range: 5 - 125 HP
- Speed: 1200 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 230/460/796V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design D Torques
- Cast Iron Frame, End Brackets and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F2 Mounted, F1 Available with Modification
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: White - Munsell N9.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 280T and Smaller (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 320T and Larger
- Labyrinth Type Metal Flinger on Both Ends for Frames F# 320T and Larger
- Cast Iron Inner and Outer Bearing Caps for F# 324T and Larger
- Stainless Steel Nameplate
- 12 Leads
- Standard with Klixon 9700K Temperature Limiting Switch, 1 Per Phase
- 5% Minimum Slip
- Rodent Screens

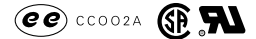
EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) All motors are NEMA Design D torque

OIL WELL PUMP TEFC



AEEAFP, STANDARD EFFICIENCY, DESIGN D [QT]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Oil Well Pumps
- Any Applications Requiring NEMA Design D Torques

FEATURES:

- Output Range: 5 - 125 HP
- Speed: 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design D Torques
- Cast Iron Frame, End Brackets, Fan Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F2 Mounted, F1 Available with Modification
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint System: Phenolic Rust Proof Base with Alkyd Finish
- Paint Color: Dark Blue (Munsell 5PB 4.5/2)
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 280T and Smaller (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 320T and Larger
- Labyrinth Type Metal Flinger on Both Ends for Frames F# 320T and Larger
- Cast Iron Inner and Outer Bearing Caps for F# 324T and Larger
- Stainless Steel Nameplate
- 12 Leads
- Standard with Klixon 9700K Temperature Limiting Switch, 1 Per Phase
- 5% Minimum Slip

EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Please consult factory for suitability in higher ambients.
- (2) Please consult factory for suitability in higher elevations.
- (3) All motors are NEMA Design D torque

2 SPEED, 1 WINDING, VARIABLE TORQUE



AECA, HIGH EFFICIENCY [CP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- Cooling Towers

FEATURES:

- Output Range: 100 - 300 HP
- Speeds: 1800 / 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 460V Only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Self-Certified for Class I, Div. 2, Groups B, C, D
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum
- Cast Iron Frame, End Brackets, Fan Cover and Main Conduit Box⁽⁴⁾
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: 2 Part Epoxy
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Epoxy Coated Internals
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Stainless Steel Nameplate and Hardware
- Stainless Steel Automatic Breather Drain
- 6 Leads Only
- Noise Level Not to Exceed 85 dB(A) at 1 Meter Unloaded
- 2 Speed, 1 Winding - Variable Torque
- High Efficiency, Severe Duty

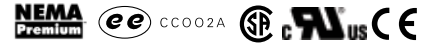
EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Please consult factory for suitability in higher ambients.
- (2) Please consult factory for suitability in higher elevations.
- (3) Additional charge for Division II nameplate - see Factory Modifications Pricing.
- (4) Catalog# CP3004/8 (F#5009B) will have steel fan cover.
- (5) Multi-speed motors are exempt from (DOE) Department of Energy premium efficiency requirements.

ROLLED STEEL ODP FAMILY



- ASGHPE, NEMA PREMIUM, F#56 (1/4 HP - 3 HP) [DSP]
- ASGH, NEMA PREMIUM, F#140T - 280T (1 HP - 40 HP) [DTP]
- ASGA, HIGH EFFICIENCY, F#56 (1/3 HP - 3 HP) [DS]
- ASGHJP/JM, NEMA PREMIUM, CLOSE COUPLED, (1 HP - 40 HP) [DJPP/DJMP]
- ASGAJP/JM, HIGH EFFICIENCY, CLOSE COUPLED, (1 HP - 40 HP)[DJP/DJM]*

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- HVAC Equipment
- Compressors
- Fire Pumps*



FEATURES:

- Output Range: 1/3 - 40 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 230/460V (Usable on 200 & 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Rolled Steel Frame and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Premium - Blue - Munsell 5PB 3/8
High Efficiency - Light Gray - Munsell N5.0
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP and Larger
- Motors are U.L. Recognized for United States and Canada, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

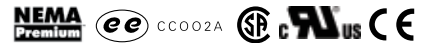
- Please refer to the modifications document for common modifications that can be performed.

Notes:

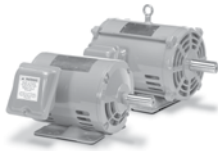
- * Fire Pump available. See product page for more details.
- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1.

ROLLED STEEL ODP AEGIS® SGR

ASGHPE, NEMA PREMIUM WITH AEGIS® SGR [DTP_G]



Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- HVAC Equipment

The AEGIS® SGR Bearing Protection Ring aids in preventing electrical bearing "fluting" damage by safely diverting harmful shaft voltages and bearing currents to ground. Using proprietary Electron Transport Technology™, the conductive microfibers inside the AEGIS® SGR provide reliable current diversion technology for shaft grounding with a "path of least resistance" to dramatically extend motor life. **AEGIS® Shaft Grounding Rings have a warranty of 1 year.**

FEATURES:

- Output Range: 1 - 40 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 230/460V (Usable on 200 & 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Grounding Ring Factory Installed Externally on DE Bracket
- Class F Insulation
- NEMA Design B Torques
- Rolled Steel Frame and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP and Larger
- Motors are U.L. Recognized for United States and Canada, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (5) AEGIS® SGR Bearing Protection Ring can not be used in Hazardous Locations (i.g. Class I, Div. 2, etc.)



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- HVAC Equipment
- Fire Pumps*



FEATURES:

- Output Range: 1 - 800 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Cast Iron Frame and End Brackets
- Rolled Steel Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Light Gray - Munsell N5.0
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- 6 Leads for 150 HP and Larger
- Motors are U.L. Recognized, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

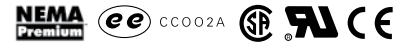
Please refer to the modifications document for common modifications that can be performed.

Notes:

* Fire Pump available. See product page for more details.

- (1) Available in 575V. TWMC carries minimal 575V stock; please check availability to ensure required motors are in stock.
Ratings may be available from our Canadian warehouses and/or our factory. Pricing and leadtime may vary.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability in higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.

CAST IRON ODP AEGIS® SGR



ASHH, NEMA PREMIUM WITH AEGIS® SGR [DHP_G]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- HVAC Equipment
- Pumps
- Compressors

The AEGIS® SGR Bearing Protection Ring aids in preventing electrical bearing "fluting" damage by safely diverting harmful shaft voltages and bearing currents to ground. Using proprietary Electron Transport Technology™, the conductive microfibers inside the AEGIS® SGR provide reliable current diversion technology for shaft grounding with a "path of least resistance" to dramatically extend motor life. **AEGIS® Shaft Grounding Rings have a warranty of 1 year.**

FEATURES:

- Output Range: 1 - 75 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Open Drip Proof (IP22)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Grounding Ring Factory Installed Externally on DE Bracket for F# 143T - 286T; Internally on NDE for F# 284TS - 405T
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Cast Iron Frame and End Brackets
- Rolled Steel Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Light Gray - Munsell N5.0
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- 6 Leads for 150 HP and Larger
- Motors are U.L. Recognized, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Available in 575V. TWMC carries minimal 575V stock; please check availability to ensure required motors are in stock. Ratings may be available from our Canadian warehouses and/or our factory. Pricing and leadtime may vary.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31.
- (6) AEGIS® SGR Bearing Protection Ring can not be used in Hazardous Locations (i.g. Class I, Div. 2, etc.)

3-PHASE FRACTIONAL HP TEFC



AEGA, FOOTED, HIGH EFFICIENCY [G]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- HVAC Equipment

FEATURES:

- Output Range: 1/3 - 2 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP44)
- Voltage: 230/460V (Usable on 200 & 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Rolled Steel Frame and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Mylar Nameplate
- Rubber Dust Flinger on Drive-End
- 9 Leads

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Please consult factory for suitability in higher ambient environments.
- (2) Please consult factory for suitability in higher elevations.
- (3) 1 HP and larger are CSA certified and UL recognized. Motors below 1 HP are CSA certified only.
- (4) 56 frames change to GH and 140 and above frames change to GP. G type will be obseleted in June of 2018.

ROLLED STEEL TEFC FAMILY



AEGHPE, NEMA PREMIUM, F#56 (1/4 HP - 2 HP) [GH]

Effective 07-08-18
Supersedes 03-24-17

AEGH, NEMA PREMIUM, F#140T - 210T (1 HP - 10 HP) [GP]

AEGHPE-CF, NEMA PREMIUM, FOOTED C-FACE, F#56 (1/4 HP - 2 HP) [GH_C]

AETHPE, NEMA PREMIUM, ROUND BODY C-FACE, F#56 (1/4 HP - 2 HP) [GHV_C]

AEGHCF, NEMA PREMIUM, FOOTED C-FACE, F#140T - 210T (1 HP - 10 HP) [GP_C]

AETHCF, NEMA PREMIUM, ROUND BODY C-FACE, F#140T - 210T (1 HP - 10 HP) [GPV_C]



APPLICATIONS:

- Fans & Blowers
- Compressors
- Pumps
- HVAC Equipment

FEATURES:

- Output Range: 1/4 - 10 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP44)
- Voltage: 230/460V (Usable on 200 & 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Rolled Steel Frame, Fan Cover, and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted Only (F2 not available)
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- Cast Iron End Brackets
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP and Larger
- Motors are U.L. Recognized for United States and Canada, CSA Approved and CE Marked

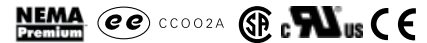
EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.

ROLLED STEEL TEFC AEGIS® SGR



AEGH, FOOTED, NEMA PREMIUM WITH AEGIS® SGR [GP_G]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- HVAC Equipment
- Pumps
- Compressors

The AEGIS® SGR Bearing Protection Ring aids in preventing electrical bearing "fluting" damage by safely diverting harmful shaft voltages and bearing currents to ground. Using proprietary Electron Transport Technology™, the conductive microfibers inside the AEGIS® SGR provide reliable current diversion technology for shaft grounding with a "path of least resistance" to dramatically extend motor life. **AEGIS® Shaft Grounding Rings have a warranty of 1 year.**

FEATURES:

- Output Range: 1 - 10 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP44)
- Voltage: 230/460V (Usable on 200 & 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Grounding Ring Factory Installed Externally on NDE Bracket
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Rolled Steel Frame, Fan Cover, and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted Only (F2 not available)
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- Cast Iron End Brackets
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Double Shielded Bearings Pre-Packed with MULTEMP SRL (Non-regreasable)
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP and Larger
- Motors are U.L. Recognized for United States and Canada, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31
- (5) AEGIS® SGR Bearing Protection Ring can not be used in Hazardous Locations (i.g. Class I, Div. 2, etc.)



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- Any Application that Requires IEC Mounting Dimensions

FEATURES:

- Output Range: 1 - 150 HP (0.75 - 112 kW)
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 230/460V (Usable on 208V)⁽¹⁾ Ratings 150 HP and up are 460V only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- Cast Iron Frame, End Brackets and Main Conduit Box; Rolled Steel Fan Cover
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F3 Mounted (IM1001)
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 80 - 225 (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with MULTEMP SRL for F# 250 and Larger
- Oil Seal/V-Ring on Both Ends
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 6 Leads
- Motors are CE Marked

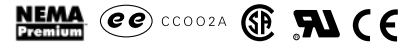
EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Suitable for Wye/Delta Starting.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated by NEMA MG-1. Part 31.

CAST IRON TEFC JP/JM



AEHH8NJP/JM, NEMA PREMIUM, CLOSE-COUPLED [JPP/JMP]

Effective 07-08-18
Supersedes 03-24-17

AEAAJP/JM, HIGH EFFICIENCY, CLOSE-COUPLED [JPN/JMN]



APPLICATIONS:

- Pumps

FEATURES:

- Output Range: 3/4 - 50 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V (Usable on 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C & D - Temp Code T3C Minimum⁽⁵⁾
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Cast Iron Frame, End Brackets & Fan Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Premium - Light Gray - Munsell N5.0
High Efficient - Dark Gray - Munsell 7.5B 3.5/0.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140JP/JM - 280JP/JM (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280JP/JM (2P), 320JP/JM and Larger
- Automatic Grease Discharge Fittings on Regreasable Models
- Rubber Dust Flinger on DE for F# 140JP/JM - 280JP/JM
- Labyrinth Type Metal Flinger on Both Ends for F# 280JP/JM (2P), 320JP/JM and Larger
- Cast Iron Inner and Outer Bearing Caps for Frame# 280JP/JM (2P), 320JP/JM and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 10:1 Variable Torque, 5:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- Motors are U.L. Recognized, CSA Approved and CE Marked

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31.
- (5) CSA Certification for Hazardous Location only applies to AEHH8NJP/JM, NEMA premium [JPP/JMP] product line.

MAX-PE™ FAMILY



AEHH8P, NEMA PREMIUM [NP]

AEHH8PCF, NEMA PREMIUM, FOOTED C-FACE [NP_C]

AEUH8PDC, NEMA PREMIUM, ROUND BODY C-FACE [NPV_C]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- Crushers
- Compressors
- Mixers
- Conveyors

FEATURES:

- Output Range: 1 - 200 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3C Minimum
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame and End Brackets; Rolled Steel Fan Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Automatic Grease Discharge Fittings on Regreasable Models
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- 6 Leads for 150 HP and Larger
- Motors are U.L. Recognized, CSA Approved and CE Marked
- Dual Drilled Feet Available on Most Ratings - Longer Frames (i.e. 145T Drilled also for 143T)
- Provisions for Breather Drains for Vertical Mount Down (F# 324T and Larger)
- Rubber Dust Flinger on Drive-End for F# 140T - 280T

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Motors 7.5 HP & up are Suitable for Wye/Delta Starting.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- HVAC Equipment

The AEGIS® SGR Bearing Protection Ring aids in preventing electrical bearing "fluting" damage by safely diverting harmful shaft voltages and bearing currents to ground. Using proprietary Electron Transport Technology™, the conductive microfibers inside the AEGIS® SGR provide reliable current diversion technology for shaft grounding with a "path of least resistance" to dramatically extend motor life. **AEGIS® Shaft Grounding Rings have a warranty of 1 year.**

FEATURES:

- Output Range: 1 - 75 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V (Usable on 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Grounding Ring Factory Installed Externally on NDE Bracket for F# 143T - 286T; Internally on NDE for F# 284TS - 405T
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame and End Brackets; Rolled Steel Fan Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Automatic Grease Discharge Fittings on Regreasable Models
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 75 HP;
- Motors are U.L. Recognized, CSA Approved and CE Marked
- Dual Drilled Feet Available on Most Ratings - Longer Frames (i.e. 145T Drilled also for 143T)
- Provisions for Breather Drains for Vertical Mount Down (F# 324T and Larger)
- Rubber Dust Flinger on Drive-End for F# 140T - 280T

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Motors 7.5 HP & up are suitable for Wye/Delta Starting.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (6) AEGIS® SGR Bearing Protection Ring can not be used in Hazardous Locations (i.g. Class I, Div. 2, etc.)

**APPLICATIONS:**

- | | |
|------------------|-------------|
| ■ Fans & Blowers | ■ Crushers |
| ■ Pumps | ■ Mixers |
| ■ Compressors | ■ Conveyors |

FEATURES:

- Output Range: 1 - 100 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V (Usable on 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Factory Self-Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3C Minimum
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame, End Brackets, Main Conduit Box; Rolled Steel Fan Cover
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Automatic Grease Discharge Fittings on Regreasable Models
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- Suitable for Inverter Duty per NEMA MG-1, Part 30^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- Motors are U.L. Recognized, CSA Approved and CE Marked
- Rubber Dust Flinger on Drive-End for F# 140T - 280T

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Factory Self-Certification for hazardous areas for 440T/TS frames requires fan change. Please see modifications section; Additional charge for Division II nameplates.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1.
- (6) Per DOE regulations, this High Efficiency inventory (Ratings Below 600 HP) will be available through June 2018, or until current inventory has been depleted. Whichever occurs first. Please see our new line of Premium Efficient MAX-PE™ Premium Efficient Round Body C-Face motors.

MAX-E1® FAMILY



AEHH8N, NEMA PREMIUM (1 HP - 500 HP) [EP]

AEHE, HIGH EFFICIENCY [E]

AEHH8NCF, NEMA PREMIUM, FOOTED C-FACE (1 HP - 300 HP) [EP_C]

AEUH8NDC, NEMA PREMIUM, ROUND BODY C-FACE (1 HP - 100 HP) [EPV_C]



Effective 07-08-18
Supersedes 03-24-17

APPLICATIONS:

- Fans & Blowers
- Pumps
- Crushers
- Compressors
- Mixers
- Conveyors
- Any Severe Duty/ Petro-Chem/
Pulp & Paper Application

FEATURES:

- Output Range: 3/4 - 800 HP
- Speed: 3600, 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54 for 280 Frames and below, IP55 for 280TS Frames and above)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only^(1,2)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum^(7,8)
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum^(7,8,12) (444T and Above)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame, End Brackets & Fan Cover and Main Conduit Box⁽⁹⁾
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽³⁾
- Designed for 3300 ft. Elevation⁽⁴⁾
- Bi-Directional Rotation; Except 2 Pole "Hybrid" and F# 5000 and Larger Ratings are Counter-Clockwise facing the DE
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F# 140T - 449T
Copper/Copper Alloy Rotor Construction for F# 5000 and Larger⁽¹⁰⁾
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Light Gray - Munsell N5.0
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Automatic Grease Discharge Fittings on Regreasable Models
- Labyrinth Type Metal Flinger on Both Ends for F# 280TS and Larger
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(5,6,11)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)⁽¹¹⁾
- 9 Leads for 5 HP and Smaller;
- 12 Leads for 7.5 HP to 125 HP;
- 6 Leads for 150 HP and Larger
- Motors are U.L. Recognized, CSA Approved, CE Marked. ABS Design Assessment from 250 HP-800 HP⁽¹¹⁾
- Dual Drilled Feet Available on Most Ratings - Longer Frames (i.e. 145T Drilled also for 143T)
- 2-Pole Motors 600 HP and Larger are Form Wound and Insulated Non-Drive End Bearing
- Rubber Dust Flinger on Drive-End for F# 140T - 280T
- Catalog Numbers Ending in "R" Come Standard with Roller Bearings for Belted Applications.

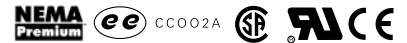
EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) TWMC carries minimal MAX-E1® 575V stock; please check availability to ensure required motors are available. Ratings may be available from our Canadian warehouses at a higher price or from our factory with a longer lead time. Pricing and lead time may vary.
- (2) Motors 7.5 HP & up are Suitable for Wye/Delta Starting.
- (3) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (4) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (5) Motor service factor is 1.0 when operated on a VFD.
- (6) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (7) Catalog# EP3502, EP3504, EP4002T & EP4004T are "Hybrid" ratings; Not CSA Certified (Self-Certify Only) for hazardous locations, and not dual drilled.
- (8) Catalog# EP3006 also not CSA Certified for Hazardous Locations (Self-Certify Only).
- (9) F# 5000 and with Larger with Pressed Steel Plate Main Conduit Box.
- (10) F# 5007 - 5011 8 Pole Ratings are Aluminum Die Cast Squirrel Cage Rotor Construction.
- (11) EP4002T & EP4004T are hybrid frames and not VFD suitable.
- (12) Various temp codes apply to ratings. Consult a product specialist for accurate code.

KEYLESS SHAFT MOTOR



AEHHSY, NEMA PREMIUM (200 HP - 500 HP) [EPY]

AEHESY, HIGH EFFICIENCY [EY]

Effective 07-08-18

Supersedes 03-24-17



APPLICATIONS:

- Fans & Blowers
- Pumps
- Compressors
- Mixers
- Any Severe Duty/ Petro-Chem Pulp & Paper Application

FEATURES:

- Output Range: 200 - 800 HP
- Speed: 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 460V Only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum⁽³⁾
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum⁽³⁾
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Cast Iron Frame, End Brackets & Fan Cover and Main Conduit Box⁽⁶⁾
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- SCM440 Q&T Keyless Oversized Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction or Copper/Copper Alloy Rotor Construction. See product page for more details.
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Light Gray - Munsell N5.0
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings on Regreasable Models
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)
- 6 Leads
- Motors are U.L. Recognized, CSA Approved and CE Marked
- Provisions for Bearing RTD's, both End Brackets Pre-Drilled and Plugged; F#5000 and Larger Only

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) CSA Certification for Hazardous Locations only applies to select ratings. See product page for select details.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (6) F# 5000 and Larger with Pressed Steel Plate Main Conduit Box.

MAX-E2/841® LITE



AEHH, NEMA PREMIUM [HH]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- | | | |
|------------------|---------------|----------------------------|
| ■ Fans & Blowers | ■ Compressors | ■ Severe Duty/ Petro-Chem |
| ■ Pumps | ■ Mixers | ■ Pulp & Paper Application |
| ■ Crushers | ■ Conveyors | ■ Marine Duty |

FEATURES:

- Output Range: 1 - 300 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55); IP(56) 280TS Frames and Above
- Voltage: 460V Only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum⁽⁵⁾ (444T and above)
- IEEE 841 Ready
- Meets IEEE 45 Marine Duty
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame, End Brackets & Fan Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: 2 Part Epoxy
- Paint Color: Blue - Munsell 5PB 3/8
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Rubber Dust Flinger on DE for F# 140T - 280T
- Oil Seal/V-Ring on Both Ends for F# 320T - 400T
- Labyrinth Type Metal Flinger on Both Ends for F# 440T and Larger
- Cast Iron Inner and Outer Bearing Caps for F# 400T and Larger
- Stainless Steel Nameplate and Hardware
- Stainless Steel Automatic Breather Drain
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)
- Motors are U.L. Recognized, CSA Approved
- 3 Leads Only
- Dual Drilled Feet Available on Most Ratings - Longer Frames (i.e. 145T Drilled also for 143T)
- Vibration Not to Exceed 0.08 Inches Per Second
- Noise Level Not to Exceed 85 dB(A) at 1 Meter Unloaded

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (5) Various temp codes apply to ratings. Consult a stock product specialist for accurate code.

MAX-E2/841® FAMILY



AEHH8B, NEMA PREMIUM [HB]

AEHH8BCF, NEMA PREMIUM, FOOTED C-FACE (1 HP - 100 HP) [HB_C]

AEUH8BDC, NEMA PREMIUM, ROUND BODY C-FACE (1 HP - 100 HP) [HBV_C]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- | | | |
|------------------|---------------|----------------------------|
| ■ Fans & Blowers | ■ Compressors | ■ Severe Duty/ Petro-Chem |
| ■ Pumps | ■ Mixers | ■ Pulp & Paper Application |
| ■ Crushers | ■ Conveyors | ■ Marine Duty |

FEATURES:

- Output Range: 1 - 500 HP
- Speed: 3600, 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP56)
- Voltage: 460V Only⁽¹⁾
- Meets GM 7E-TA Specifications
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum^(6,7)
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum (Frame 444T and Above)^(6,7)
- Meets or Exceeds IEEE 841 Standards
- Meets IEEE 45 Marine Duty and ABS Design Assessment up to 500 HP(2,4,6 pole only)⁽¹⁰⁾
- Extended Warranty - 60 Months from Date of Manufacture
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame, End Brackets & Fan Cover and Main Conduit Box⁽⁸⁾
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 50°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation; Except 2 Pole "Hybrid" and F# 5000 and Larger Ratings are Counter-Clockwise facing the DE
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F# 140T - 449T
- Copper/Copper Alloy Rotor Construction for F# 5000 and Larger⁽⁹⁾
- Paint System: 2 Part Epoxy
- Paint Color: Blue - Munsell 5PB 3/8
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- VBXX INPRO™ Seals Installed on Both Ends
- Stainless Steel Nameplate and Hardware
- Stainless Steel Automatic Breather Drain
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)^(4,5)
- Motors are U.L. Recognized, CSA Approved
- 3 Leads Only
- Dual Drilled Feet Available on Most Ratings - Longer Frames (i.e. 145T Drilled also for 143T)
- Vibration Not to Exceed 0.08 Inches Per Second
- Noise Level Not to Exceed 85 dB(A) at 1 Meter Unloaded

EXTRAS/ OPTIONS:

Please refer to modifications document for common modifications that can be performed.

Notes:

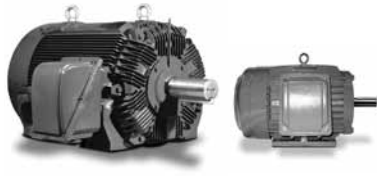
- (1) TWMC carries minimal MAX-E2® 575V stock; please check availability to ensure required motors are available. Ratings may be available from our Canadian Warehouses at a higher price or from our factory with a longer lead time. Pricing and lead time may vary.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31.
- (6) Catalog# HB3502 & HB3504 are "Hybrid" ratings; Not CSA Certified (Self-Certify Only) for hazardous locations, and not dual drilled.
- (7) Catalog# HB3006 also not CSA Certified for hazardous locations (Self-Certify Only).
- (8) F# 5000 and with Larger with Pressed Steel Plate Main Conduit Box.
- (9) F# 5007 - 5011 8 Pole Ratings are Aluminum Die Cast Squirrel Cage Rotor Construction.
- (10) Contact Application Engineering for ABS Motor Pricing
- (11) To convert to IP65 the M17 modification will be required. To convert to IP66 the M31 modification will be required.

MAX-HT™ LOW VOLTAGE CRUSHER DUTY



AEHHGD, NEMA PREMIUM, DESIGN C (20 HP - 200 HP) [CDP]
AAEAGD, HIGH EFFICIENCY, DESIGN C [CD]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Crushers
- Impactors
- Chippers/ Shredders
- Ball Mills/ Rolling Mills
- Any High Torque Application

FEATURES:

- Output Range: 20 - 600 HP
- Speed: 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum⁽⁶⁾
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum (Frame 444T and above)⁽⁶⁾
- Class F Insulation
- Class B Temperature Rise
- NEMA Design A Torques; Equal or Greater Than 200% Starting Torque / 250% Breakdown Torque
- Cast Iron Frame, End Brackets, Main Conduit Box; Rolled Steel Fan Cover⁽⁷⁾
- Grounding Terminal Inside Main Conduit Box⁽⁸⁾
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- High Strength 4140 AISI Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5 BG 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Gamma (Axial Face) Seal on Both Ends for F# 140T - 400T
- Labyrinth Type Metal Flinger on Both Ends for F# 440T and Larger
- Cast Iron Inner and Outer Bearing Caps for F# 320T and Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)
- 12 Leads for 125 HP and Smaller
- 6 Leads for 150 HP and Larger
- Standard With Thermistors (PTC 140°C) 1 per Phase
- Locknut and Washer on NDE for Vertical Shaft Down Applications on F# 440 and Larger
- Drain Holes / Plugs on Both End Brackets for Vertical Applications
- Threaded One Way Breather Drains for Horizontal Mount Applications

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) 575V motors available on a made-to order basis. Consult a Stock Product Application Specialist for details.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31
- (6) **CSA Certification for Hazardous Locations only applies to AEHHGD, NEMA Premium Type.**
- (7) F# 5000 and with Larger with Pressed Steel Plate Main Conduit Box.
- (8) Additional Foot Grounding Provision for F# 440 and Larger.

MAX-HT™ LOW VOLTAGE CRUSHER DUTY



AEHHGD, NEMA PREMIUM, DESIGN A [CDP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Crushers
- Impactors
- Chippers/ Shredders
- Ball Mills/ Rolling Mills
- Any High Torque Application

FEATURES:

- Output Range: 200 - 500 HP
- Speed: 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 460V⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum⁽⁶⁾
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum (Frame 444T and above)⁽⁶⁾
- Class F Insulation
- Class B Temperature Rise
- NEMA Design A Torques; Equal or Greater Than 200% Starting Torque / 250% Breakdown Torque
- Cast Iron Frame, End Brackets; Pressed Steel Plate Main Conduit Box and Fan Cover
- Cast Iron Main Conduit Box on 505UZ Frame
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- High Strength 4140 AISI Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5 BG 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque (350 HP and Larger are 3:1 Constant Torque)
- 6 Leads
- Standard With Thermistors (PTC 140°C) 1 per Phase
- Locknut and Washer on NDE for Vertical Shaft Down Applications
- Drain Holes / Plugs on Both End Brackets for Vertical Applications
- Threaded One Way Breather Drains for Horizontal Mount Applications

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) 575V motors available on a made-to order basis. Consult a Stock Product Application Specialist for details.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31.
- (6) **CSA Certification for Hazardous Locations only applies to AEHHGD, NEMA Premium Type.**

MAX-HT™ MEDIUM VOLTAGE CRUSHER DUTY



AEHAGD, ENERGY EFFICIENT, HIGH TORQUE [KD]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- | | | |
|---------------|--------------|----------------------------|
| ■ Mills | ■ Crushers | ■ Shredders |
| ■ Grinders | ■ Impacters | ■ High Torque Applications |
| ■ Compressors | ■ Ball Mills | |

FEATURES:

- Output Range: 100 - 900 HP
- Speed: 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 2300/4000V⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum
- CSA Certified for Class II, Div. 2, Groups F & G - Temp Code T3 Minimum
- Class F Insulation
- Class B Temperature Rise
- NEMA Design C Torques; Equal or Greater Than 200% Starting Torque / 250% Breakdown Torque
- Cast Iron Frame, End Brackets; Pressed Steel Plate Main Conduit Box and Fan Cover⁽⁵⁾
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- High Strength 4140 AISI Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5 BG 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Stainless Steel Nameplate
- Suitable for Inverter Duty (PWM - Pulse Width Modulation) per NEMA MG-16
- Inverter Duty Speed Range: 10:1 Variable Torque, 3:1 Constant Torque⁽⁶⁾
- 6 Leads
- CSA Approved
- Locknut and Washer on NDE for Vertical Shaft Down Applications
- Drain Holes / Plugs on Both End Brackets for Vertical Applications
- Threaded One Way Breather Drains for Horizontal Mount Applications
- 100 Ohm Platinum Stator RTD's (2/Phase); in separate Auxiliary Box
- Space Heaters (120V); in separate Auxiliary Box⁽⁴⁾
- Mounting Provisions for Bearing RTD's and Vibration Detectors on F# 5007 and Larger

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Suitable for Full Voltage Direct On-Line Connection, Wye-Delta Start, Reduced Voltage Start or VFD.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Space Heaters are Low Temperature Type; Suitable for Hazardous Location Division 2 Environments
- (5) F# 447T(Z) - 449T(Z) with Cast Iron Main Conduit Box and Cast Iron Fan Cover.
- (6) Motor service factor is 1.0 when operated on a VFD.

STAINLESS STEEL WASHDOWN



AEGP, NEMA PREMIUM, FOOTED C-FACE [WFP/WP]
AEGPCW, NEMA PREMIUM, ROUND BODY C-FACE [WFPV/WPV]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Any Application Where the Motor Will be Subjected to High Pressure Spray Down
- Marine Duty
- Food Processing and Packaging

FEATURES:

- Output: 1/2 - 10 HP
- Speed: 3600 & 1800 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP66) (IEEE 45)
- Voltage: 230/460V (Usable on 208V)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Stainless Steel Frame, End Brackets and Hardware
- Grounding Terminal Inside Main Conduit Box
- Stainless Steel Oversized Main Conduit Box - F3 Mounted (IM1001)
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation
- SUS304 Stainless Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Double Shielded Bearings Pre-Packed with MULTEMP SRL
- Contact Lip Type Seal on Both Ends
- Etched Nameplate on the Stainless Steel Frame
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)
- Inverter Duty Speed Range: 10:1 Variable Torque, 4:1 Constant Torque
- 9 Leads
- Two Drain Holes on Bottom of Frame and one in the C-Flange
- Motors are U.L. Recognized, CSA Approved and CE Marked
- Department of Energy Efficiency Certificate # CC082A
- Encapsulated Windings as Option⁽⁵⁾

EXTRAS/ OPTIONS:

- Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31
- (5) Consult a Stock Product Application Specialist for encapsulated winding quote.
- (6) TENV up to 1 HP.
- (7) Turn down the same TEFC 60 min. duty intermittent.

TEXP EXPLOSION PROOF FAMILY



AEHHXV/AEHHXU, NEMA PREMIUM [XP]

AEHHXG/AEHHXF, NEMA PREMIUM, FOOTED C-FACE (1 HP - 100 HP)[XP_C]

AEUHXG/AEUHXF, NEMA PREMIUM, ROUND BODY C-FACE (1 HP - 75 HP)[XPV_C]

Effective 07-08-18

Supersedes 03-24-17



APPLICATIONS:

- Grain Elevators
- Pumps
- Blowers
- Applications Where Explosive Gases are Present
- Applications Where Explosive Dusts/ Grains are Present

FEATURES:

- Output Range: 1 - 400 HP
- Speed: 3600, 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled - Explosion Proof (IP55)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- Class I, Div. 1, Group C & D and Class II, Groups E, F and G - Temp Code T2D/T3B Up to and Including F# 256T
- Class I, Div. 1, Group D and Class II, Groups E, F and G - Temp Code T2D/T3B for F# 284T and Larger
- UL File: E84757
- CSA File: #64671
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Standard with Klixon 9700K Temperature Limiting Switch, 1 per Phase
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Dual Drilled Back Feet on 447/9 and 5007/9 Frames
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- Cast Iron Frame, Fan Cover, End Brackets and Main Conduit Box
- Capable of Withstanding Explosion Force as Required by UL
- Stainless Steel Breather Drains with Bronze Filters (For Horizontal Mount Only)
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction through 449 Frame; Fabricated Copper Bar on 5000 Frame
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Blue - Munsell 5 PB 4.5/2
- Double Shielded Bearings Pre-Packed with MULTEMP SRL for F# 140T - 280T (Non-regreasable)
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM for F# 280TS and Larger
- Bronze Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps for F#280TS and Larger
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- UL Listed for Inverter Duty^(4,5)
- Inverter Duty Magnet Wire Capable of Withstanding Voltage Spikes of up to 2200 Volts
- Inverter Duty Speed Ranges: VT = 3 - 60 Hz CT for 140T - 210T Frames = 10 - 60 Hz
CT for 250T - 320T Frames = 13 - 60 Hz CT for 260T - 440T Frames = 16 - 60 Hz
- 9 Leads for 5 HP and Smaller; 12 Leads for 7.5 HP to 125 HP; 6 Leads for 150 HP and Larger

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Available in 575V. TWMC carries minimal 575V stock; please check availability to ensure required motors are in stock. Ratings may be available from our Canadian warehouses and/or our factory. Pricing and leadtime may vary.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor Service Factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31.
- (6) Extras/Modification options are limited on TEXP Products.



APPLICATIONS:

- Pumps
- Fans & Blowers
- Compressors

FEATURES:

- Output Range: 100 - 2000 HP
- Speed: 3600, 1800, 1200 & 900 RPM⁽¹⁾
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 2300/4000V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Standard Features: 100 Ohm Platinum Stator RTD's (2 per Phase), Space Heaters (120V)
- Standard Features: Pre-Drilled & Plugged Bearing Bracket for 100 Ohm Platinum Bearing RTD's on 5000 Frames & Above
- Standard Features: Pre-Drilled & Spot Faced on Top of End Bracket for Vibration Detectors on 5000 Frames and Above
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments Fully Gasketed with NPT Threaded Entrance - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Rotation: F#447-449: Bi-Directional. F#5000-5813: Bi-Directional. 2 Pole Motors F# 5000 or Larger are Uni-Directional, Counter-Clockwise (CCW) facing the Drive End
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449T and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000 and Larger
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil PolyrexTM EM
- Insulated Non-Drive End Bearing on 3600 RPM Motors; 600 HP and Larger
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Grounding Terminal Inside Main Box and on Motor Foot
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- 6 Leads
- Motors are CSA Approved

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Slower speeds available as Made to Order.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments, and for variable and constant torque speed ranges.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31. An isolation transformer or other method of mitigating common mode voltages from motor terminals must be utilized. Please check out our accompanying TEAMMaster[™] starters.



APPLICATIONS:

■ Pumps

■ Fans & Blowers

■ Compressors

FEATURES:

- Output Range: 100 - 1000 HP
- Speed: 3600, 1800, 1200 & 900 RPM⁽¹⁾
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 2300/4160V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- Standard Features: 100 Ohm Platinum Stator RTD's (2 per Phase), Space Heaters (120V)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments. Fully Gasketed with NPT Threaded Entrance - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Rotation: Bi-Directional Except 2 Pole which is Counter-Clockwise (CCW) facing the Drive End
- Cast Iron Frame and End Brackets
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449T and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000 and Above
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Insulated Non-Drive End Bearing on 2 Pole Motors; 600 HP and Larger
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Grounding Terminal Inside Main Box and on Motor Foot
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(4,5)
- 6 Leads
- Motors are CSA Approved

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Slower speeds available as Made to Order.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments, and for variable and constant torque speed ranges.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31. An isolation transformer or other method of mitigating common mode voltages from motor terminals must be utilized. Please check out our accompanying TEAMMaster™ starters.



APPLICATIONS:

- | | | |
|---------|------------------|---------------|
| ■ Pumps | ■ Fans & Blowers | ■ Compressors |
| ■ Mills | ■ Grinders | |

FEATURES:

- Output Range: 100 - 2000 HP
- Speed: 3600, 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 2300/4160V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, for 5000 Frames and above
- CSA Certified for Class 1, Div. 2, Groups B, C, and D, for 444 Frames and above, Code T3⁽⁵⁾
- Standard Features: 100 Ohm Platinum Stator RTD's (2/Phase), Space Heaters (120V)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments Fully Gasketed with NPT Threaded Entrance - F1 Mounted
- Cast Iron Terminal Box on 444T - 449T Frames
- Steel Plate Terminal Box on 5000 Frames and Above
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation for all 444T - 449T Frames and for 1800 - 900RPM (4 - 8 Pole) 5007 - 6808 Frame Motors and for (4-8 Pole) 5007-6808 Frame Motors
- 5007 - 6808 Frame 3600 RPM (2 Pole) Motors have Counter-Clockwise (CCW) Rotation facing the Drive End
- Cast Iron Frame and End Brackets
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction on 444T - 449T Frames
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for on 5007 - 6808 Frames
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Grounding Terminal Inside Main Box and on Motor Foot
- Stainless Steel Nameplate
- 6 Leads, with Solderless Lug Terminals
- Motors are CSA Approved
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4,5)

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments, and for variable and constant torque speed ranges.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1, Part 31. An isolation transformer or other method of mitigating common mode voltages from motor terminals must be utilized. Please check out our accompanying TEAMMaster™ starters.
- (5) Consult Stock Product Specialist for various temp codes on what ratings.



APPLICATIONS:

- | | | |
|---------|------------------|---------------|
| ■ Pumps | ■ Fans & Blowers | ■ Compressors |
| ■ Mills | ■ Grinders | |

FEATURES:

- Output Range: 500 - 2000 HP
- Speed: 3600, 1800, 1200 & 900 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 2300/4000V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Group B, C, D - Temp Code T3 Minimum
- CSA Certified for Class II, Div. 2, Group F & G - T3C Minimum
- Standard Features: Provisions for Bearing RTD's, 100 Ohm Platinum Stator RTD's(2/Phase), Space Heaters(120V)
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Fabricated Steel Main Conduit Box Rotatable in 90 Degree Increments Fully Gasketed with NPT Threaded Entrance - F1 Mounted
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Bi-Directional Rotation; except 2 Pole which is Counter-Clockwise (CCW) facing the Drive End
- Cast Iron Frame and End Brackets
- 1045 Carbon Steel Shaft
- Squirrel Cage Copper Bar Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- High Quality Ball (or Roller) Bearings Regreasable with Mobil Polyrex™ EM
- Bronze Labyrinth Type Metal Flinger on Both Ends
- Cast Iron Inner and Outer Bearing Caps
- Grounding Terminal Inside Main Box and on Motor Foot
- Stainless Steel Nameplate
- 6 Leads, with Solderless Lug Terminals
- Motors are CSA Approved
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31^(3,4)

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments, and for variable and constant torque speed ranges.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Motor service factor is 1.0 when operated on a VFD.
- (4) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1.Part 31. An isolation transformer or other method of mitigating common mode voltages from motor terminals must be utilized. Please check out our accompanying TEAMMaster™ starters.

VERTICAL HOLLOW SHAFT WPI HIGH THRUST with "P" BASE - LOW VOLTAGE



AMRCNH, (MAX-VHP™) NEMA PREMIUM [VHP]*
AMRCFP, (MAX-VH™) HIGH EFFICIENCY [VH_FP]*

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Fluid Handling Systems
- Irrigation
- Water/ Waste Water
- Fire Pumps*

FEATURES:

- Output Range: 7.5 - 800 HP
- Speed: 1800 RPM
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- New Dual Column (60/50 Hz) Design Nameplate as Standard; 50 Hz Data 190/380V at 1.0 S.F.
- Standard Features: Coupling w/ Gib Key, Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- Optional Capability for 175% High Thrust Requirement for 444 - 449TP Frames
- Motor Design Suitable to handle 2 stacked bearings; Motors will ship with 1 bearing and 1 spacer as Standard
- Class F Insulation with Phenolic Alkyd Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Cast Iron Conduit Box for F#449TP and Below; Steel Plate Conduit Box for F#5000
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Hollow Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449TP and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color for AMRC (MAX-VH™): Dark Gray - Munsell 7.5B 3.5/0.5
- Paint Color for AMRCNH (MAX-VHP™): Blue - Munsell 5PB 3/8
- Guide Bearings: 213 - 286TP frames are Grease Pre-packed Double Shielded Bearings (MULTEMP SRL)
324TP - 5009P frames are Re-Greasable (Mobil Polyrex EM)
- Thrust Bearings: 213 - 286TP frames are Re-Greasable Angular Contact (Mobil Polyrex EM);
324 - 449TP frames are Oil Lubricated Angular Contact; F#5000 and Above with Spherical Roller
- Oil Sight Glass for 324TP Frames and Above
- Oil Requirements: 300 S.S.U. @100°F
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate and Rodent Screens
- 12 Leads (PWS on 230V) on 213 - 405TP3; Wye/Delta on 230V or 460V
- 6 Leads on 444TP to 449TP; 5000 Frames and Above with Connection Studs⁽⁴⁾
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
10:1 Variable Torque with NRR. 10:1 C.T., 20:1 VT without NRR Using Braking in VFD
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD at stated per NEMA MG-1, part 31 for AMRCNH and Part 30 for AMRC.

EXTRAS/ OPTIONS:

Please refer to pages 147 - 154 which show common modifications that can be performed.

Notes:

- * Fire Pump available. See product page for more details.
- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Suitable for Wye/Delta start at 230V or 460V.
- (4) Suitable for Wye/Delta start at 460V.

VERTICAL HOLLOW SHAFT TEFC HIGH THRUST with "P" BASE - LOW VOLTAGE



AEEHNNH, (MAX-VHP™) NEMA PREMIUM [VHTP]

Effective 07-01-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 15 - 800 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only
- 230/460V Motors Suitable for Partial Winding Start (at 230V Only)⁽³⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- CSA Certified for Class I, Div. 2, Group B, C, D - Temp Code T3 Minimum
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- New Dual Column (60/50 Hz) Design Nameplate as Standard; 50 Hz Data 190/380V at 1.0 S.F.
- Standard Features: Coupling w/ Gib Key, Non-Sparking Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- CSA Certified for Class I, Div. 2, Groups B,C, D; Temp Code T3 minimum
- Class F Insulation with Phenolic Alkyd Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Cast Iron Conduit Box for F#449TP and Below; Steel Plate Conduit Box for F#5000
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Hollow Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: 254 - 286TP frames are Grease Pre-packed Double Shielded Bearings (MULTEMP SRL)
324TP - 5810P frames are Re-Greasable (Mobil Polyrex EM)
- Thrust Bearings: 254 - 365TP frames are Re-Greasable Angular Contact (Mobil Polyrex EM);
404 - 449TP frames are Oil Lubricated Angular Contact; F#5000 & Above with Spherical Roller or Angular Contact
- Oil Sight Glass for 324TP Frames and Above
- Oil Requirements: 300 S.S.U. @ 100°F
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- 12 Leads (PWS on 230V) on 213 - 405TP; (3) Suitable for Wye/Delta Start at 230V or 460V.
6 Leads on 444TP to 449TP; 5000 Frames and Above with Connection Studs⁽⁴⁾
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31. - 10:1 Variable Torque with NRR; 20:1 Variable Torque without NRR Using Braking in VFD 10:1 Constant Torque
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1 Part 31.

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Suitable for Wye/Delta start at 230V or 460V.
- (4) Suitable for Wye/Delta start at 460V.

VERTICAL HOLLOW SHAFT WPI HIGH THRUST with "P" BASE - MEDIUM VOLTAGE



AMRKNH, NEMA PREMIUM [VHKP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 200 - 1000 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 2300/4000V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- Standard Features: Coupling w/ Gib Key, Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- Class F Insulation with VPI Epoxy Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Cast Iron Conduit Box for F#449TP and Below; Steel Plate Conduit Box for F#5000
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Hollow Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449TP and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000 and above
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: Re-Greasable with Mobil Polyrex™ EM Grease
- Thrust Bearings: 449TP frames are Oversized Angular Contact Oil Lubricated
- Thrust Bearings: 5000 Frame and above are Oil Lubricated Spherical Roller with Site Glass
- Oil Requirements: 300 S.S.U. @100°F
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- 6 Leads
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31. - 10:1 Variable Torque with NRR;
20:1 Variable Torque without NRR Using Braking in VFD
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1. Part 31.

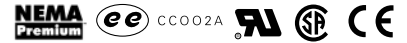
EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.

VERTICAL HOLLOW SHAFT TEFC HIGH THRUST with "P" BASE - MEDIUM VOLTAGE



AEHCNH, NEMA PREMIUM [VHKTP]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 200 - 700 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 2300/4000V
- Motors Suitable for Reduced Starting Voltage
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- Standard Features: Coupling w/ Gib Key, Non-Sparking Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- CSA Certified for Class I, Div. 2, Groups B,C, D; Temp Code T3 minimum
- Class F Insulation with VPI Epoxy Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Steel Plate Conduit Box with Threaded Connection Opening(s)
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Oversized Angular Contact or Spherical Thrust Bearing Installed
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Hollow Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449TP
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000 and Above
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Vacuum De-Gassed Re-Greasable Ball Bearings Frames -5007TP & Up with Mobil Polyrex™ EM Grease
- Guide Bearings: 324TP - 5810P Frames are Re-Greasable with Mobil Polyrex™ EM Grease
- Thrust Bearings: 449 - 5810P Frames are Oil Lubricated Angular Contact or Spherical Thrust Bearing with Site Glass
- Oil Requirements for 444TP - 5810P Frames: 300 S.S.U. @ 100°F
- Grease Discharge Fittings on Frames with Re-Greasable Motors
- Bronze Labyrinth Type Metal Flinger on Lower End Bracket
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
- Speed Ranges: 10:1 Variable Torque
- 6 Leads
- UL Recognized and CSA Approved
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1. Part 31.
- Ball Type NRR Provided

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.

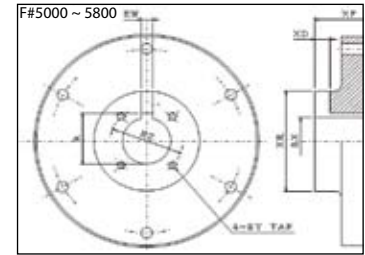
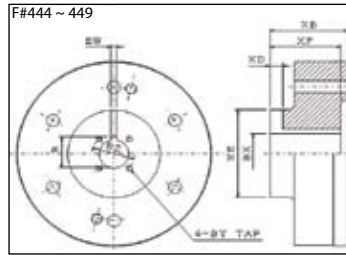
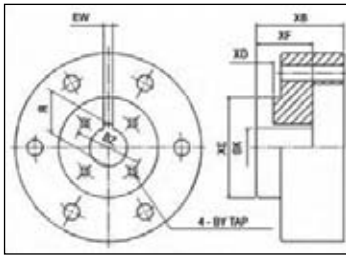
COUPLING KITS WPI

FOR VERTICAL HOLLOW SHAFT MOTORS

Effective 07-08-18
Supersedes 03-24-17

Notes:

1. Tolerance on BX dimensions up to and including 1.500 inches in diameter:
+0.001 inches, -0.000 inches; Larger than 1.500 inches diameter: +0.0015 in., -0.0000 in.
2. Dimension EW tolerance: +0.002 inches, -0.000 inches.
3. Dimension R tolerance: +0.010 inches, -0.000 inches.
4. **"**" in the table denotes the standard coupling size for each frame.**
5. One coupling is included with motor price. If purchased separately use list pricing.
6. Please consult Application Specialist for listings not shown.
7. Notice coupling part numbers have changed from 2015/2016 Pricebook; New design.



FRAME	BX	BY	BZ	EW	R	XB	XD	XE	XF	PART NO.	LIST PRICE (\$)
210TP	0.751	NO. 10-32 UNF	1.375	0.188	0.845	1.750	0.406	2.000	1.125	31010D6871903	460
	0.876	NO. 10-32 UNF	1.375	0.188	0.970	1.750	0.406	2.000	1.125	31010D6872004	
	0.938	NO. 10-32 UNF	1.375	0.250	1.078	1.750	0.406	2.000	1.125	31010D6872101	
	*1.001	NO. 10-32 UNF	1.375	0.250	1.126	1.750	0.406	2.000	1.125	31010D6872209	
250TP/ 280TP	0.751	NO. 10-32 UNF	1.375	0.188	0.845	2.170	0.410	2.250	1.230	31010D6872306	613
	0.876	NO. 10-32 UNF	1.375	0.188	0.970	2.170	0.410	2.250	1.230	31010D6872403	
	*1.001	NO. 10-32 UNF	1.375	0.250	1.126	2.170	0.410	2.250	1.230	31010D6872501	
	1.188	1/4"-20 UNC	1.750	0.250	1.313	2.170	0.410	2.250	1.230	31010D6872608	
320TP/ 360TP	1.251	1/4"-20 UNC	1.750	0.250	1.376	2.170	0.410	2.250	1.230	31010D6872705	920
	1.001	NO. 10-32 UNF	1.375	0.250	1.126	2.540	0.410	2.875	1.540	31010D6872802	
	*1.188	1/4"-20 UNC	1.750	0.250	1.313	2.540	0.410	2.875	1.540	31010D6872900	
	1.251	1/4"-20 UNC	1.750	0.250	1.376	2.540	0.410	2.875	1.540	31010D6873001	
400TP	1.438	1/4"-20 UNC	2.125	0.375	1.625	2.540	0.470	2.875	1.540	31010D6873108	1,278
	1.501	1/4"-20 UNC	2.125	0.375	1.688	2.540	0.470	2.875	1.540	31010D6873205	
	1.188	1/4"-20 UNC	1.750	0.250	1.313	2.760	0.530	3.150	1.500	31010D6873302	
	1.251	1/4"-20 UNC	1.750	0.250	1.376	2.760	0.530	3.150	1.500	31010D6873400	
444TP/ 445TP	1.438	1/4"-20 UNC	2.125	0.375	1.625	2.760	0.530	3.150	1.500	31010D6873507	2,150
	*1.501	1/4"-20 UNC	2.125	0.375	1.688	2.760	0.530	3.150	1.500	31010D6873604	
	1.688	1/4"-20 UNC	2.500	0.375	1.891	2.760	0.530	3.150	1.500	31010D6873701	
	1.751	1/4"-20 UNC	2.500	0.375	1.954	2.760	0.530	3.150	1.500	31010D6873809	
445TP	1.188	1/4"-20 UNC	1.750	0.250	1.304	3.169	0.409	3.740	2.875	3A010C2390104	2,350
	1.251	1/4"-20 UNC	1.750	0.250	1.367	3.169	0.409	3.740	2.875	3A010C2390201	
	1.438	1/4"-20 UNC	2.125	0.375	1.605	3.169	0.531	3.740	2.875	3A010C2390309	
	*1.501	1/4"-20 UNC	2.125	0.375	1.669	3.169	0.531	3.740	2.875	3A010C2390406	
445TP20 ^(A) / 447TP ^(B) / 449TP ^(C)	1.688	1/4"-20 UNC	2.500	0.375	1.859	3.169	0.531	3.740	2.875	3A010C2390503	2,350
	1.751	1/4"-20 UNC	2.500	0.375	1.922	3.169	0.531	3.740	2.875	3A010C2390601	
	1.938	1/4"-20 UNC	2.500	0.500	2.160	3.169	0.689	3.740	2.875	3A010C2390708	
	1.438	1/4"-20 UNC	2.125	0.375	1.605	3.559	0.531	4.725	3.071	3A010C2390805	
	*1.501^(A)	1/4"-20 UNC	2.125	0.375	1.669	3.559	0.531	4.725	3.071	3A010C2390902	
	*1.688^(B)	1/4"-20 UNC	2.500	0.375	1.859	3.559	0.531	4.725	3.071	3A010C2391003	
	1.751	1/4"-20 UNC	2.500	0.375	1.922	3.559	0.531	4.725	3.071	3A010C2391101	
	*1.938^(C)	1/4"-20 UNC	2.500	0.500	2.160	3.559	0.689	4.725	3.071	3A010C2391208	
	2.001	3/8"-16 UNC	3.250	0.500	2.223	3.559	0.689	4.725	3.071	3A010C2391305	
	2.063	3/8"-16 UNC	3.250	0.500	2.287	3.559	0.689	4.725	3.071	3A010C2391402	
2.126	3/8"-16 UNC	3.250	0.500	2.350	3.559	0.689	4.725	3.071	3A010C2391500		
2.188	3/8"-16 UNC	3.250	0.500	2.414	3.559	0.689	4.725	3.071	3A010C2391607		
2.251	3/8"-16 UNC	3.250	0.500	2.477	3.559	0.689	4.725	3.071	3A010C2391704		
2.376	3/8"-16 UNC	3.250	0.625	2.651	3.559	0.815	4.725	3.071	3A010C2391801		
2.438	3/8"-16 UNC	3.250	0.625	2.714	3.559	0.815	4.725	3.071	3A010C2391909		
2.501	3/8"-16 UNC	3.250	0.625	2.778	3.559	0.815	4.725	3.071	3A010C2392000		
5000 ^(A) / 5800 ^(B)	1.688	1/4"-20 UNC	2.500	0.375	1.859	-	0.531	4.725	3.071	3A711C1371209X001	2,650
	1.938	1/4"-20 UNC	2.500	0.500	2.160	-	0.689	4.725	3.071	3A711C1371306X001	
	2.126	3/8"-16 UNC	3.250	0.500	2.350	-	0.689	4.725	3.071	3A711C1371403X001	
	*2.188^(A)	3/8"-16 UNC	3.250	0.500	2.414	-	0.689	4.725	3.071	3A711C1371501X001	
	2.251	3/8"-16 UNC	3.250	0.500	2.477	-	0.689	4.725	3.071	3A711C1370407X001	
	2.376	3/8"-16 UNC	3.250	0.625	2.651	-	0.815	4.725	3.071	3A711C1370300X001	
	*2.438^(B)	3/8"-16 UNC	3.250	0.625	2.714	-	0.815	4.725	3.071	3A711C1370202X001	
	2.501	3/8"-16 UNC	3.250	0.625	2.778	-	0.815	4.725	3.071	3A711C1370105X001	
BLANK1	3/8"-16 UNC	3.250	-	-	-	-	4.725	3.071	3A711C1370504X001		
BLANK2	-	-	-	-	-	-	4.725	3.071	3A711C1370601X001		

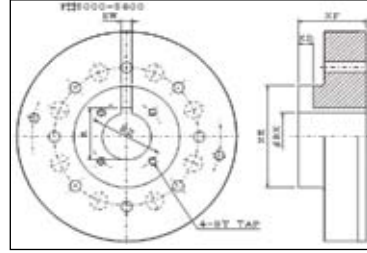
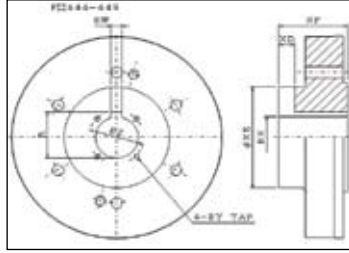
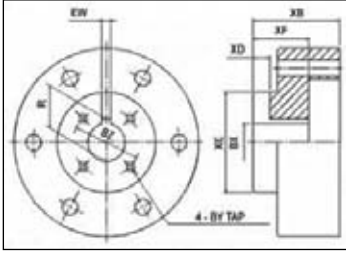
COUPLING KITS TEFC

FOR VERTICAL HOLLOW SHAFT MOTORS

Effective 07-08-18
Supersedes 03-24-17

Notes:

1. Tolerance on BX dimensions up to and including 1.500 inches diameter:
+0.001 inches, -0.000 inches; Larger than 1.500 inches diameter: +0.0015 in., -0.0000 in.
2. Dimension EW tolerance: +0.002 inches, -0.000 inches.
3. Dimension R tolerance: +0.010 inches, -0.000 inches.
4. "*" in the table denotes the standard coupling size for each frame.
5. One coupling is included with motor price. If purchased separately use list pricing.
6. Please consult Application Specialist for listings not shown.
7. Notice coupling part numbers have changed from 2015/2016 Pricebook; New design.

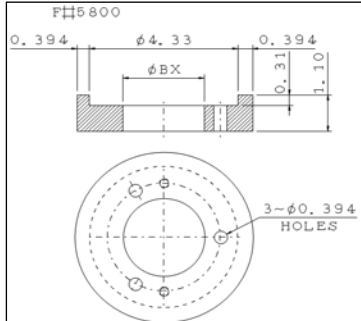
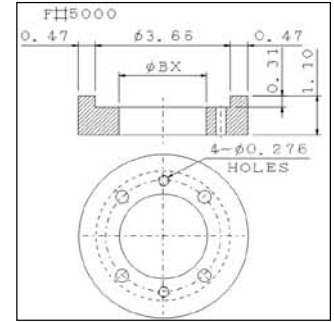
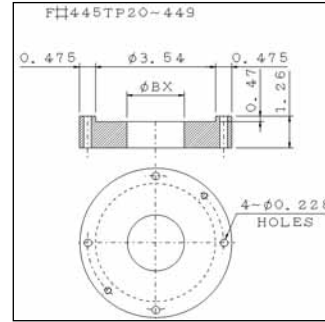
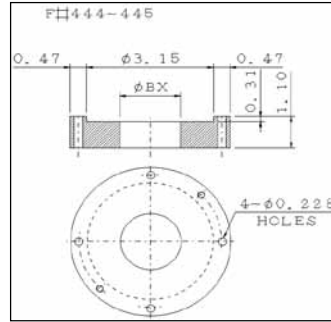
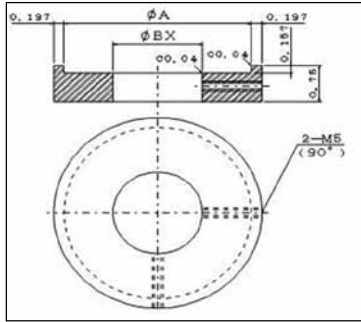


FRAME	BX	BY	BZ	EW	R	XB	XD	XE	XF	PART NO.	LIST PRICE (\$)
210TP	0.751	NO. 10-32 UNF	1.375	0.188	0.845	1.750	0.343	2.000	1.125	31010D6870206	460
	0.876	NO. 10-32 UNF	1.375	0.188	0.970	1.750	0.343	2.000	1.125	31010D6870303	
	*1.001	NO. 10-32 UNF	1.375	0.250	1.126	1.750	0.406	2.000	1.125	31010D6870401	
250TP	0.751	NO. 10-32 UNF	1.375	0.188	0.845	2.560	0.343	2.250	1.625	31010D6870508	613
	0.876	NO. 10-32 UNF	1.375	0.188	0.970	2.560	0.343	2.250	1.652	31010D6870605	
	*1.001	NO. 10-32 UNF	1.375	0.250	1.126	2.560	0.406	2.250	1.625	31010D6870702	
280TP	1.188	1/4"-20 UNC	1.750	0.250	1.313	2.560	0.406	2.250	1.652	31010D6870800	613
	0.876	NO. 10-32 UNF	1.375	0.188	0.970	2.560	0.343	2.250	1.652	31010D6870605	
	*1.001	NO. 10-32 UNF	1.375	0.250	1.126	2.560	0.406	2.250	1.625	31010D6870702	
320TP	1.188	1/4"-20 UNC	1.750	0.250	1.313	2.560	0.406	2.250	1.652	31010D6870800	920
	1.251	1/4"-20 UNC	1.750	0.250	1.376	2.560	0.406	2.250	1.652	31010D6870907	
	1.001	NO. 10-32 UNF	1.375	0.250	1.126	3.331	0.406	2.875	2.331	31010D6871008	
360TP	*1.188	1/4"-20 UNC	1.750	0.250	1.313	3.331	0.406	2.875	2.331	31010D6871105	920
	1.251	1/4"-20 UNC	1.750	0.250	1.376	3.331	0.406	2.875	2.331	31010D6871202	
	1.438	1/4"-20 UNC	2.125	0.375	1.625	3.331	0.531	2.875	2.331	31010D6871300	
400TP	1.501	1/4"-20 UNC	2.125	0.375	1.688	3.331	0.531	2.875	2.331	31010D6871504	~
	1.251	1/4"-20 UNC	2.125	0.375	1.688	3.543	0.531	3.150	2.441	Contact Factory	
	1.438	1/4"-20 UNC	2.125	0.375	1.688	3.543	0.531	3.150	2.441	Contact Factory	
444TP/ 445TP	*1.501	1/4"-20 UNC	2.125	0.375	1.688	3.543	0.531	3.150	2.441	31010D6871806	2,150
	1.688	1/4"-20 UNC	2.500	0.375	1.891	-	0.531	3.740	2.874	Contact Factory	
	1.188	1/4"-20 UNC	1.750	0.250	1.304	-	0.409	3.740	2.874	3A711C1580100X001	
447TP(A)/ 449TP(B)	1.251	1/4"-20 UNC	1.750	0.250	1.367	-	0.409	3.740	2.874	3A711C1580207X001	2,350
	1.438	1/4"-20 UNC	2.125	0.375	1.605	-	0.531	3.740	2.874	3A711C1580304X001	
	*1.501	1/4"-20 UNC	2.125	0.375	1.669	-	0.531	3.740	2.874	3A711C1580401X001	
	1.688	1/4"-20 UNC	2.500	0.375	1.859	-	0.531	3.740	2.874	3A711C1580509X001	
	1.751	1/4"-20 UNC	2.500	0.375	1.922	-	0.531	3.740	2.874	3A711C1580606X001	
	1.938	1/4"-20 UNC	2.500	0.500	2.160	-	0.689	3.740	2.874	3A711C1580703X001	
5000(A)/ 5800-4P(B)	1.438	1/4"-20 UNC	2.125	0.375	1.605	-	0.531	4.725	3.071	3A711C1590105X001	2,650
	1.501	1/4"-20 UNC	2.125	0.375	1.669	-	0.531	4.725	3.071	3A711C1590202X001	
	*1.688(A)	1/4"-20 UNC	2.500	0.375	1.859	-	0.531	4.725	3.071	3A711C1590300X001	
	1.751	1/4"-20 UNC	2.500	0.375	1.922	-	0.531	4.725	3.071	3A711C1590407X001	
	*1.938(B)	1/4"-20 UNC	2.500	0.500	2.160	-	0.689	4.725	3.071	3A711C1590504X001	
	2.001	3/8"-16 UNC	3.250	0.500	2.223	-	0.689	4.725	3.071	3A711C1590601X001	
	2.063	3/8"-16 UNC	3.250	0.500	2.287	-	0.689	4.725	3.071	3A711C1590709X001	
	2.126	3/8"-16 UNC	3.250	0.500	2.350	-	0.689	4.725	3.071	3A711C1590806X001	
	2.188	3/8"-16 UNC	3.250	0.500	2.414	-	0.689	4.725	3.071	3A711C1590903X001	
	2.251	3/8"-16 UNC	3.250	0.500	2.477	-	0.689	4.725	3.071	3A711C1591004X001	
	2.376	3/8"-16 UNC	3.250	0.625	2.651	-	0.815	4.725	3.071	3A711C1591101X001	
2.438	3/8"-16 UNC	3.250	0.625	2.714	-	0.815	4.725	3.071	3A711C1591209X001		
2.501	3/8"-16 UNC	3.250	0.625	2.778	-	0.815	4.725	3.071	3A711C1591306X001		
5800-6P & ABOVE	1.501	1/4"-20 UNC	2.125	0.375	1.669	-	0.531	4.725	3.071	3A711C1600101X001	2,650
	1.688	1/4"-20 UNC	2.500	0.375	1.859	-	0.531	4.725	3.071	3A711C1600208X001	
	1.938	1/4"-20 UNC	2.500	0.500	2.160	-	0.689	4.725	3.071	3A711C1600305X001	
	2.126	3/8"-16 UNC	3.250	0.500	2.350	-	0.689	4.725	3.071	3A711C1600402X001	
	*2.188(A)	3/8"-16 UNC	3.250	0.500	2.414	-	0.689	4.725	3.071	3A711C1600500X001	
	2.376	3/8"-16 UNC	3.250	0.625	2.651	-	0.815	4.725	3.071	3A711C1600607X001	
*2.438(B)	3/8"-16 UNC	3.250	0.625	2.714	-	0.815	4.725	3.071	3A711C1600704X001		
5800-6P & ABOVE	1.501	1/4"-20 UNC	2.125	0.375	1.669	-	0.531	4.725	3.071	3A711C1630107X001	2,650
	1.688	1/4"-20 UNC	2.500	0.375	1.859	-	0.531	4.725	3.071	3A711C1630204X001	
	1.938	1/4"-20 UNC	2.500	0.500	2.160	-	0.689	4.725	3.071	3A711C1630301X001	
	2.126	3/8"-16 UNC	3.250	0.500	2.350	-	0.689	4.725	3.071	3A711C1630409X001	
	2.188	3/8"-16 UNC	3.250	0.500	2.414	-	0.689	4.725	3.071	3A711C1630506X001	
	2.376	3/8"-16 UNC	3.250	0.625	2.651	-	0.815	4.725	3.071	3A711C1630603X001	
*2.438	3/8"-16 UNC	3.250	0.625	2.714	-	0.815	4.725	3.071	3A711C1630701X001		

STEADY BUSHING KITS WPI

FOR VERTICAL HOLLOW SHAFT MOTORS

Effective 07-08-18
Supersedes 03-24-17



Notes:

1. See corresponding diagram for part detail.
2. Please consult Application Specialist for listings not shown.
3. Steady Bushing material is Bronze.
4. Kit includes hardware.
5. Notice steady bushing part numbers have changed from 2015/2016 Pricebook; New design.
6. Steady bushing kits are the same for WPI and TEFC for frames 449TP and smaller.
7. **"*"** in the table denotes the standard size for each frame.

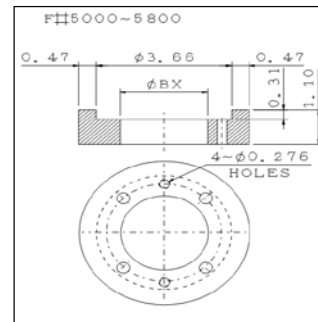
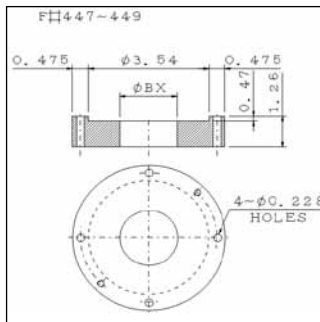
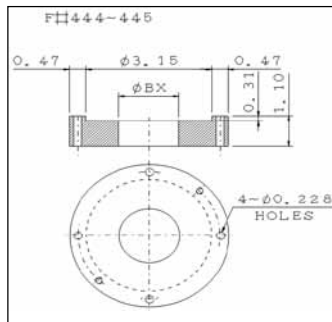
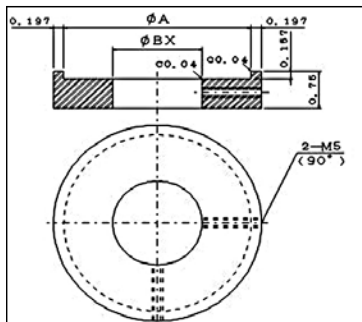
FRAME	DIMENSION		PART NO.	LIST PRICE (\$)
	A	BX		
210TP	1.77	0.751	31010D4974705	100
		0.876	31010D4974802	
		0.938	31010D4974900	
		*1.001	31010D4975001	
250TP	1.77	0.751	31010D4974705	100
		0.876	31010D4974802	
		*1.001	31010D4975001	
		1.188	31010D4975108	
		1.251	31010D4975205	
280TP	2.17	0.751	31010D4975302	100
		0.876	31010D4975400	
		1.001	31010D4975507	
		*1.188	31010D4975604	
		1.251	31010D4975701	
320TP	2.83	1.001	31010D4975809	130
		*1.188	31010D4975906	
		1.251	31010D4976007	
		1.438	31010D4976104	
360TP	3.03	1.501	31010D4976201	130
		1.001	31010D4976309	
		*1.188	31010D4976406	
		1.251	31010D4976503	
400TP	3.54	1.438	31010D4976601	150
		1.501	31010D4976708	
		*1.501	31010D4977101	
		1.688	31010D4977208	
		1.751	31010D4977305	

FRAME	DIMENSION		CATALOG NO.	LIST PRICE (\$)
	A	BX		
444TP/ 445TP	3.15	1.188	3A702D1611403X001	175
		1.251	3A702D1611501X001	
		1.438	3A702D1611608X001	
		*1.501	3A702D1611705X001	
		1.688	3A702D1611802X001	
		1.751	3A702D1611900X001	
445TP20 ^(A) / 447TP ^(B) / 449TP ^(C)	3.54	1.938	3A702D1612001X001	210
		1.438	3A702D1610105X001	
		*1.501^(A)	3A702D1610202X001	
		*1.688^(A)	3A702D1610300X001	
		1.751	3A702D1610407X001	
		*1.938^(C)	3A702D1610504X001	
		2.001	3A702D1610601X001	
		2.063	3A702D1610709X001	
		2.126	3A702D1610806X001	
		2.188	3A702D1610903X001	
		2.251	3A702D1611004X001	
5000	3.66	2.376	3A702D1611101X001	210
		2.438	3A702D1611209X001	
		2.501	3A702D1611306X001	
		1.688	3A702D1720601X001	
		1.938	3A702D1720709X001	
		2.126	3A702D1720806X001	
5800	4.33	*2.188	3A702D1720202X001	210
		2.251	3A702D1720903X001	
		2.376	3A702D1720300X001	
		2.438	3A702D1720407X001	
		2.501	3A702D1720504X001	
5800	4.33	2.126	3A702D1740602X001	210
		2.188	3A702D1740505X001	
		2.251	3A702D1740408X001	
		2.376	3A702D1740301X001	
		*2.438	3A702D1740203X001	
		2.501	3A702D1740106X001	

STEADY BUSHING KITS TEFC

FOR VERTICAL HOLLOW SHAFT MOTORS

Effective 07-08-18
Supersedes 03-24-17



Notes:

1. See corresponding diagram for part detail.
2. Please consult Application Specialist for listings not shown.
3. Steady Bushing material is Bronze.
4. Kit includes hardware.
5. Steady bushing kits are the same for WPI and TEFC for frames 449TP and smaller.
6. "*" in the table denotes the standard size for each frame.

FRAME	DIMENSION		PART NO.	LIST PRICE (\$)
	A	BX		
210TP	1.77	0.751	31010D4974705	100
		0.876	31010D4974802	
		0.938	31010D4974900	
		*1.001	31010D4975001	
250TP	1.77	0.751	31010D4974705	100
		0.876	31010D4974802	
		*1.001	31010D4975001	
		1.188	31010D4975108	
280TP	2.17	1.251	31010D4975205	100
		0.751	31010D4975302	
		0.876	31010D4975400	
		1.001	31010D4975507	
320TP	2.83	*1.188	31010D4975604	130
		1.251	31010D4975701	
		1.438	31010D4975809	
		1.501	31010D4975906	
360TP	3.03	1.001	31010D4976007	130
		*1.188	31010D4976104	
		1.251	31010D4976201	
		1.438	31010D4976309	
400TP	3.54	1.501	31010D4976406	150
		1.188	31010D4976503	
		1.251	31010D4976601	
		1.438	31010D4976708	
400TP	3.54	1.188	31010D4976805	150
		1.251	31010D4976902	
		1.438	31010D4977003	
		*1.501	31010D4977101	
400TP	3.54	1.688	31010D4977208	150
		1.751	31010D4977305	
		1.688	31010D4977402	
		1.751	31010D4977509	

FRAME	DIMENSION		CATALOG NO.	LIST PRICE (\$)
	A	BX		
444TP/ 445TP	3.15	1.188	3A702D1611403X001	175
		1.251	3A702D1611501X001	
		1.438	3A702D1611608X001	
		*1.501	3A702D1611705X001	
		1.688	3A702D1611802X001	
		1.751	3A702D1611900X001	
447TP ^(A) / 449TP ^(B)	3.54	1.938	3A702D1612001X001	210
		1.438	3A702D1610105X001	
		1.501	3A702D1610202X001	
		*1.688 ^(A)	3A702D1610300X001	
		1.751	3A702D1610407X001	
		*1.938 ^(B)	3A702D1610504X001	
		2.001	3A702D1610601X001	
		2.063	3A702D1610709X001	
		2.126	3A702D1610806X001	
		2.188	3A702D1610903X001	
5000 ^(A) / 5800 ^(B)	3.66	2.251	3A702D1611004X001	210
		2.376	3A702D1611101X001	
		2.438	3A702D1611209X001	
		2.501	3A702D1611306X001	
		1.688	3A702D1720601X001	
		1.938	3A702D1720709X001	
		2.126	3A702D1720806X001	
		*2.188 ^(A)	3A702D1720202X001	
5000 ^(A) / 5800 ^(B)	3.66	2.251	3A702D1720903X001	210
		2.376	3A702D1720300X001	
		*2.438 ^(B)	3A702D1720407X001	
		2.501	3A702D1720504X001	

MAX-PE® VERTICAL ROUND BODY SOLID SHAFT NORMAL THRUST with "P" BASE - LOW VOLTAGE



AEUH8PDP, NEMA PREMIUM, ROUND BODY [NPV_P]

Effective 07-08-18
Supercedes 03-24-17



APPLICATIONS:

- Centrifugal Pumps
- Pulp and Paper
- Petro-Chemical
- Water/Wastewater

FEATURES:

- Output Range: 15 - 200 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP54)
- Voltage: 230/460V (Usable on 208V)⁽¹⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques
- Cast Iron Frame, End Brackets, Fan Cover, Drip Cover and Main Conduit Box
- Rolled Steel, Fan Cover, Drip Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 40°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Dark Gray - Munsell 7.5B 3.5/0.5
- Guide Bearings: 250HP - 449HP Frames are Single Shielded
- Thrust Bearings: 250HP - 449HP Frames are Re-Greasable Angular Contact with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings on Regreasable Motors
- Labyrinth Type Metal Flinger on Both Ends for Frames 320 HP & Larger
- Cast Iron Inner and Outer Bearing Caps for Frames 280 & Larger
- Stainless Steel Nameplate
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Duty (PWM - Pulse Width Modulation) per NEMA MG-1, Part 31^(4,5)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- 12 Leads
- Dust Flinger on Drive-End for F# 140 HP - 280 HP
- NEMA Type P Base

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Motors 7.5 HP & up are Suitable for Wye/Delta Starting.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motor service factor is 1.0 when operated on a VFD.
- (5) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1. Part 31.
- (6) HP Shaft is same as VP shaft dimensions per NEMA MG-1.

MAX-E2/841® VERTICAL ROUND BODY SOLID SHAFT NORMAL/MEDIUM THRUST with "P" BASE - LOW VOLTAGE



AEUH8BDP, NEMA PREMIUM, ROUND BODY [HBV_P]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Centrifugal Pumps
- Petro-Chemical
- Water/Wastewater
- Pulp and Paper

FEATURES:

- Output Range: 15 - 100 HP
- Speed: 3600, 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP56)
- Voltage: 460V Only^(1,4)
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous); 50 Hz, 1.0 Service Factor (Continuous)
- CSA Certified for Class I, Div. 2, Groups B, C, D - Temp Code T3 Minimum
- Meets or Exceeds IEEE 841 Standards
- Extended Warranty - 60 Months from Date of Manufacture
- Class F Insulation
- Class B Temperature Rise
- NEMA Design B Torques as a Minimum; Various Ratings also Meet Design C
- Cast Iron Frame, End Brackets, Fan Cover, Drip Cover and Main Conduit Box
- Grounding Terminal Inside Main Conduit Box with additional Foot Grounding Provision
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - F1 Mounted
- Designed for 50°C Ambient Temperature⁽²⁾
- Designed for 3300 ft. Elevation⁽³⁾
- Bi-Directional Rotation
- 1045 Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: 2 Part Epoxy
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: 250HP - 400HP Frames are Single Shielded
- Thrust Bearings: 250HP - 405HP Frames are Re-Greasable Angular Contact with Mobil Polyrex™ EM
- Automatic Grease Discharge Fittings
- Cast Iron Inner and Outer Bearing Caps for all frames
- VBXX INPRO™ Seals Installed on Both Ends
- Stainless Steel Nameplate and Hardware
- Stainless Steel Automatic Breather Drain (Located at both End Brackets for Vertical Mounts)
- New Dual Column Design Nameplate as Standard (60/50 Hz)
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.^(5,6)
- Inverter Duty Speed Range: 20:1 Variable Torque, 10:1 Constant Torque
- Motors are U.L. Recognized, CSA Approved
- 3 Leads Only
- Vibration Not to Exceed 0.08 Inches Per Second
- Noise Level Not to Exceed 85 dB(A) at 1 Meter Unloaded
- NEMA Type P Base

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) 575V motors available.
- (2) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (3) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (4) Motors 7.5 HP & up are suitable for wye/delta starting.
- (5) Motor service factor is 1.0 when operated on a VFD.
- (6) Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by the VFD as stated per NEMA MG-1.
- (7) HP Shaft is same as VP shaft dimensions per NEMA MG-1.

VERTICAL SOLID SHAFT WPI HIGH THRUST with "P" BASE - LOW VOLTAGE

NEMA Premium CE

ee CCO02A UL SP

AMRCED (MAX-VSP™) NEMA PREMIUM [VSP]*

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Fluid Handling Systems
- Irrigation
- Water/Wastewater
- Fire Pumps*

FEATURES:

- Output Range: 15 - 800 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 230/460V(Usable on 208V); 150HP and Larger is 460V Only
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- New Dual Column (60/50 Hz) Design Nameplate as Standard; 50 Hz Data 190/380V at 1.0 S.F.
- Standard Features: Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- Class F Insulation with Phenolic Alkyd Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Cast Iron Conduit Box for F#449VP and Below; Steel Plate Conduit Box for F#5000
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Solid Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449VP and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color for AMRCED (MAX-VSP™): Blue - Munsell 5PB 3/8
- Guide Bearings: 213VP - 286VP frames are Double Shielded
- Guide Bearings: 324VP - 5810 frames are Re-Greasable with Mobil Polyrex™ EM
- Thrust Bearings: 213VP - 286VP frames are Re-Greasable Angular Contact with Mobil Polyrex™ EM
- Thrust Bearings: 324VP - 405VP frames are Oil Lubricated Angular Contact with Site Glass
- Oil Requirements for 324VP-405VP - 145 to 175 S.S.U. @100°F
- Oil Requirements for 444VP-5810VP - 300 S.S.U. @100°F
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate and Rodent Screens
- 12 Leads (PWS on 230V) on 213 - 405VP;⁽³⁾
6 Leads on 444VP to 449VP; 5000 Frames and Above with Connection Studs⁽⁴⁾
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
- 10:1 Variable Torque with NRR. 10:1 C.T., 20:1 VT without NRR Using Braking in VFD
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1 Part 31.

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- * Fire Pump available. See product page for more details.
- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Suitable for Wye/Delta start at 230V or 460V.
- (4) Suitable for Wye/Delta start at 460V.

VERTICAL SOLID SHAFT TEFC HIGH THRUST with "P" BASE - LOW VOLTAGE

NEMA Premium CE

ee CCO02A RUL SP

AAEHED (MAX-VSP™) NEMA PREMIUM [VSTP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 15 - 800 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 230/460V (Usable on 208V); 150HP and Larger is 460V Only
- 230/460V Motors Suitable for Partial Winding Start (at 230V Only)⁽³⁾
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- CSA Certified for Class I, Div. 2, Group B, C, D - Temp Code T3 Minimum
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- New Dual Column (60/50 Hz) Design Nameplate as Standard; 50 Hz Data 190/380V at 1.0 S.F.
- Standard Features: Non-Sparking Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- CSA Certified for Class I, Div. 2, Groups B, C, D; Temp Code T3 minimum
- Class F Insulation with Phenolic Alkyd Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Cast Iron Conduit Box for F#449TP and Below; Steel Plate Conduit Box for F#5000
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Solid Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: 213TP - 286TP frames are Double Shielded
- Guide Bearings: 324TP - 5810P frames are Re-Greasable with Mobil Polyrex™ EM Grease
- Thrust Bearings: 213TP - 286TP frames are Re-Greasable Angular Contact with Mobil Polyrex™ EM Grease
- Thrust Bearings: 324TP - 5810P frames are Oil Lubricated Angular Contact with Site Glass
- Oil Requirements for 324TP-405TP - 145 to 175 S.S.U. @100°F
- Oil Requirements for 444TP-5810P - 300 S.S.U. @100°F
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate and Rodent Screens
- 12 Leads (PWS on 230V) on 213 - 405TP;⁽³⁾
6 Leads on 444TP to 449TP; 5000 Frames and Above with Connection Studs⁽⁴⁾
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
- 10:1 Variable Torque with NRR. 10:1 C.T., 20:1 VT without NRR Using Braking in VFD
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1 Part 31.

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.
- (3) Suitable for Wye/Delta start at 230V or 460V.
- (4) Suitable for Wye/Delta start at 460V.

VERTICAL SOLID SHAFT WPI HIGH THRUST with "P" BASE - MEDIUM VOLTAGE



AMRKED, NEMA PREMIUM [VSKP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 200 - 1000 HP
- Speed: 1800, 1200 & 900 RPM
- Enclosure: Weather Protected Type I (WPI)
- Voltage: 2300/4000V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- Standard Features: Coupling w/ Gib Key, Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- Class F Insulation with VPI Epoxy Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance
- Steel Plate Conduit Box for F#449-5800
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets
- 1045 Solid Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449TP and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: 449VP - 5810VP Frames are Re-Greasable with Mobil Polyrex™ EM Grease
- Thrust Bearings: 449VP - 5810VP Frames are Oil Lubricated Angular Contact or Spherical Thrust Bearing with Site Glass
- Oil Requirements for 444VP - 5810VP Frames: 300 S.S.U. @ 100°F
- Grease Discharge Fittings on Frames with Re-Greasable Motors
- Labyrinth Type Metal Flinger on Lower End Bracket
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
- Speed Ranges: 10:1 VT, 4:1 CT
- 6 Leads
- UL Recognized and CSA Approved
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA MG-1 Part 31.
- Ball Type NRR Provided

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.

VERTICAL SOLID SHAFT TEFC HIGH THRUST with "P" BASE - MEDIUM VOLTAGE



AEHCED, NEMA PREMIUM [VSKTP]

Effective 07-08-18
Supersedes 03-24-17



APPLICATIONS:

- Deep Well Turbine Pumps
- Irrigation
- Water/Wastewater

FEATURES:

- Output Range: 200 - 700 HP
- Speed: 1800 & 1200 RPM
- Enclosure: Totally Enclosed Fan Cooled (IP55)
- Voltage: 2300/4000V
- Three Phase, 60 Hz, 1.15 Service Factor (Continuous on Sine Wave Power)
- Inverter Duty (PWM) per NEMA® MG-1 Part 31 at 1.0 Service Factor
- Standard Features: Non-Sparking Ball Type NRR, Drip/Splash Cover, Space Heaters (120V)
- 5000 Frames and Above also include Mounting Provisions for bearing RTD's and Insulated Bearing Housing
- CSA Certified for Class I, Div. 2, Groups B, C, D; Temp Code T3 minimum
- Class F Insulation with VPI Epoxy Resin Varnish
- Class B Temperature Rise
- NEMA Design B Torques
- Fab Steel Plate Oversized Main Conduit Box Rotatable in 90 Degree Increments - Fully Gasketed with NPT Threaded Entrance.
- Steel Plate Conduit Box with Threaded Connection Opening(s)
- Designed for 40°C Ambient Temperature⁽¹⁾
- Designed for 3300 ft. Elevation⁽²⁾
- Oversized Angular Contact or Spherical Thrust Bearing Installed
- Counterclockwise (CCW) Rotation; Viewed from Top
- Cast Iron Frame & End Brackets; Steel Plate Fan Cover
- 1045 Solid Carbon Steel Shaft
- Aluminum Die Cast Squirrel Cage Rotor Construction for F#449VP and Below
- Squirrel Cage Copper or Copper Alloy Bar Rotor Construction for F#5000 and Above.
- Paint System: Phenolic Rust Proof Base Plus Polyurethane Top Coat
- Paint Color: Blue - Munsell 5PB 3/8
- Guide Bearings: Re-Greasable with Mobil Polyrex™ EM Grease
- Thrust Bearings: Oil Lubricated Angular Contact or Spherical Thrust bearing with Site Glass
- Oil Requirements: 300 S.S.U. @ 100F
- Automatic Grease Discharge Fittings on Frames with Re-Greasable Motors
- Labyrinth Type Metal Flinger on Both Ends for Frames 320VP & Up
- Grounding Terminal Inside Main Box
- Stainless Steel Nameplate
- Suitable for Inverter Use per NEMA MG-1.4.4.2, Part 31.
- Speed Ranges: 10:1 VT, 4:1 CT
- 6 Leads
- UL Recognized and CSA Approved
- Precautions should be taken to eliminate or reduce shaft currents that may be imposed on the motor by VFD as stated per NEMA-MG-1 Part 31.

EXTRAS/ OPTIONS:

Please refer to the modifications document for common modifications that can be performed.

Notes:

- (1) Consult a Stock Product Application Specialist for suitability in higher ambient environments.
- (2) Consult a Stock Product Application Specialist for suitability at higher elevations.

C-FLANGE KITS FOR FIELD CONVERSION

Effective 07-08-18
Supersedes 03-24-17

FRAME	LIST PRICE (\$)	ODP ASHH CATALOG NO. "DHP"	MAX-PE™ AEHH8P CATALOG NO. "NP" (2)	MAX-E1® AEHE, AEHH8N CATALOG NO. "E" or "EP" (2)	MAX-E2® AEHH CATALOG NO. "HH"	MAX-E2/841® AEHH8B LIST PRICE (\$) (1)	MAX-E2/841® AEHH8B CATALOG NO. "HB" (2)
140T	125	N/A	CFN140T	CFE140T	CFHH140T	350	CFHB140T
180T	180	N/A	CFN180T	CFE180T	CFHH180T	465	CFHB180T
210T	325	N/A	CFN210T	CFE210T	CFHH210T	721	CFHB210T
250T	454	CFDH250T	CFN250T	CFE250T	CFHH250T	856	CFHB250T
280TS	529	CFDH280TS	CFN280TS	CFE280TS	CFHH280TS	1,075	CFHB280TS
280T	529	CFDH280T	CFN280T	CFE280T	CFHH280T	1,075	CFHB280T
320T or TS	689	CFDH320	CFN320	CFE320	CFHH320	1,175	CFHB320
360TS	825	CFDH360TS	CFN360TS	CFE360TS	CFHH360TS	1,289	CFHB360TS
360T	825	CFDH360T	CFN360T	CFE360T	CFHH360T	1,289	CFHB360T
400TS	1,025	CFDH400TS	CFN400TS	CFE400TS	CFHH400TS	1,575	CFHB400TS
400T	1,025	CFDH400T	CFN400T	CFE400T	CFHH400T	1,789	CFHB400T
444/445TS	2,150	CFDH444/5TS	CFN444/5TS	CFE444/5TS	CFHH444/5TS	3,400	CFHB444/5TS
444/445T	2,150	CFDH444/5T	CFN444/5T	CFE444/5T	CFHH444/5T	3,705	CFHB444/5T
447/449TS	2,550	CFDH447/9TS	CFN447/9TS	CFE447/9TS	CFHH447/9TS	3,810	CFHB447/9TS
447/449T	2,550	CFDH447/9T	CFN447/9T	CFE447/9T	CFHH447/9T	3,950	CFHB447/9T
Hybrid 449TS	2,650	N/A	N/A	CFE449TS-HYBRID	N/A	N/A	N/A
Hybrid 449T	2,650	N/A	N/A	CFE449T-HYBRID	N/A	N/A	N/A

NEMA C-FLANGE KITS FOR ROLLED STEEL MOTORS					
FRAME	LIST PRICE (\$)	ROLLED STEEL ASGA/ASGH ASGHPE CATALOG NO. "DS", "DSP" or "DTP"	SINGLE PHASE FARM DUTY CATALOG NO. "S"	3 PHASE ROLLED STEEL AEGHPE CATALOG NO. "GH"	3 PHASE ROLLED STEEL AEGH CATALOG NO. "GP"
56	103	CFDS56	CFS56	CFG56S3 CFG56L/140 ⁽⁴⁾	N/A
140T	103	CFDT140T	CFS140T	N/A	CFG56L/140
180T	103	CFDT180T	CFS180T	N/A	CFG180
210T	189	CFDT210T	CFS210T	N/A	CFG210
250T	189	CFDT250T	N/A	N/A	N/A
280TS	424	CFDT280TS	N/A	N/A	N/A
280T	424	CFDT280T	N/A	N/A	N/A

C-FACE KITS FOR LARGE TEFC FRAMES		
FRAME	LIST PRICE (\$)	MAX-E1® AEHE, AEHH8N, AEGHGTK CATALOG NO. "E", "EP", "KG"
5007A	3,600	3A103B8820103
5009A	3,600	3A103B8820201
5009B/C	3,600	3A103B5430207
5011A	3,850	3A103B8820308
5011B/C	3,850	3A103B5430304
5808A	4,300	3A103B9120202
5808B/C	4,300	3A103B6050203
5810A	5,350	3A103B9120300
5810B/C	5,350	3A103B6050301BG01

Notes:

- (1) For MAX-E2/841®, type AEHH8B (cat# "HB") motors, INPRO™ Bearing Isolator Seal is already included in the list price. INPRO™ Bearing Isolator Seal ships separately and will be added to order as an additional no cost line item.
- (2) "TS" Flanges are for 2 pole motors only. "TS" C-flanges for 280TS - 405TS are interchangeable between MAX-E1® and MAX®-SE/PE. 444TS - 449TS C-flanges are NOT interchangeable.
- (3) 56 Frame Only - Fits bearing sizes 6204ZZ
- (4) 56 and 140T Frames - Fits bearing sizes 6205ZZ
- (5) For frame sizes larger than 449T, please refer to an Application Specialist for availability.
- (6) MAX-E1® type AEHH8N "hybrid" ratings are cat# EP3502 & EP3504.
- (7) Flanges for F# 505UZ and 586/7UZ Crusher Duty "CD", type AEHHGD motors must be quoted by an Application Specialist.

IEC B14 "C-FLANGE" KITS		
FRAME	LIST PRICE (\$)	METRIC AESV3W CATALOG NO. "MP"
80	125	CFM80
90	135	CFM90
100	180	CFM100
112	195	CFM112
132	325	CFM132
160	454	CFM160

D-FLANGE KITS FOR FIELD CONVERSION

Effective 07-08-18
Supersedes 03-24-17

NEMA D-FLANGE KITS FOR CAST IRON MOTORS							
FRAME	LIST PRICE (\$)	ODP ASHH CATALOG NO. "DHP"	MAX-PE™ AEHH8P CATALOG NO. "NP"	MAX-E1® AEHE, AEHH8N CATALOG NO. "E" or "EP"	MAX-E2® AEHH CATALOG NO. "HH"	MAX-E2/841® AEHH8B LIST PRICE (\$)	MAX-E2/841® AEHH8B CATALOG NO. "HB"
140T	299	N/A	DFN140T	DFE140T	DFHH140T	333	DFHB140T
180T	319	N/A	DFN180T	DFE180T	DFHH180T	446	DFHB180T
210T	N/A	N/A	N/A	N/A	N/A	N/A	N/A
250T	385	DFDH250T	DFN250T	DFE250T	DFHH250T	688	DFHB250T
280TS	550	DFDH280TS	DFN280TS	DFE280TS	DFHH280TS	1,053	DFHB280TS
280T	570	DFDH280T	DFN280T	DFE280T	DFHH280T	1,053	DFHB280T
320T or TS	675	DFDH320	DFN320	DFE320	DFHH320	1,153	DFHB320
360TS	750	DFDH360TS	DFN360TS	DFE360TS	DFHH360TS	1,247	DFHB360TS
360T	750	DFDH360T	DFN360T	DFE360T	DFHH360T	1,247	DFHB360T
400TS	955	DFDH400TS	DFN400TS	DFE400TS	DFHH400TS	1,548	DFHB400TS
400T	955	DFDH400T	DFN400T	DFE400T	DFHH400T	1,758	DFHB400T
444/445TS	2,695	DFDH444/5TS	DFN444/5TS	DFE444/5TS	DFHH444/5TS	3,406	DFHB444/5TS
444/445T	2,695	DFDH444/5T	DFN444/5T	DFE444/5T	DFHH444/5T	3,718	DFHB444/5T
447/449TS	3,250	DFDH447/9TS	DFN447/9TS	DFE447/9TS ⁽⁶⁾	DFHH447/9TS ⁽⁶⁾	3,507	DFHB447/9TS ⁽⁶⁾
447/449T	3,250	DFDH447/9T	DFN447/9T	DFE447/9T ⁽⁶⁾	DFHH447/9T ⁽⁶⁾	3,819	DFHB447/9T ⁽⁶⁾

D-FLANGE KITS FOR LARGE TEFC FRAMES		
FRAME	LIST PRICE (\$)	MAX-E1® AEHE, AEHH8N, AEHGTK CATALOG NO. "E", "EP", "KG"
5007A	3,500	3A103B31010010N01
5009A	3,500	3A103B3101109
5009B/C	3,500	3A103B3100200
5011A	3,750	3A103B3101206
5011B/C	3,750	3A103B3100307
5808A	5,100	3A103B3110701
5808B/C	5,100	3A103B3110205
5810A	6,741	3A103B3110906
5810B/C	6,741	3A103B3110302

D-FLANGE KITS FOR LARGE ODP FRAMES		
5000A*	3,500	3A103B7680006BG0

IEC B5 "D-FLANGE" KITS			
FRAME	LIST PRICE (\$)	METRIC AESV3W CATALOG NO. "MP"	SPECIAL NOTE
80	299	DFM80	~
90	309	DFM90	~
100	319	DFM100	~
112	329	DFM112	~
132	350	DFM132	~
160	385	DFM160	~
180	550	DFM180	~
200	675	DFM200	~
225MA	750	DFM225-2P	2 Pole Only
225SC/225MC	750	DFM225-4/6P	4 & 6 Pole Only
250SA	955	DFM250-2P	2 Pole Only
250SC	955	DFM250-4/6P	4 & 6 Pole Only

Notes:

- * Part # for 2 Pole Only.
- (1) For MAX-E2/841®, type AEHH8B (cat# ""HB"") motors, INPRO™ Bearing Isolator Seal is already included in the list price. INPRO™ Bearing Isolator Seal ships separately and will be added to order as an additional no cost line item.
- (2) "TS" Flanges are for 2 pole motors only. "TS" c-flanges for 280TS-449TS are interchangeable between MAX-E1® and MAX®-SE/PE.
- (3) 56 Frame Only - Fits bearing sizes 6204ZZ
- (4) 56 and 140T Frames - Fits bearing sizes 6205ZZ
- (5) For frame sizes larger than 449T, please refer to the factory.
- (6) MAX-E1® type AEHH8N "hybrid" ratings are cat# EP3502 & EP3504. No D-flange is available at this time for Hybrid frames.
- (7) Flanges for F# 505UZ and 586/7UZ Crusher Duty "CD", type AEHHGD motors must be quoted by an Application Specialist.
- (8) Flanges for Large ODP motors above 5000 2P must be quoted by an Application Specialist.
- (9) TECO Westinghouse is working towards a solution for hybrid frame D-Flanges in the future.

DRIP COVERS, PAINT, & STOCK REPLACEMENT PARTS

Effective 07-08-18
Supersedes 03-24-17

DRIP COVER/FAN COVER ASSEMBLIES				
FRAME	ROLLED STEEL CATALOG NO.	ROLLED STEEL LIST PRICE (\$)	CAST IRON CATALOG NO.	CAST IRON LIST PRICE (\$)
140T	RSDC140T	102	CIDC140T	312
180T	RSDC180T	135	CIDC180T	400
210T	RSDC210T	193	CIDC210T	455
250T/TS	RSDC250T	355	CIDC250T	624
280T/TS	RSDC280TS	442	CIDC280T	931
320T/TS	RSDC320T	574	CIDC320T	1,235
360T/TS	RSDC360T	1,413	CIDC360T	1,965
400T/TS	RSDC400T	1,833	CIDC400T	2,045

Notes:

- (1) 56 frame drip covers available as stock items. Contact the parts department for part number and quote.
- (2) Drip covers available for 440T and above as made to order. Contact part department for quote.

AEROSOL TOUCH-UP SPRAY PAINT				
MOTOR TYPE	PAINT PART NUMBER	COLOR	PAINT #	LIST PRICE (\$)
MAX-E1® TEFC JP-JM LOW VOLTAGE ODP	5D98549H04	LIGHT GRAY	MUNSELL N5.0	77
MAX-E2® MAX-E2/841® METRIC IE3 MAX-VHP™ MAX-VSP™ SINGLE PHASE HVAC	5D98549H05	BLUE	MUNSELL 5PB 3/8	77
SINGLE PHASE FARM DUTY	5D98549H07	GREEN	MUNSELL 5G 4/4	77
TEXP TEFC OIL WELL PUMP	5D98549H08	DARK BLUE	MUNSELL 5PB 4.5/2	77
MAX-SE™ MAX-PE™ MAX-HT™ HIGH EFFICIENCY VERTICALS MEDIUM VOLTAGE	5D98549H03	DARK GRAY	MUNSELL 7.5B 3.5/0.5	77

Stock Replacement parts:

Contact TECO-Westinghouse for replacement part inquiries for stock product motors. Email our stock product parts group at Tframeparts@tecowestinghouse.com or call 1-800-USE-TECO and select or ask to be connected with the stock product parts group.

Most commonly replaced motor parts are stocked in limited quantities. Replacement parts are also available on a made to order basis.

To confirm the proper part is identified and quoted, the motor's catalog number AND serial number must be provided at time of inquiry. Not all currently stocked parts may be interchangeable for earlier models. Replacement parts for older models may no longer be available.

P-BASES HIGH THRUST TEFC VERTICAL MOTORS (HOLLOW SHAFT AND SOLID SHAFT)							
FRAME	TYPE	BD	AK	BB	AJ	BF	PART NUMBER
180	Standard	9.85"	8.25"	0.20"	9.125"	0.44"	31103F351X6C5
210	Standard	10"	8.25"	0.20"	9.125"	0.44"	31103F331X8C1
250	Standard	10"	8.25"	0.20"	9.125"	0.44"	31103F352X7C8
280	Standard	10"	8.25"	0.20"	9.125"	0.44"	31103F354X8C6
	Alternate	12"	8.25"	0.25"	9.125"	0.44"	31103F354X8C6
320	Standard	16.5"	13.5"	0.25"	14.750"	0.69"	31103B67604C0
360	Standard	16.5"	13.5"	0.25"	14.750"	0.69"	31103B67704C5
400	Standard	16.5"	13.5"	0.25"	14.750"	0.69"	31103B95105C1
400	Alternate	20.5"	13.5"	0.25"	14.750"	0.69"	Contact Factory

P-BASES HIGH THRUST TEFC VERTICAL MOTORS (HOLLOW SHAFT AND SOLID SHAFT)								
FRAME	TYPE	BD	AK	BE	BB	AJ	BF	PART NUMBER
444-445	Standard	16.5"	13.5"	1.00"	0.25"	14.75"	0.69"	3A103B329XSA8
445TP20/ 447/449	Standard	20"	13.5"	1.20"	0.25"	14.75"	0.69"	3A103B421XZA6
	Alternate	16.5"	13.5"	1.20"	0.25"	14.75"	0.69"	Contact Factory
	Alternate	24.5"	13.5"	1.20"	0.25"	14.75"	0.69"	Contact Factory
	Standard	24.5"	13.5"	1.18"	0.25"	14.75" 22"	0.69" 0.94"	3A103B155Y4A2
5000	Alternate	20.0"	13.5"	1.18"	0.25"	14.75"	0.69" 0.94"	Contact Factory
	Alternate	30.5"	22"	1.18"	0.25"	26"	0.69" 0.94"	Contact Factory
5800	Standard	30.5"	22"	1.38"	0.25"	26"	0.81"	3A103B41010A3
	Alternate	24.5"	13.5"	1.38"	0.25"	14.75" 22"	0.81"	Contact Factory
	Alternate	36"	26"	1.38"	0.25"	32"	0.81"	Contact Factory

P-BASES HIGH THRUST WPI VERTICAL MOTORS (HOLLOW SHAFT AND SOLID SHAFT)								
FRAME	TYPE	BD	AK	BB	AJ	BF	PART NUMBER	NOTE
210	Standard	10"	8.25"	0.22"	9.125"	0.44"	31103F412X1C0	~
250	Standard	10"	8.25"	0.25"	9.125"	0.44"	31103F406X5C6	AMRCED ONLY
	Standard	10"	8.25"	0.25"	9.125"	0.44"	31103F406X6C3	AMRCNH ONLY
	Alternate	12"	8.25"	0.25"	9.125"	0.44"	31010D5150102	AMRCNH ONLY
	Alternate	16.5"	13.5"	0.25"	14.750"	0.44"	31103F406X200	~
280	Standard	10"	8.25"	0.25"	14.750"	0.44"	31103F407X3C7	~
	Alternate	12"	8.25"	0.25"	14.750"	0.44"	31010D5150307	~
	Alternate	16.5"	13.5"	0.25"	14.750"	0.44"	31103F407X205	~
320	Alternate	12"	8.25"	0.25"	9.125"	0.44"	31010D5150501	~
	Standard	16.5"	13.5"	0.28"	14.750"	0.69"	31103F408X2C5	~
360	Alternate	12"	8.25"	0.28"	9.125"	0.69"	31103F09X109	~
	Standard	16.5"	13.5"	0.28"	14.750"	0.69"	31103F409X3C8	~
400	Standard	16.5"	13.5"	0.28"	14.750"	0.69"	31103F410X4C1	~
	Alternate	20.5"	13.5"	0.28"	14.750"	0.69"	31103F410X104	~

Notes:

- (1) P-Bases require factory machine work prior to shipment/installation.
- (2) Consult a Stock Product Application Specialist or T-Frame parts for P-base price and availability.
- (3) P-Bases also available for MAX-PE, MAX-E1 and MAX-E2 for select ratings. Consult a Stock Product Application Specialist or T-frame parts for details.

P-BASES HIGH THRUST WPI VERTICAL MOTORS (HOLLOW SHAFT AND SOLID SHAFT)								
FRAME	TYPE	BD	AK	BE	BB	AJ	BF	PART NUMBER
444/445	Standard	16.5"	13.5"	1.00"	0.25"	14.75"	0.69"	3A103F072X5A5
445TP20	Standard	20"	13.5"	1.00"	0.25"	14.75"	0.69"	3A103B270X5A9
447/449	Standard	20"	13.5"	1.00"	0.25"	14.75"	0.69"	3A103F047X4A1
445TP20/447/449	Alternate	16.5"	13.5"	1.00"	0.25"	14.75"	0.69"	Contact Factory
	Alternate	20"	13.5"	1.18"	0.25"	14.75"	0.69"	3A103C077X5A8
5000	Standard	24.5"	13.5"	1.18"	0.25"	14.75" 22"	0.94"	3A103C077X6A5
	Alternate	30.5"	22"	1.18"	0.25"	26"	0.81"	3A103C077X1A9
5800	Alternate	24.5"	13.5"	1.38"	0.25"	14.75" 22"	0.94"	3A103C345X4A7
	Standard	30.5"	22"	1.38"	0.25"	26"	0.81"	3A103C345X3A0
	Alternate	36"	26"	1.38"	0.25"	32"	0.81"	Contact Factory

Notes:

- (1) P-Bases require factory machine work prior to shipment/installation.
- (2) Consult a Stock Product Application Specialist or T-Frame parts for P-Base price and availability.
- (3) P-Bases also available for MAX-PE, MAX-E1 and MAX-E2 for select ratings. Consult a Stock Product Application Specialist or T-frame parts for details.

P-BASE KITS FOR NO-THRUST TEFC FRAMES					
FRAME	LIST PRICE AEHH8P, AEHH8PCF, AEUH8PDC (\$)	MAX-PE AEHH8P CATALOG NO. "NP" or "NPV"	LIST PRICE AEHH8B, AEHH8BCF, AEUH8BDC (\$)	MAX-E2/841 [®] AEHH8B CATALOG NO. "HB" or "HBV"	BD
250T	425	PBN250T	850	PBHB250T	10"
280T	625	PBN280T	1150	PBHB280T/TS	16.5"
320T	750	PBN320T	1275	PBHB320T/TS	16.5"
360T	825	PBN360T	1375	PBHB360T	16.5"
400T	1050	PBN400T	1700	PBHB400T	16.5"
444/445T	2975	PBN444/5T	3745	PBHB444/445T	16.5"
447/449T	3575	PBN447/9T	N/A	N/A	20"

Notes:

- (1) For MAX-E2/841[®], type AEHH8B (cat# "HB") motors, INPRO™ Bearing Isolator Seal is already included in the list price. INPRO™ Bearing Isolator Seal ships separately and will be added to order as an additional no cost line item.

FACTORY MODIFICATION PRICING

Effective 07-08-18
Supersedes 03-24-17

MODIFICATION LEAD TIME

- (1) TWMC standard lead time for all modifications is 10-12 working days. If shorter lead time is required, please contact TWMC. Expediting fees will apply. Additional 15% of purchase order total is standard.
- (2) Modification lead time does not include transit time.
- (3) Lead time is based upon availability of parts.
- (4) M2X, M8A, M8B, M10, M11, M14A, M16, M18, M21A, M28 are the only modifications that can be done to our explosion-proof motors.
- (5) Explosion Proof motors modified in Round Rock, TX Only.

MOD. NUMBER	DESCRIPTION	LIST PRICE (\$)										
		NEMA FRAME:	56-180T	210T	250T	280T	320T	360T	400T	440T	5000	5800 & UP
		METRIC FRAME:	90S, 90L, 112S, 112M	132S, 132M	160M, 160L	180M, 180L	200M, 200L	225S, 225M	250S, 250M	N/A	N/A	N/A
M1	Nameplate Change		105	105	105	105	105	105	105	105	105	105
M1A	Additional Nameplate		140	140	140	140	140	140	140	140	140	140
M1B	304 Stainless Steel Hardware		N/A	N/A	2,548	2,548	2,970	2,915	3,593	3,593	3,997	4,565
M2 ⁽¹⁾	Space Heater		464	466	644	644	669	793	921	1,004	1,678	1,906
M2A ⁽¹⁾	Space Heater w/ Auxiliary Box		881	881	1,136	1,136	1,152	1,228	1,535	1,615	2,118	2,351
M2X	Space Heater "Explosion Proof Motors Only"		721	721	863	1,085	1,234	1,260	1,370	2,281	N/A	N/A
M3C ⁽²⁾	Installation of C-Face		330	500	877	851	905	1,152	1,623	2,852	6,138	6,906
M3C841 ⁽²⁾	Installation of C-Face w/ INPRO™ Seal (MAX-E2/841° only)		674	960	1,382	1,535	1,918	2,148	2,610	4,012	N/A	N/A
M3D ^(2, 11, 12)	Installation of D-Flange		406	N/A	515	745	905	1,152	1,623	2,852	6,138	6,906
M3D841 ^(2, 11)	Installation of D-Flange w/ INPRO™ Seal (MAX-E2/841° only)		674	N/A	1,382	1,535	1,918	2,148	2,610	4,122	N/A	N/A
M3P ⁽²⁾	Installation of P-Base		N/A	N/A	592	645	811	1,030	1,449	1,993	N/A	N/A
M4 ⁽³⁾	Stator Winding RTD's, 100 Ohm Platinum (1/ Phase)		890	1,016	1,080	1,080	1,228	1,386	1,398	1,398	1,779	1,779
M4A ⁽³⁾	Stator Winding RTD's w/ Auxiliary Box (1/ Phase)		N/A	N/A	N/A	N/A	N/A	1,918	1,918	1,918	2,455	2,532
M4B ⁽³⁾	Stator Winding RTD's, 100 Ohm Platinum w/ Auxiliary Box (2/ Phase)		N/A	N/A	N/A	N/A	N/A	N/A	3,568	4,489	4,633	4,926
M5	Thermistors (1/ Phase)		614	922	922	922	1,228	1,228	1,228	1,228	1,535	1,535
M5A	Thermistors (1/ Phase) w/ Auxiliary Box		1,398	1,525	1,535	1,535	1,843	1,918	1,918	1,918	2,455	2,532
M6	Thermostats (1/ Phase)		559	724	724	724	852	852	889	889	962	962
M6A	Thermostats (1/ Phase) w/ Auxiliary Box		1,035	1,145	1,272	1,272	1,382	1,455	1,705	1,705	2,053	2,108
M7	Bearing RTD's, 100 Ohm Platinum Cable Type with Aux Box (2/ Motor)		N/A	N/A	N/A	N/A	N/A	N/A	5,507	5,507	5,507	5,507
M8	Bearing Conversion - Roller to Ball or Ball to Roller (2/ Motor)		N/A	N/A	N/A	N/A	N/A	3,630	4,813	5,357	9,416	9,847
M8A ⁽⁴⁾	Convert to Ceramic or Hybrid Bearings		1,098	2,044	2,493	2,930	3,187	3,754	5,472	7,219	12,128	15,593
M8B ⁽⁴⁾	Convert to Outer Race Insulated Bearings		924	1,039	1,815	1,878	1,878	2,459	3,646	4,295	6,063	7,797

Notes:

- (1) Double the List Price for 240V Space Heaters operated at 120V.
- (2) Price includes the flange.
- (3) Only one per phase is available for 360T frame and smaller.
- (4) Price is per bearing.
- (5) Not required for MAX-E2° or MAX-E2/841°.
- (6) N/A
- (7) M8A or M8B Mod required as well from frames 440TS/T and Larger.
- (8) Must Start with IEEE841 motor. Must perform M17 Mod, and add extra sealant to end brackets.
- (9) No Shaft Grounding Ring allowed in Div#2 Area.
- (10) Must start with "VPH" NEMA Premium Series.
- (11) Not available for Hybrid F# 449T/TS frames: EP3502, EP3504, HB3502, HB3504.
- (12) Excludes ASHA "P" and AMHGK "PG" 2-Pole motors. Contact Application Specialist for quote.
- (13) If adding Stainless Steel Breather Drains for shaft up application see M28A.
- (14) Terminal Block Not Available for 56 Frame Motors.

FACTORY MODIFICATION PRICING

Effective 07-08-18
Supersedes 03-24-17

MODIFICATION LEAD TIME

- (1) TWMC standard lead time for all modifications is 10-12 working days. If shorter lead time is required, please contact TWMC. Expediting fees will apply. Additional 15% of purchase order total is standard.
- (2) Modification lead time does not include transit time.
- (3) Lead time is based upon availability of parts.
- (4) M2X, M8A, M8B, M10, M11, M14A, M16, M18, M21A, M28 are the only modifications that can be done to our explosion-proof motors.
- (5) Explosion Proof motors modified in Round Rock, TX Only.

MOD. NUMBER	DESCRIPTION	LIST PRICE (\$)											
		NEMA FRAME:	56-180T	210T	250T	280T	320T	360T	400T	440T	5000	5800 & UP	
		METRIC FRAME:	90S, 90L, 112S, 112M	132S, 132M	160M, 160L	180M, 180L	200M, 200L	225S, 225M	250S, 250M	N/A	N/A	N/A	
M9	Change Rotation		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,846	2,846
M10	Shorten Shaft to NEMA TS Dimensions ONLY; Does Not Require TWMC Drawing		2,270	2,403	2,740	3,010	3,350	3,483	3,960	4,433	4,917	4,917	4,917
M10A	Special Keyless 4140 Shaft Ext. for 440T Frames and Above; Any Special Shaft		N/A	N/A	N/A	N/A	N/A	N/A	N/A	QUOTE	QUOTE	QUOTE	QUOTE
M10B	Any Non NEMA Special Shaft Required; Non NEMA Dim requires TWMC Drawing		N/A	N/A	N/A	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M10C	Drill and Tap Shaft		477	550	660	750	925	925	1,100	1,320	QUOTE	QUOTE	QUOTE
M11	F1 to F2 Mounting Conversion		210	264	377	377	377	503	587	733	9,486	9,486	9,486
M12	Supply Oversized Main Conduit Box		N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,620	4,620	4,620	4,620
M12A	Supply Fully Loaded Main Conduit Box		N/A	N/A	N/A	N/A	N/A	N/A	N/A	25,480	25,480	25,480	25,480
M13 ⁽¹³⁾	Stainless Steel Breather Drains		210	264	377	377	377	503	503	589	589	670	670
M14	Tropicalization/ Fungus Protection		435	545	545	655	765	1,021	1,498	1,755	2,525	2,525	2,525
M14A	Tropicalization/ Fungus Protection for Explosion Proof Motors ONLY		341	341	341	341	341	341	341	562	1,028	1,028	1,028
M15	Provisions for Vertical Jack Screws		N/A	N/A	N/A	N/A	N/A	N/A	1,185	1,185	Included	Included	Included
M16	Alternate Grease		330	364	364	440	508	589	670	751	1,185	1,185	1,185
M17	Chico Motor Leads		210	264	377	377	377	503	633	633	1,243	1,563	1,563
M18A ⁽⁵⁾	Epoxy Paint Finish		838	838	1,152	1,152	1,152	1,152	1,152	1,152	1,535	2,805	2,805
M18B	Fire Pump Red		838	838	1,152	1,152	1,152	1,152	1,152	1,152	1,535	2,805	2,805
M19 ⁽⁴⁾	Shaft INPRO™ Seals		N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,003	3,003	3,003	3,003
M20 ⁽⁵⁾	Grounding Provisions on Frame		140	140	140	140	140	140	140	Included	Included	Included	Included
M21	Drip Cover (TEFC) Rolled Steel		347	404	578	962	1,213	1,386	2,195	N/A	N/A	N/A	N/A
M21A	Drip Cover (TEFC) Cast Iron		572	771	922	1,116	1,451	1,861	2,617	N/A	N/A	N/A	N/A
M22	Extend Leads - Connection Behind Conduit Box; Price Based on 4' Leads		733 +\$1/ft	770 +\$1/ft	788 +\$1/ft	953 +\$3.25/ft	990 +\$6.50/ft	1,078 +\$12.70/ft	1,503 +\$19/ft	1,595 +\$23/ft	2,145 +\$25/ft	2,237 +\$41/ft	2,237 +\$41/ft

Notes:

- (1) Double the List Price for 240V Space Heaters operated at 120V.
- (2) Price includes the flange.
- (3) Only one per phase is available for 360T frame and smaller.
- (4) Price is per bearing.
- (5) Not required for MAX-E2® or MAX-E2/841®.
- (6) N/A
- (7) M8A or M8B Mod required as well from frames 440TS/T and Larger.
- (8) Must Start with IEEE841 motor. Must perform M17 Mod, and add extra sealant to end brackets.
- (9) No Shaft Grounding Ring allowed in Div#2 Area.
- (10) Must start with "VPH" NEMA Premium Series.
- (11) Not available for Hybrid F# 449T/TS frames: EP3502, EP3504, HB3502, HB3504.
- (12) Excludes ASHA "P" and AMHGK "PG" motors. Contact Application Specialist for quote.
- (13) If adding Stainless Steel Breather Drains for shaft up application see M28A.
- (14) Terminal Block Not Available for 56 Frame Motors.

FACTORY MODIFICATION PRICING

Effective 07-08-18
Supersedes 03-24-17

MODIFICATION LEAD TIME

- (1) TWMC standard lead time for all modifications is 10-12 working days. If shorter lead time is required, please contact TWMC. Expediting fees will apply. Additional 15% of purchase order total is standard.
- (2) Modification lead time does not include transit time.
- (3) Lead time is based upon availability of parts.
- (4) M2X, M8A, M8B, M10, M11, M14A, M16, M18, M21A, M28 are the only modifications that can be done to our explosion-proof motors.
- (5) Explosion Proof motors modified in Round Rock, TX Only.

MOD. NUMBER	DESCRIPTION	LIST PRICE (\$)										
		NEMA FRAME:	56-180T	210T	250T	280T	320T	360T	400T	440T	5000	5800 & UP
		METRIC FRAME:	90S, 90L, 112S, 112M	132S, 132M	160M, 160L	180M, 180L	200M, 200L	225S, 225M	250S, 250M	N/A	N/A	N/A
M23 ⁽⁹⁾	Supply Shaft Grounding Ring		803	913	965	1,242	1,242	1,334	1,489	2,017	2,567	3,135
M23A ⁽⁹⁾	Supply Internal Shaft Grounding Ring		1,300	1,485	1,485	2,485	2,485	2,650	2,950	3,175	QUOTE	QUOTE
M23B ^(9,10)	VHS or VSS Shaft Grounding Ring & Insulated Bearing for VFD Duty		N/A	N/A	N/A	N/A	N/A	N/A	3,037	4,869	4,869	6,288
M23H ⁽⁹⁾	Supply Shaft Grounding Device		803	913	965	1,242	1,242	1,334	1,489	2,017	2,567	3,135
M24 ⁽⁴⁾	Provisions for Vibration Sensor Spot Face, Drill & Tap (1/4-20)		N/A	N/A	N/A	N/A	N/A	N/A	1,283	1,283	1,283	1,283
M24A ⁽⁴⁾	Provide and Install Vibration Switch/Transmitter Spec. (Does Not Include Cabling or Terminations)		N/A	N/A	N/A	N/A	N/A	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M24B ⁽⁴⁾	Provide our Standard METRIX # ST5484E-121-714-00 Transmitter		N/A	N/A	N/A	N/A	N/A	3,250	3,354	3,587	4,154	5,600
M25	Mill Off Motor Feet		1,632	1,676	1,768	1,856	2,038	2,310	2,764	3,216	3,750	QUOTE
M26 ⁽⁷⁾	Inline Blower for 1000:1 Speed Range		508	681	951	1,109	1,756	1,860	2,044	6,999	12,249	17,499
M26A	Provide Centrifugal (Scorpion Tail) Blower, motor, filter, and fab fan cover for 440 and above frames		N/A	N/A	N/A	N/A	N/A	N/A	N/A	9,955	15,450	19,495
M27A ⁽⁷⁾	Installation of Dynapar Encoder		2,573	2,573	2,678	2,783	3,019	3,019	3,615	3,615	6,825	8,138
M27B ⁽⁷⁾	Installation of Other Encoder		QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M28	Vertical Shaft Down - Snap Ring (Lock Nut and Washer)		N/A	N/A	N/A	N/A	N/A	3,250	3,354	3,587	4,154	5,600
M28A	Vertical Shaft Up - DE Lip Seal and Breather Drains in NDE Endframe		225	279	392	392	392	518	518	604	604	685
M29 ⁽⁶⁾	Oil Mist Ready		N/A	N/A	N/A	N/A	N/A	N/A	2,625	3,413	6,563	9,188
M30	Installation of Brake		QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M31 ⁽⁸⁾	Convert to IP65 or IP66		489	682	795	795	935	1,092	1,219	1,462	QUOTE	QUOTE
M32	Precision Balance		N/A	N/A	N/A	N/A	N/A	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M33	175% Thrust or more on VHS on 440 Frame 200-400 HP		N/A	N/A	N/A	N/A	N/A	N/A	N/A	QUOTE	QUOTE	QUOTE
M34	Convert TEFC to TEAO		650	750	850	900	1,100	1,300	1,600	1,900	QUOTE	QUOTE
M35 ⁽¹⁴⁾	Terminal Block in Main Lead Box		458	654	654	654	890	890	905	995	N/A	N/A

Notes:

- (1) Double the List Price for 240V Space Heaters operated at 120V.
- (2) Price includes the flange.
- (3) Only one per phase is available for 360T frame and smaller.
- (4) Price is per bearing.
- (5) Not required for MAX-E2® or MAX-E2/841®.
- (6) N/A
- (7) M8A or M8B Mod required as well from frames 440TS/T and Larger.
- (8) Must start with IEEE 841 motor. Must perform M17 Mod for IP65. Must perform M17 Mod, plus add extra sealant to end brackets, for IP66.
- (9) No Shaft Grounding Ring allowed in Div#2 Area.
- (10) Must start with "VPH" NEMA Premium Series.
- (11) Not available for Hybrid F# 449T/TS frames: EP3502, EP3504, HB3502, HB3504.
- (12) Excludes ASHA "P" and AMHGK "PG" motors. Contact Application Specialist for quote.
- (13) If adding Stainless Steel Breather Drains for shaft up application see M28A.
- (14) Terminal Block Not Available for 56 Frame Motors.

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Effective 07-08-18
Supersedes 03-24-17

M1. Nameplate Change:

Add new nameplate displaying approved data changes such as new voltage and frequency, revised HP and service factor, higher or lower ambient temperature, etc. Information should be clearly stamped on P.O.

M1A. Additional Nameplate:

Add second data plate with customer part number, order number, or other data.

M1B. 304 Stainless Steel Hardware:

Add for 304 Stainless Steel Hardware - Bolts, Nameplate.

M2. Space Heater:

Add wrap around space heaters with leads brought out to main terminal box. Standard voltage is 120V, however other voltages are available. Please specify voltage when ordering. All heaters are single phase.

M2A. Space Heater w/ Auxiliary Box:

Same as M2, except an auxiliary terminal box is added to the side of the main terminal box and the space heater leads are brought out to the auxiliary terminal box.

M2X. Space Heater "Explosion Proof":

Add wrap around space heaters with leads brought out to main terminal box. Standard voltage is 120V, however other voltages are available. Please specify voltages when ordering. All heaters are single phase. This applies to TWMC's explosion proof line of motors.

M3C. Installation of C-Face:

Remove drive-end bracket and replace with C-Face: Modification Price includes the C-Face.

M3C841. Installation of C-Face w/ INPRO™ Seal (MAX-E2/841® only):

Remove drive-end bracket and replace with C-Face and INPRO™ Seal: Only Available on MAX-E2/841® Line.

M3D. Installation of D-Flange:

Remove drive-end bracket and replace with D-Flange: Modification Price includes the D-Flange.

M3D841. Installation of D-Flange w/ INPRO™ Seal (MAX-E2/841® only):

Remove drive-end bracket and replace with D-Flange and INPRO™ Seal: Only Available on MAX-E2/841® Line

M3P. Installation of P Base on any Horizontal Motor for Vertical Mount.

Remove drive-end bracket and install P-base.

M4. Stator Winding RTD's, 100 Ohm Platinum (1/ phase):

Provide 100 Ohm platinum resistant temperature detectors (RTD's), one per phase, on the winding end turns with leads brought out to main terminal box. Note TWMC's medium voltage line of products come standard with 100 Ohm platinum RTD's, two per phase.

M4A. Stator Winding RTD's w/ Auxiliary Box (1/ Phase):

Provide 100 Ohm platinum resistant temperature detectors (RTD's) two per phase, on the winding end turns with leads terminated in an auxiliary terminal box.

Note: On motors 449T frame and smaller, the auxiliary box will be located on the same side as the main lead box. On 5000 frames and larger, the auxiliary box will be located on the F2 side, or on the opposite side of the main lead box.

M4B. Stator Winding RTD's, 100 Ohm Platinum w/ Auxiliary Box (2/ Phase):

Provide 100 Ohm platinum resistant temperature detectors (RTD's) one per phase on the winding end turns with leads terminated in an auxiliary terminal box.

Note: On motors 360T - 449T, the auxiliary box will be located on the same side as the main lead box. On 5000 frames and larger, the auxiliary box will be located on the F2 side, or on the opposite side of the main lead box.

M5. Thermistors (1/ Phase):

Provide (3) PTC thermistors (140°C) on the winding end turns with leads brought out to main terminal box.

Note: these are standard on Metric motors with frames 160L and larger.

FACTORY MODIFICATION DESCRIPTIONS

Effective 07-08-18
Supersedes 03-24-17

M5A. Thermistors (1/ Phase) w/ Auxiliary Box:

Provide (3) PTC thermistors (140°C) on the winding end turns with leads brought out to an auxiliary terminal box. The auxiliary box will be located on the side of the main terminal box.

M6. Thermostats (1/ Phase):

Addition of (3) normally closed thermostats (140°C) to the winding end turns, connected in series with the leads brought out to the main terminal box. This is standard on Explosion Proof Motors.

M6A. Thermostats (1/ Phase) w/ Auxiliary Box:

Addition of (3) normally closed thermostats (140°C) to the winding end turns, connected in series with the leads brought out to an auxiliary terminal box. The auxiliary box will be located off the side of the main terminal box.

M7. Bearing RTD's, 100 Ohm Platinum Cable Type with Aux. Box (2/ Motor):

Add 100 Ohm platinum bearing resistance temperature detectors, on both the drive and non-drive end bearing. Specify if alternate type is required.

M8. Convert Bearings - Ball to Roller or Roller to Ball (2/ Motor):

Convert from Roller Bearings to Ball Bearings or Ball Bearings to Roller Bearings. The Roller to Ball conversion requires some machining on bearing caps to allow for thermal growth.

M8A. Convert to Ceramic Hybrid Bearings:

Convert to Ceramic Hybrid Bearings: Replace existing bearing(s) with Hybrid Ceramic bearings, where the balls are ceramic. This would reduce/ eliminate shaft currents. TWMC's standard is on the Non-Drive End Bearing only.

M8B. Convert to Outer Race Insulated Bearings:

Replace existing bearing(s) with bearings that have outer race coated with insulated material like SKF "Insacote." This would be to reduce / eliminate shaft currents. TWMC's standard is on the Non-Drive End bearing only.

M9. Change Rotation:

This modification only applies to 2-Pole (3600/ 3000 RPM) motors in 5000 frames and larger. Standard direction of rotation is counter-clockwise, facing the drive-end of the motor. This modification will change either the internal or external fans for operation in the clockwise direction, facing the drive-end.

M10. Shorten Shaft to NEMA TS Dimensions ONLY; Non-NEMA Dim Requires TWMC Drawing:

Machine shafts to TS Dimensions per NEMA MG1 ONLY. This does not include new bearings. This does NOT require a TWMC drawing.

M10A. Special Keyless 4140 Shaft Extension for 5000 Frames and above; Any Special Shaft:

Extension is for 5000 frames and above, where torsional stress in the application is high, such as reciprocating gas compressors. Requires TWMC approval, quote, and drawing.

M10B. Any NON NEMA Special Shaft Required:

This requires a TWMC quote and Drawing.

M10C. Drill and Tap Shaft

M11. F1 to F2 Mounting Conversion:

Convert terminal box location from standard F1 to F2, or F2 to F1, depending on the product line. On medium voltage motors, the auxiliary terminal boxes will be on the opposite side of the main terminal box as standard. If the requirement is to have all terminal boxes on either the F1 side or the F2 side, please specify.

M12. Supply Oversized Main Conduit Box:

Replace existing conduit box with an oversized main conduit box. This would be done if the TWMC standard box does not meet customer's requirement. Mount and extend leads if necessary.

M12A. Supply Fully Loaded Main Lead Box:

Replace existing conduit box with a fully loaded box. The box will be TWMC standard size and will contain TWMC standard lightning arrestors, surge capacitors and current transformers (50:5). Box is not self supporting and will require the customer to support.

M13. Stainless Steel Breather Drains:

Drill and tap the existing drain holes to accommodate a Crouse-Hinds stainless steel breather drain. Note, this is standard on MAX-E2®, MAX-E2/841® and Explosion Proof motors.

FACTORY MODIFICATION DESCRIPTIONS

Effective 07-08-18
Supersedes 03-24-17

M14. Tropicalization/ Fungus Protection:

Involves disassembling the motor and spraying the internal windings.

M14A. Tropicalization/ Fungus Protection for Explosion Proof Motors ONLY:

Involves disassembling the motor and spraying the internal windings.

M15. Provisions for Vertical Jack Screws:

Drill and tap (2) holes per motor.

M16. Alternate Grease:

Purge and repack lubricant in end brackets with TWMC standard high temp. or low temp. grease. Please contact TWMC for alternates.

M17. Chico Motor Leads:

Apply a compound between terminal box and frame of motor. This feature is standard for explosion proof motors.

M18A. Epoxy Paint Finish:

Standard paint finish will be changed to Epoxy paint (e.g. MAX-E2® Epoxy Paint (Blue)).

M18B. Fire Pump Red Finish:

Standard paint finish will be changed to Fire Pump Red (e.g. PPG Pitt-Tech 90-306 Safety Red). Also requires addition of UL nameplate and Renameplate to show "FP" in catalog number.

M19. Shaft INPRO™ Seals:

Add INPRO™ seals to drive-end only of MAX-E2® motors 140T~449T/TS frames. This modification is only available for frames 440T and larger on all other product lines. The price reflects drive-end only.

M20. Grounding Provisions on Frame:

Drill and tap the motor frame. This is standard on MAX-E2®, MAX-E2/841®, Oil Well Pump motors, and motors on 5000 frames and larger. All motors have a grounding lug inside the main lead box as a standard.

M21. Drip Cover (TEFC) Rolled Steel:

Replace the existing fan cover with a rolled steel drip cover. This is only for motors mounted vertically.

M21A. Drip Cover (TEFC) Cast Iron:

Replace the existing fan cover with a cast iron drip cover. This is only for motors mounted vertically.

M22. Extend Leads - Connection Behind Conduit Box; Price Based on 4' leads:

Extend existing leads to the length specified by customer. The splice will be made behind the conduit box so it is not seen.

M23. Supply Shaft Grounding Ring:

Install AEGIS shaft grounding ring as made by ELECTRO STATIC TECHNOLOGY. Any CSA Hazardous Location nameplates must be removed. This would be to reduce or eliminate shaft currents. For other methods of shaft grounding, please contact TWMC.

M23A. Vertical Hollow Shaft Grounding Ring:

Install a Shaft Grounding Ring internally on inboard side of Guide Bearing Cap.

M23B. VHS or VSS Shaft Grounding Ring & Insulated Bearing for VFD Duty:

Must start with a VHS/VSS NEMA Premium motor. Install a SGR internally on guide bearing inboard cap, and insulated bearing.

M23H. Supply Shaft Grounding Device:

Install shaft grounding device to reduce or eliminate shaft currents. CSA Hazardous Location Nameplates must be removed.

M24. Provisions for Vibration Sensor:

Drill, tap and machine end bracket(s) to accommodate vibration sensor. Customer is required to submit specifications of vibration sensor. Price is per bracket.

M24A. Provide and Install Vibration Sensor (Does Not Include Cabling or Terminations):

Drill, tap and machine end bracket(s) to accommodate vibration sensor. TWMC standard switch will be provided as made by METRIX, ROBERTSHAW, PREDICTECH, or STI. For details or pricing to provide another brand, please contact TWMC. Price is per bracket.

M24B. Provide our Standard METRIX # ST5484E-121-714-00 Vibration Switch

M25. Mill Off Motor Feet:

TWMC will cut off the feet of a footed motor to create a round body type motor. Second lifting lug available for an additional price adder.

FACTORY MODIFICATION DESCRIPTIONS

Effective 07-08-18
Supersedes 03-24-17

M26. Inline Blower for 1000:1 Speed Range:

Remove existing fan and fan cover and replace with TWMC standard inline blower/ fan cover configuration. Blower motor will require a separate power source. This modification will also require an "M8A" modification for 440TS/T frames and larger.

M26A. Installation of Centrifugal Blower:

Provide Centrifugal Blower, motor, filter, and fab fan cover for 440 and above frames.

M27A. Installation of Dynapar Encoder:

Install TWMC standard Encoder as made by Dynapar.

M27B. Installation of Other Encoder:

Please contact factory for quote.

M28. Snap Ring - Lock Nut and Washer for Mounting the Motor Vertical Shaft Down

Available on 320 frames and up.

M28A. Install Drive End Lip Seal and Stainless Steel Breather Drains for Motor Vertical Shaft Up

To prevent moisture from entering the motor in shaft up applications in an outdoor environment.

M29. Oil Mist Ready:

TWMC to prepare motors for immediate Oil Mist Lubrication. Must use MAX-E2/841® if applicable.

M30. Installation of Brake:

Modify TEFC motors such that a Brake can be attached. This must be quoted with specs and a TWMC Drawing required.

M31. Convert to IP65 or IP66:

TWMC to take IEEE 841 motor and perform M17 Mod for IP65. Must perform M17 Mod, plus add extra sealant to end brackets, for conversion to IP66.

M32. Precision Balancing for Vibration limits below what standard NEMA specification on IEEE/841 motors.**M33. 175% Thrust VHS on 440 Frame 200-400 HP:**

Modify the motor adding correct bearings, parts, and oil for higher thrust

M34. Convert TEFC to TEAO**M35. Terminal Block in Main Lead Box:**

Add a 6 lug terminal block into the Cast Iron or Rolled Steel Main Lead Box for motor frame sizes 143T through 449T and attach the motor leads to the terminal block.

MODIFICATION DRAWING REQUIREMENTS

Effective 07-08-18
Supersedes 03-24-17

DRAWING REQUIREMENTS

X No Drawing

● Basic Drawing

■ Modification Drawing

DRAWING REQ.	MOD CODE	MODIFICATION DESCRIPTION
X	M1	Nameplate Change
X	M1A	Additional Nameplate
X	M1B	304 Stainless Steel Hardware
●	M2	Space Heater
■	M2A	Space Heater with Aux Box
●	M2X	Space Heater "Explosion Proof Motors Only"
■	M3C	Installation of C-Face
■	M3C841	C-Face with Inpro (MAX-E2/841® only)
■	M3D	Installation of D-Flange
■	M3D841	D-Flange with Inpro (MAX-E2/841® only)
■	M3P	Installation of P-Base
X	M4	Winding RTD's 100 Ohm Platinum (1/Phase)
■	M4A	Winding RTD (2/Phase) with Auxillary Terminal Box
●	M4B	Stator Winding RTDs, 100 Ohm Platinum (2/phase)
X	M5	Thermistors (1/Phase)
■	M5A	Thermistors (1/Phase) with Auxilliary Box
X	M6	Thermostats (1/Phase)
■	M6A	Thermostats (1/Phase) with Auxilliary Box
■	M7	Bearing RTD (2/ Motor)
●	M8	Bearings Coversion: Ball to Roller/ Roller to Ball (2/ Motor)
●	M8A	Convert to Ceramic or Hybrid Bearings
●	M8B	Convert to Outer Race Insulated Bearings
X	M9	Change Rotation
●	M10	Shorten Shaft (TS Frames) Per NEMA MG-1 Dimensions (Non NEMA Dimensions Require TWMC Drawing and Approval)
■	M10A	Special Keyless 4140 Shaft Extension for 440 frames and Larger
■	M10B	Any Non NEMA Special Shaft Required; Non NEMA Dim Requires TWMC Drawing
■	M10C	Drill and Tap Motor Feet
X	M11	F1 to F2 Mounting Conversion
■	M12	Oversized Main Conduit Box - Mount and Extend Leads
■	M12A	Fully Loaded Main Conduit Box - Mount and Extend Leads
X	M13	Stainless Steel Breather Drains
X	M14	Tropicalization / Fungus Protection
●	M15	Provisions for Vertical Jack Screws
X	M16	Alternate Grease
X	M17	Chico Motor Leads
X	M18A	Epoxy Paint Finish
X	M18B	Fire Pump Red Finish
●	M19	Install INPRO Seals
■	M20	Grounding Provisions on Frame
●	M21	Drip cover (TEFC)- Rolled Steel
●	M21A	Drip cover (TEFC)- Cast Iron
X	M22	Extend Leads -Connect Behind Box; Price Based on 4' Leads
X	M23	Supply Shaft Grounding Ring
X	M23A	VHS Shaft Grounding Ring
X	M23B	VHS or VSS Shaft Grounding Ring & Insulated Brg for INV Duty
■	M23H	Supply Shaft Grounding Device
■	M24	Provision for Vibration Sensor
■	M24A	Provide and Install Vibration Switch/ Transmitter Spec. (Does not Include Cabling or Terminations)
■	M24B	Provide our Standard METRIX # ST5484E-121-714-00 Vibration Switch
■	M25	Mill Off Motor Feet
■	M26	Inline Blower for 1000:1 speed range
■	M26A	Install Centrifugal Blower
■	M27A	Installation Of Dynopar Encoder
■	M27B	Installation Of Other Encoder
X	M28	Lock Nut and Washer For Vertical Shaft Down
■	M28A	Vertical Shaft up DE lip seal and breather drains in NDE endframe
■	M29	Oil Mist Ready
■	M30	Installation of Brake
X	M31	Convert to IP65 or IP66
X	M32	Precision Balance
■	M33	175% Thrust or more on VHS on 440 Frame 200-400 HP
■	M34	Convert TEFC to TEAO
X	M35	Terminal Block in Main Lead Box

L510 MICRO DRIVE



MEDIUM DUTY

Effective 07-08-18
Supersedes 03-24-17



**A compact, low cost, and versatile AC Drive
that is easy to program and ideal for OEM's.**

APPLICATIONS:

- Mixing
- Fans
- Small Conveyors
- Treadmills
- AC Contactor Replacement
- Pumps
- Lathes
- Milling

FEATURES:

- Chassis Style Enclosure (IP20)
- Sensorless Vector or V/ Hz with Auto Torque Boost Feature
- 0.25 to 1 HP, 115V, 50/ 60Hz, 1-Phase
- 0.25 to 3 HP, 230V, 50/ 60Hz, 1-Phase
- 0.5 to 3 HP, 230V, 50/ 60Hz, 3-Phase
- 1 to 3 HP, 460V, 50/ 60Hz, 3-Phase
- Extensive Diagnostic and Monitoring Capabilities
- Din Rail Option
- PID Control
- 8 Preset speeds
- Two Multi-Function Analog Input/ Qty 1 Analog Output
- Built-in Modbus or BACnet Protocol Via RJ 45 Interface
- UL, cUL, and CE Approved

E510 COMPACT DRIVE



Effective 07-08-18
Supersedes 03-24-17

MEDIUM DUTY



The E510 Compact AC Drive is an easily configured drive that controls many applications. From simple fixed speed set ups to applications requiring PM motors, the E510 meets the application challenge. This product replaces our legacy product the N3.

APPLICATIONS:

- Conveyors
- Mixing Equipment
- Fans and Blowers
- Compact size is convenient for retrofitting/ replacing an older generation VFD
- Pumps
- Lathes
- AC Contactor Replacement

FEATURES:

- 0.5 to 3 HP (CT), 230V, 50/ 60Hz, 1-Phase
- 0.5 to 40 HP (CT), 460V, 50/ 60Hz, 3-Phase
- 1 to 75 HP (CT), 460V, 50/ 60Hz, 3-Phase
- Parameters Grouped by function
- Built-in PLC Functionality
- PID Process Control Loop
- Built-in Modbus & BACnet Protocols
- 5 Digit Operator's Keypad with Speed Pot
- Digital and Analog Inputs and Outputs have Extremely Fast (~4 msec) Update Time
- Auto Run Mode (Cyclic Operation)
- Power Loss Ride Through
- Automatic Voltage Regulation (AVR)
- Complies with IEC 60018-2-78, UL, cUL, CE, & RoHS

E510 NEMA 4, 4X/12

INDOOR USE ONLY/ MEDIUM DUTY



Effective 07-08-18
Supersedes 03-24-17



A versatile AC Drive that can control today's demanding motor driven applications, this highly flexible drive has multiple control modes and built-in PLC functionality.

APPLICATIONS:

- Mixers
- Conveyors
- Machine Tools
- Pumps (Centrifugal, Positive Displacement, Metering, etc.)
- Packaging Machines
- Fans

FEATURES:

- Control Modes for V/F, and Sensorless Vector
- Simple PLC Function Built-in
- .5 to 20 HP (CT), 230V, 50/ 60Hz, 3-Phase
- 1 to 25 HP (CT), 460V, 50/ 60Hz, 3-Phase
- Conformal Coating on PC Boards
- LED Keypad with 5 Digits
- Flexible Input/ Output Configurations that Accept Normally Open or Normally Closed Signals
- 0 to 599 Hz Speed Range
- PID Control
- Diagnostics Registers for Troubleshooting
- Built-in Modbus Protocol via (RJ45 Interface)
- Dedicated Pulse Follower Signal
- UL, cUL, and CE Approved

A510



Effective 07-08-18
Supersedes 03-24-17

HEAVY DUTY



A versatile AC Drive that can control today's demanding motor driven applications, this highly flexible drive has multiple control modes.

APPLICATIONS:

- Mixing
- Conveyors
- Packaging Machines
- Machine Tools
- Fans
- Compressors
- Pumps (Centrifugal, Positive Displacement, Metering, etc.)
- Extrusion and Injection Molding
- Winders/ Unwinders
- Crushers/ Grinders
- Crain/ Hoist

FEATURES:

- Control Modes for V/F, V/F with PG feedback, Sensorless Vector, and Closed Loop Vector
- Simple PLC Function Built-in
- Advanced Regenerative Load Handling Capability
- 1 to 100 HP (CT), 230V, 50/ 60Hz, 3-Phase
- 1 to 125 HP (VT), 230V, 50/ 60Hz, 3-Phase
- 1 to 400 HP (CT), 460V, 50/ 60Hz, 3-Phase
- 1 to 400 HP (VT), 460V, 50/ 60Hz, 3-Phase
- 1 to 10 HP (CT/VT), 575V, 50/ 60Hz, 3-Phase
- 15 to 250 HP (CT), 690V, 50/ 60Hz, 3-Phase
- 15 to 270 HP (VT), 690V, 50/ 60Hz, 3-Phase
- Conformal Coating on PC Boards
- LCD Keypad that is Remotely Mountable
- Flexible Input/ Output Configurations that Accept Normally Open or Normally Closed Signals
- 0 to 599 Hz Speed Range
- PID Control
- Diagnostics Registers for Troubleshooting
- Built-in RS485 Modbus Protocol
- Enhanced Design for Quiet Motor Operation
- Pulse Output and Pulse Follower
- Select Between Closed-Loop Speed and Torque Control in Vector Mode
- UL, cUL, and CE approved



A versatile AC Drive that is easily configured and handles almost any fan, blower, or centrifugal pump application.

APPLICATIONS:

- Fans
- Blowers
- Water and Wastewater Industries
- Centrifugal Pumps
- HVAC Industries
- Irrigation

FEATURES:

- Control Modes for V/F, Sensorless Vector, Sensorless Vector with Permanent Magnet Motor
- Built-in PLC as Standard
- Operation and Engineering Units Standard
- LCD Keypad with Remote Mounting Capabilities
- PID Control with Advanced Diagnostics and Sleep Mode
- 1 to 150 HP (Variable Torque), 230V, 50/ 60Hz, 3-Phase
- 1 to 800 HP (Variable Torque), 460V, 50/ 60Hz, 3-Phase
- Plenum Rated
- Diagnostics Registers for Troubleshooting
- Flexible Input/ Output Configurations that Incorporate Normally Open or Normally Closed Signals
- 0 to 400 Hz Speed Range
- Built-in Modbus, BACnet, and Metasys (N2) Protocols via (RS485 or RJ45 Interface)
- Enhanced Design for Smoother and Quieter Motor Operation
- Real Time Clock (Standard on Models with LCD Keypad)
- PTC Input Available for Direct Thermal Protection of the Motor
- Thermal Management on the Heat Sink for Overtemperature Fault Avoidance
- Master-Follower Control Mode Built-in
- EMI Protection that Complies with EM61800-3 with Optional Filter
- EMS Protection that Follows EN61800-3
- UL, cUL, and CE Approved



A rugged and versatile drive with a wide range of ratings ideal for both simpler and more demanding applications.

APPLICATIONS:

- Crushers, Grinders
- Compressors
- Reciprocating Machinery
- Dynamometers
- Water and Wastewater Industries
- Injection Molding
- Centrifugal Pumps
- Positive Displacement Pumps
- High Torque Mixing
- Material Handling
- Extruders
- Chillers and Refrigeration
- Fans

FEATURES:

- Designed for Constant / Variable Torque Applications
- V/F, Dynamic Torque, Sensorless and Sensor (Encoder Feedback) Vector mode
- Backlit LCD / English Language with LED Monitor Display / Selections for 6 Languages
- Keypad May be Used as Copy Unit / Remote Mounting Options
- Extensive Diagnostic Information on LCD Display
- State-of-the-Art Torque Limit and Control Features
- PID Control with Sleep Mode Function
- Provided with low-noise control power supply
- 1 to 125 HP @ 230V (Constant Torque)
- 1 to 150 HP @ 230V (Variable Torque)
- 1 to 900 HP @ 460V (Constant Torque)
- 1 to 1000 HP @ 460V (Variable Torque)
- Extensive I/O Capabilities
- Encoder Feedback Option for Applications Requiring Precise Speed Control
- Conformal Coating on PC Boards, Tin Plating on DC Bus
- External Mounting of Heatsink When Installed in Control Panels (>40 HP); Option Kit Available (<= 40 HP)
- All Units are IP20 at 40hp and below and IP00 at ratings >40HP (NEMA 1 Option Kits Available)
- Built-in RS485 Protocol (Modbus)/ Options Profbus-DP, DeviceNet, EtherNet
- DC Link Chokes Included in 75 HP and Above Units are Shipped Loose as Chassis Item Inside Crate
- uL and CE Approved

LOW VOLTAGE SOLID STATE STARTERS (LVSS)



TECO-Westinghouse can supply low voltage solid state starters for a variety of applications such as pumping, compression, saws (woodworking), crushing and grinding operations

COMBINATION PANELS INCLUDE:

- NEMA 3R enclosure
- Circuit breaker with flanged disconnect (service entrance rated)
- EMX3 heavy duty solid state starter
- Panel mounted switch: Soft Start/OFF/Line Start
- 110V control power transformer
- Space heater with thermostat
- Door Mounted: Keypad
 - Start / Stop Pushbutton
 - Local / Remote Switch
 - Reset Pushbutton
 - Power On Light
 - Run Light
 - Fault Light

STANDARD STARTER FEATURES (CHASSIS):

- Voltage Ratings: 208, 230, 460, 575 or 690VAC
- 15-1200HP (Standard duty)
- Constant Current, Current Ramp, XLR-8 Adaptive Acceleration, Kickstart
- LCD Keypad with real time monitoring and event log:
 - Graphical Display
 - User Friendly
 - Copy program setting between starters
 - Removable for remote mounted
- Emergency Run Mode
- RS 485 Communications via optional Modules
 - Modbus, Profibus, ProfiNET, DeviceNET, Modbus TCP, Ethernet IP
- PC Configuration Software Available

ENGINEERED PACKAGES:

- Fused disconnect or circuit breaker disconnect
- Internal shunt bypass or continuous duty
- Light, standard and heavy duty ratings
- Operator devices and pilot lights
- Fans, filters and enclosure modifiers
- Door-Mounted LCD Keypad

TEAMMASTER™ MEDIUM VOLTAGE



MCB PACKAGES with DISCONNECT

Effective 07-08-18
Supersedes 03-24-17



Engineered to provide solutions for a variety of heavy duty applications, TEAMMASTER™ Medium Voltage Soft Starters are feature loaded. They are an excellent solution to Crushers, Grinders, Ball & Hammer Mills, Compressors, Centrifuges, plus many other options.

COMBINATION PANELS INCLUDE:

- NEMA 12, NEMA 3R, NEMA 3ROD (door in door design), and Custom
- UL 347 Listed 6th Edition, Class E2
- 60kV BIL
- Short Circuit Fault Rated 200MVA (2300V), 350MVA (4160V)
- 6500 PIV, UL347 – 6th Edition Certified and Listed at 2.4kV
- 13,000 PIV, UL347 – 6th Edition Certified and Listed at 4.16kV
- Fiber-Optic Firing
- 500% - 30 Second Rated (adjustable and customizable per applications)
- Load Break 5kV Switch, w/Viewing Window, Grounding Assembly, and Mechanically Interlocked Lockable Handle.
- Load matched Class R Fusing
- Fixed mounted Vacuum Contactors (Line Isolation & Bypass) Full Horsepower Rated
- Smart keypad/HMI with multiline display
- Simulation Mode Feature for “quick commissioning”
- Sim Card data logging for remote factory assistance
- Emergency Full Voltage Switch (located in LV compartment for Across Line Starting backup)
- Adjustable Electronic Overload for Emergency mode
- 120V Control Power Transformer
- Door Mounted: Start/Stop Pushbutton, Emergency Stop Pushbutton, and Run/Stop/Fault Lights
- Additional Options Adders :
 - Door Mounted Keypad
 - Communications: Modbus, Modbus TCP, USB, DeviceNet, Profibus, Profinet, Ethernet IP
 - Top Hat and/or Horizontal Bussing
 - Space Heater with Thermostat

VERSABRIDGE® FEATURES

Effective 07-08-18
Supersedes 03-24-17

With over 100 years of experience in motor design and application, TECO-Westinghouse Motor Company is a premier supplier of AC and DC motors and generators. Ranging from fractional HP ratings to 100,000 HP, these high-quality machines are used in a variety of rugged applications across several industries throughout the world.

TECO-Westinghouse comprises the experience of Westinghouse, a leader in the motor industry since 1888, and TECO Electric & Machinery Co, Ltd., a multinational conglomerate with over 50 years of manufacturing experience. Together, TECO-Westinghouse embodies the capabilities and proud traditions of excellence from both companies and carries them forward.

In keeping with this idea, TECO-Westinghouse is pleased to now offer a complete package of Variable Speed Drive (VSD) systems that includes an Input/ Output Switchgear, Medium Voltage Drive (MVD), and motors.

VersaBridge® MVDs provide reliable motor control for a variety of industry specific and general purpose applications including Oil & Gas, Utility/ Power Generation, Metals and Mines. These patented MVDs are designed utilizing a multilevel H-Bridge topology that reduces the harmonic levels to extremely low levels. The modular design facilitates ease of installation, commissioning and maintenance. The VersaBridge® is an innovative product that combines reliable, simple, and compact solutions with the latest power electronics and cooling technologies.

FEATURES

Modularity: Modular design with common building blocks (Mains, Slices, Cubes) make VersaBridge® MVD scalable for different power and voltage ratings with fewer spare parts required. Power switching modules (Cubes) can be easily removed in the event of a failure.

Quick and Easy Installation: VersaBridge® MVD provides both top and bottom cable entry as standard on all models. All shipping sections are delivered to the customer pre-terminated, making field assembly fast and efficient.

Serviceability: VersaBridge® power cubes are interchangeable and can be easily replaced within 30 minutes. Additionally, the modular design of VersaBridge® MVD requires few spare parts since the parts are universal and can be used in any configuration regardless of the voltage or power class.

Multi-level, Cascaded H-Bridge Topology produces near sinusoidal voltage output which reduces motor harmonics and torque pulsations, even at low speeds with virtually no cable length restriction. VersaBridge® MVD produces an output voltage which has at least 7 levels measured line-to-neutral and 13 levels measured line-to-line, allowing VersaBridge MVDs to be applied to new or existing motors having standard insulation systems without the need for harmonic mitigation.

Ultra Low Utility-Side Harmonics exceed the IEEE-519 Standard requirements without any additional components.

Power Cube Bypass: VersaBridge® MVD keeps your system running reliably by automatically bypassing failed power cubes and continuing operation within ¼ of a second of the initiating fault event. VersaBridge® cube bypass is software configurable to be Automatic or Manual. Both modes of bypass are designed to eliminate unnecessary voltage stress on the motor by keeping the neutral voltage balanced.

N+1...N+N Redundancy: Due to the modularity of VersaBridge® MVD, redundant Slices can be added to any system (new installation or retrofit) to achieve N+1 or more redundancy. This ensures that the process continues to operate at full rated power after a power cube bypass event.

Flying Start into a Spinning Load: VersaBridge® MVD offers the ability to smoothly catch and accelerate a spinning load without producing any severe torque, voltage, or current transients on the driven equipment.

Power Dip Ride-Through: VersaBridge® MVD provides greater than five cycle power loss ride-through to keep the process running without the need for auxiliary UPS systems.

One Drive for Multiple Motors: Using the VersaBridge® MVDs' Synchronous Transfer feature, multiple motors can be started and synchronously transferred from the drive bus to the utility bus (Up Transfer) or from the utility bus to the drive bus (Down Transfer).

Industry Standard Modbus TCP Communication: Standard protocols allow the VersaBridge® MVDs to easily integrate with various SCADA or DCS systems using Ethernet.



VERSABRIDGE® SPECIFICATIONS

Effective 07-08-18
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Electrical

Output voltage	0 – 13.8 kV
Output frequency Min - Max	0 – 120 Hz
Auxiliary Supply	200 – 240 V, 1 ϕ std; optional configurations available
Rated Supply Voltage	2.3 – 13.8 kV \pm 10%
Rated System Frequency	60 Hz \pm 5%
Voltage Variation	-30% to +10% for 30 line cycles
Input Current Harmonics THD	\leq 2% exceeds IEEE-519 requirements (36-pulse)
Inverter Topology	IGBT H-Bridge
Cooling	Advanced 2-phase cooling, forced-air cooling
Capacitors	Film
Regulatory Compliance	IEEE, ANSI, NEMA, CSA, cUL (listed), UL (listed)
Controls	V/Hz, Vector
Speed Regulation	0.1% with feedback, 0.5% without feedback
Connection	Top, bottom or both cable entry/exit
Power Ride Through	Minimum 5 cycles
Peak Efficiency	97%
Power Factor	\geq 97%
Output Current Harmonics THD	<1%
Power Transformer Topology	Modular, multi-pulse, phase-shifted, isolated
Power Transformer Rating	750 kVA / Slice
Spinning Load	Catch a spinning load
Power Cube Bypass	Auto Bypass and restart, Manual Bypass modes
Synchronous Transfer	Automatically transfer the motor to/from the utility bus
Control Isolation	Fiber optic cable
Service Duty	CT: 150% , VT: 110% for 1 min every 10 min
HMI	7" TFT color LCD screen, LED backlighting
Communication Interface	Modbus TCP/IP (Ethernet), RS-232 , and RS-485, PLC I/O, Others Available Upon Request

Mechanical

Standard Rating	NEMA 1, NEMA 3R
Cabinet Dimension (Mains or Slice)	H: 105" x W: 25" x D: 68.4"
Material	ASTM A366 steel
Color	Light Grey
Total Weight	Mains: 1,289 lbs, Slice: 4,852 lbs

Environmental Condition

Ambient Temperature	-20 to +40 °C (lower/higher temperatures*)
Altitude	0 – 1000m (higher elevations*)
Humidity	95%, non-condensing
Noise Level	\leq 78 dB

* Consult factory for extended temperature or altitude ranges

Cooling System

Transformer	Choice of forced-air cooling or advanced 2-phase cooling options
Electronics	Advanced 2-phase cooling
Cooling Unit	Choice of integral or remote unit options