

MODIFIABLE NEMA^{®†} STANDARD VERTICAL MOTORS CONVERSIONS & ACCESSORIES INTRODUCTION & PRICING GUIDELINES

PRICING
GUIDE

Select the Base List Price from the previous section.

Price Adders for Accessories and Modifications that are not part of the standard product offering can be found in the following sections. Note that not all Accessories and Modifications are available on all product types or frame sizes. Refer to the detailed description for restrictions and guidelines of each Accessory and Modification.

All List Price Adders carry the same Discount Symbol as the Base List Price.

Percentage Adders are percent of the Base List Price, unless otherwise noted.

Some Accessories/Modifications will require a larger than standard Frame Size. All adders are to be made based on the confirmed Frame Size.

Round Total List Price to the nearest dollar.

Note that some adders are Net Adders.

Refer to office for product lead-times.

Refer to Terms and Conditions of Sale on page 66.

All prices are in U.S. Dollars.

Prices and information subject to change without notice.

This catalog covers both NEMA^{®†} Standard and TITAN[®] Stock Vertical Motors.

Our extensive custom motor capabilities are shown in PB500.

For Horizontal Motors, refer to the Custom Motor Catalog (PB202) or TITAN[®] Custom Motor Catalog (PB210).

For a wide range of products from stock, refer to the Standard Motor Products Catalog (FL600).

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VERTICAL MOTORS CONVERSIONS & ACCESSORIES QUICK PICK CHART

QUICK PICK
(VERTICAL)

DESCRIPTION	FRAME SIZE								
	180	210	250	280	320	360	400	444-447	5000
Bearings Extra High Thrust (175%) (#)	-	-	-	-	5%	5%	5%	5%	-
Coupling (Change To Alternate)	NC	NC	NC	NC	NC	NC	NC	NC	NC
Conduit Box Accessory Conduit Box	384	384	384	384	384	384	384	384	384
Rotate Conduit Box	100	100	100	100	100	100	100	100	100
Cast Iron Conduit Box	-	-	-	-	125	200	250	300	-
Drains T-Type Breather/Drain	30	30	40	40	40	50	50	50	-
Export Boxing	510	510	510	510	760	760	1050	1050	2420
Flanges (Change Bracket To Alternate "BD")	NC	NC	NC	NC	NC	NC	NC	NC	NC
Ground Lug, In Conduit Box	46	46	46	46	46	46	46	46	46
Leads (Tie Back Leads)	170	250	250	380	380	380	380	380	-
Nameplates Additional Duplicate Nameplate	100	100	100	100	100	100	100	100	100
Additional Stamping On Main Nameplate	100	100	100	100	100	100	100	100	100
Shipping Tag (#6 Paper Tag)	NC	NC	NC	NC	NC	NC	NC	NC	NC
Special I.D. Plate	100	100	100	100	100	100	100	100	100
Re-Nameplate (Re-Rate)	100	100	100	100	100	100	100	100	100
Firepump Label	5%	5%	5%	5%	5%	5%	5%	5%	-
Non-Reverse Ratchet	-	-	-	-	-	-	-	-	-
Bolted Coupling - Add or Remove	NC	NC	NC	NC	NC	NC	NC	NC	NC
Clockwise Non-Reverse Ratchet	-	-	-	-	200	200	200	200	600
Oil Sump Heaters (#)	-	-	-	-	200	200	240	240	-
Special Paint	200	200	370	370	370	370	370	370	730
Prints & Data (Submittals) (NET ADDERS)	-	-	-	-	-	-	-	-	-
Standard Submittals (+)	NC	NC	NC	NC	NC	NC	NC	NC	NC
Speed Vs. Torque & Amps Curve	60	60	60	60	60	60	60	60	60
Speed Vs. Torque & Amps Curve (Metric)	170	170	170	170	170	170	170	170	170
Safe Stall Time Curve	170	170	170	170	170	170	170	170	170
Acceleration Time Vs. Amps Curve	170	170	170	170	170	170	170	170	170
Performance Curves	170	170	170	170	170	170	170	170	170
Performance Curves (Metric Units)	280	280	280	280	280	280	280	280	280
Shaft Stiffness	170	170	170	170	170	170	170	170	170
Mass Elastic Data	170	170	170	170	170	170	170	170	170
Sound Power In Watts	60	60	60	60	60	60	60	60	60
Sound Pressure In dB @ 3 Feet	30	30	30	30	30	30	30	30	30
Sound Data Vs. Center Band	60	60	60	60	60	60	60	60	60
Customer Data Sheet	60	60	60	60	60	60	60	60	60
Equivalent Circuit Data	60	60	60	60	60	60	60	60	60
UL [®] Certificate	350	350	350	350	350	350	350	350	350
Certificate Of Conformance	60	60	60	60	60	60	60	60	60
Shaft Print	60	60	60	60	60	60	60	60	60
Shaft Print With Material Strength	220	220	220	220	220	220	220	220	220
Rotor Detail Print	280	280	280	280	280	280	280	280	280
Rotor Detail & Shaft Print	330	330	330	330	330	330	330	330	330
Current Pulsation Analysis	220	220	220	220	220	220	220	220	220
Space Heater (Double Adder For Hazardous Location Motors)	203	203	218	218	254	274	274	274	565
Steady Bushing Kit (Attached To Motor Eyebolt)	86	86	86	86	128	128	128	128	178
Testing, Short Commercial Test, Un-Witnessed	175	175	175	175	175	175	175	175	175

Discount Symbol: Same as motor being converted

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VERTICAL MOTORS CONVERSIONS & ACCESSORIES QUICK PICK CHART

QUICK PICK
(VERTICAL)

DESCRIPTION	FRAME SIZE								
	180	210	250	280	320	360	400	444-447	5000
Thermal Protection, Windings	-	-	-	-	-	-	-	-	-
Thermostats (Double Adder For Haz. Loc. Motors)	113	113	113	113	178	221	221	221	221
Therma-Sentry	750	750	750	750	750	750	750	935	-
Thermal Protection, Bearings (Upper Bracket) (#)	-	-	-	-	-	-	-	-	-
RTDs, 10, 100 or 120 Ohm	-	-	-	-	570	570	570	570	570
Vibration Detector (#)	-	-	-	-	-	-	-	-	-
Robertshaw ^{®†} , Model 366	-	-	-	-	800	800	800	800	-
Robertshaw ^{®†} , Model 376	-	-	-	-	1400	1400	1400	1400	-
Water Cooling Coils (#)	-	-	-	-	150	150	180	180	-

(NC) No Charge If Specified At Time Of Motor Order.

(+) Refer To Conversion Pricing Section for description.

(#) Available only on Premium Efficient Vertical HoloShaft[®] WPI (Type RUSI & HUS).

Discount Symbol: Same as motor being converted

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VERTICAL MOTORS CONVERSIONS & ACCESSORIES DESCRIPTIONS & ADDERS

CONVERSION
PRICING
(VERTICAL)

Bearings

Extra High Thrust (175%)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	5%	5%	5%	5%	NA

Available only on Premium Efficient Vertical Hollowshaft® WPI (Type RUSI and HUS).

Coupling

Change To Alternate Coupling Size

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NC	NC	NC	NC	NC	NC	NC	NC	NC

Standard Drive Coupling can be changed to an alternate size at No Charge, if specified at time of motor order.

Conduit Boxes

Accessory Conduit Box

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	384	384	384	384	384	384	384	384	384

A Condulet can be added to the Main Motor Conduit Box for routing of accessory leads. Available on WPI and TEFC (Not Hazardous Location) ratings.

Rotate Conduit Box

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	100	100	100	100	100	100	100	100	100

Standard Conduit Box has lead opening facing down. This conversion includes rotating the Conduit Box so the lead opening is facing the desired direction. Specify direction of lead opening: Facing Up; Facing Left (when facing the Conduit Box); Facing Right (when facing the Conduit Box).

Cast Iron Conduit Box

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	125	200	250	300	-

Replacement of Steel Conduit Box with Cast Iron version. Available on High Thrust Vertical Hollowshaft® and Solid Shaft, 320 Frame and larger, Non-Hazardous Location motors (Cast Iron Conduit Box standard on XP).

Drains (Breather/Drains)

T-Type Breather/Drain

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	30	30	40	40	40	50	50	50	NA

Install T-Type Breather/Drains in place of standard drains. Available on 180-447 Frame Cast Iron Enclosed motors.

Discount Symbol: Same as motor being converted

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Export Boxing

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	510	510	510	510	760	760	1050	1050	2420

Adder is list per motor. Product is boxed, packaged or crated as required for under deck exporting.

Flanges

Change P-Base Bracket To Alternate "BD" Dimension

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NC	NC	NC	NC	NC	NC	NC	NC	NC

Replace standard P-Base Bracket with one of different "BD" dimension. Available at no charge if specified at time of motor order.

Ground Lug

In Conduit Box

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	46	46	46	46	46	46	46	46	46

Addition of Ground Lug in main motor Conduit Box.

Leads

Tie Back Leads

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	170	250	250	380	380	380	380	380	NA

Reconnect Dual Voltage 9-Lead or 12-Lead motors to 3-Lead Single Voltage. Specify desired voltage when ordering. Tie back and connect leads inside frame for Single Voltage 3-Lead Conduit Box Connections. Available on Non-Hazardous Location motors.

Nameplates

Additional Duplicate Nameplate

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	100	100	100	100	100	100	100	100	100

An additional duplicate nameplate for mounting on customer equipment. These additional nameplates cannot be supplied with CSA or UL logos.

Additional Stamping On Main Nameplate

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	100	100	100	100	100	100	100	100	100

The main motor nameplate can be stamped with limited customer tagging information (20 characters max).

VERTICAL MOTORS CONVERSIONS & ACCESSORIES DESCRIPTIONS & ADDERS

CONVERSION
PRICING
(VERTICAL)

Nameplates (continued)

Shipping Tag (#6 Paper Tag)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NC	NC	NC	NC	NC	NC	NC	NC	NC

A #6 Paper Shipping Tag, with customer tagging information, can be supplied at no charge when specified at time of motor order.

Special I.D. Plate

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	100	100	100	100	100	100	100	100	100

Special Identification Plates can be mounted on the motor with limited customer specified tagging information (100 characters max).

Re-Nameplate (Re-Rate)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	100	100	100	100	100	100	100	100	100

Motors can be Re-Nameplated (after approval) for alternate ratings — changes in horsepower, altitude, ambient, voltage, frequency, etc. Contact your Emerson Technical Representative for approval prior to quoting.

Firepump Label

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	5%	5%	5%	5%	5%	5%	5%	5%	5%

Percentage adders are percent of Base List Price. UL[®] Listed (File E187977) Fire Pump Motors are designed per UL-1004A[®] and meet the NFPA-20[®] "Standard for the Installation of Centrifugal Fire Pump Spec." This conversion is to add the Fire Pump Label. Contact your Emerson Technical Representative with exact rating to confirm that it meets the Fire Pump requirements.

Non-Reverse Ratchet

Bolted Coupling – Add Or Remove

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NC	NC	NC	NC	NC	NC	NC	NC	NC

Remove Non-Reverse Ratchet and convert motor to Self-Release Coupling or Bolted Coupling. Available at No Charge if specified at time of motor order.

Clockwise Non-Reverse Ratchet

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	200	200	200	200	600

Remove the standard Non-Reverse Ratchet (Counterclockwise Rotation) and replace with a Clockwise Rotation (when looking down on the motor) Non-Reverse Ratchet. Available only on Premium Efficient Vertical Hollowshaft[®] WPI (Type RUSI).

Discount Symbol: Same as motor being converted

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VERTICAL MOTORS CONVERSIONS & ACCESSORIES DESCRIPTIONS & ADDERS

CONVERSION
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Oil Sump Heaters

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	200	200	240	240	NA

Oil Sump Heaters are recommended for applications where the Ambient Temperature is consistently below -5°C (23°F) and required where the Ambient is consistently below -15°C (5°F). Standard Unit is 115 Volt Single Phase. Available only on Premium Efficient Vertical Hollowshaft® WPI (Type RUSI).

Paint, Special

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	200	200	370	370	370	370	370	370	730

Special Paint must be approved by the Conversion Center/Plant prior to quoting. A Material Data Safety Sheet (MSDS) must be sent to the Conversion Center/Plant for their review. A Special Paint can be furnished (once approved) if compatible with our standard paint/primer, is commercially available, and suitable for air drying (paints containing lead or zinc cannot be used, and sand blasting is not available).

Prints & Data (Submittals)

(NET ADDERS)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)

(+) The following Submittals are considered Standard Submittals, and are available at no charge (up to Q-5 sets) if requested at time of Motor order:

- Certified Dimension Print
- Performance Data
- Nameplate Data
- Instruction Manual
- Wiring Diagram
- Parts List
- Recommended Spare Parts
- Bearing Life Calculation
- Conduit Box Details
- Major Component Weights
- Paint Specification
- Rotor Air Gap (Calculated)
- Rotor Inertia
- Cut Sheets For Accessories

(+) The following additional Submittal items are available at the NET ADDER shown:

Submittal Item	Net Adder	Submittal Item	Net Adder
• Speed vs. Torque & Amps Curve	\$60	• Sound Power In Watts	\$60
• Speed vs. Torque & Amps Curve (Metric)	\$170	• Sound Data vs. Center Band	\$60
• Safe Stall Time Curve	\$170	• Customer Data Sheet	\$60
• Acceleration Curve	\$170	• Equivalent Circuit Data	\$60
• Performance Curves	\$170	• UL® Certificate	\$350
• Performance Curves (Metric Units)	\$280	• Certificate of Conformance	\$60
• Shaft Stiffness	\$170	• Shaft Print	\$60
• Mass Elastic Data	\$170	• Shaft Print w/ Material Strength	\$220
• Sound Pressure In dB @ 3 Feet	\$30	• Rotor Detail Print	\$280
		• Rotor Detail w/Shaft Print	\$330
		• Current Pulsation Analysis	\$220

Space Heaters

(Double Adder For Hazardous Location Motors)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	203	203	218	218	254	274	274	274	565

Space Heaters are installed to prevent moisture condensation in the motor during times the motor is not running. U.S. Motors® uses Silicon Rubber Strip-Type heaters manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicon rubber and bonding the pieces together. Heaters are sized to provide approximately 10°C temperature rise above the ambient temperature. Heaters are placed on the end turns of the motor winding. Heaters are of the low density type, which yields low surface temperature and long life. Heaters are single phase, rated 60 or 50 Hertz.

Space Heaters are available in the following voltages: • 115, 230, 460 & 575 Volt • 230 Volt operated at 115 Volt.

Discount Symbol: Same as motor being converted

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Steady Bushing Kit

(Attached To Motor Eyebolt)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	86	86	86	86	128	128	128	128	178

Steady Bushing comes as a Field Installable Kit, and is shipped attached to the Motor Eyebolt.

Testing

Short Commercial Test, Un-Witnessed

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	175	175	175	175	175	175	175	175	175

A Short Commercial Test, per NEMA® MG-1 Part 12, consists of no load current, locked rotor current (performed at reduced voltage, typically 25-50%), winding resistance, high potential and bearing inspection. A Test Report is provided to the customer. All Tests are LIST ADDERS.

Thermal Protection, Windings

Thermostats (Double Adder For Hazardous Location Motors)

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	113	113	113	113	178	221	221	221	221

Thermostats: Snap action, bi-metallic, temperature actuated switches installed on the end-turns of the Motor winding. Their purpose is to activate a warning device or shut down the Motor upon excessive winding temperatures. Standard arrangement is addition of 2 or 3 Thermostats to the winding end-turns, connected in series with the leads brought out to the Main Motor Conduit Box. The following options are available: TW01 Thermostats, Normally Closed; TW02 Thermostats, Normally Open; TW06 Thermostats, Normally Closed, Hermetically Sealed

Therma-Sentry® motors

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	250	250	250	250	250	250	250	490	NA

Therma-Sentry® motors: Complete protection system consisting of three Thermistors and a solid state control module (shipped loose for Customer mounting). It will protect the motor for locked rotor, starting overload, running overload, abnormally high ambient temperatures, voltage unbalance, high or low voltages, ventilation failure, and single phasing. Available on Non-Hazardous Location Motors. The following options are available: TW20 Therma-Sentry, 115/230V, SMSE, Normally Closed Contact (SMSE = Separately Mounted, Separately Excited Control Module)

Thermal Protection, Bearings (Upper Bracket)

Resistance Temperature Detectors (RTDs), 10, 100 or 120 Ohm

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	570	570	570	570	570

Resistance Temperature Detector (RTD): Precision, wire-wound resistors with a known temperature-resistance characteristic. U.S. Motors® does not furnish the monitor. Available on Upper Bracket only. Available only on Premium Efficient Vertical Hollowshaft® WPI (Type RUSI). The following options are available: TB40 10 Ohm, 3 Lead; TB41 120 Ohm, 2 Lead; TB42 100 Ohm, 3 Lead

Vibration Detector

Robertshaw[†], Model 366

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	800	800	800	800	NA

Available only on Premium Efficient Vertical Holloshaft[®] WPI (Type RUSI).

Robertshaw[†], Model 376

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	1400	1400	1400	1400	NA

Available only on Premium Efficient Vertical Holloshaft[®] WPI (Type RUSI).

Water Cooling Coils

Frame:	180	210	250	280	320	360	400	444-447	5000
Adder:	NA	NA	NA	NA	150	150	180	180	NA

Available only on Premium Efficient Vertical Holloshaft[®] WPI (Type RUSI).