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# INDUSTRIAL MOTORS AND DRIVES

MAY 2024 | CATALOG | NORTH AMERICA, LATIN AMERICA

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THE JOB DONE.**

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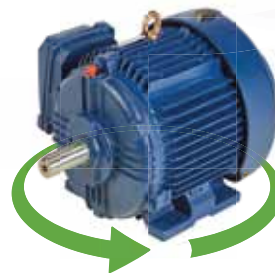
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FASTER.**

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solutions, more motor  
applications. Finding the  
right motor is simplified.



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**PRODUCT  
COMPARISON**



**MOTOR  
DRAWINGS**



**COMPETITOR  
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# MODIFICATIONS AT THE WAREHOUSE ENSURE CUSTOM SOLUTIONS FASTER

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THE OPTIMAL FIT.  
THE PERFECT SOLUTION.

**MORE CHOICES FROM  
ONE LEADING BRAND.**

## ENSURE CUSTOM SOLUTIONS FASTER.

We understand that no motor is perfect for every application. That's why we've expanded our modification offerings on a variety of models. Some modifications can be modified and shipped the same day, while others may take a day or two, but we can ensure the motor solution that you need will be ready to work.

## YOU'LL HAVE QUESTIONS. WE'LL HAVE ANSWERS.

As you review the industrial motors from this expanded offering, know that we're ready to assist. Our customer service professionals are here to guide you. Your local field representative is available to help you find the right solution for your application.

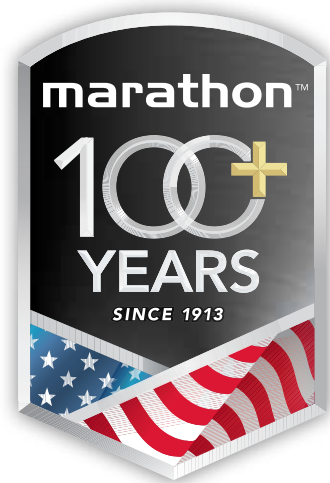




**marathon®**

FROM THE BEGINNING,  
WE ARE LEADING  
**INNOVATION  
WITH  
PURPOSE.**

**BUILDING OUR BRANDS  
OVER 100 YEARS OF  
DEDICATION AND  
TEAM WORK**



<p><b>1913</b> Marathon®* Company Founded.</p>	<p><b>1960</b> 1/20 HP through 3500 HP motors Introduced 95% of the motors installed.</p>	<p><b>1976</b> First Energy Efficient Polyphase HP motors.</p>	<p><b>1981</b> First two-speed motors, solid state switch with UL®* approval.</p>	<p><b>1986</b> Marathon XRI® product line introduced - leading the industry with NEMA Premium®*.</p>	<p><b>1996</b> First two-speed motors, solid state switch with UL®* approval.</p>
<p><b>1997</b> MAX GUARD® insulation system introduced.</p>	<p><b>2000</b> Blue Chip Series® Severe Duty Explosion Proof motor named Plant Engineering magazine product finalist.</p>	<p><b>2002</b> First true world class motor, IEC®* Globetrotter®, introduced.</p>	<p><b>2010</b> Permanent Magnet AC Motor introduced.</p>	<p><b>2012</b> Simplified "Marathon" becomes a flagship brand.</p>	
<p><b>2013</b> Regal celebrates 100 years of the Marathon brand.</p>	<p><b>2019</b> Build a state of the art Manufacturing plant on Monterrey, Mexico. 250,000 Sq.Ft.</p>	<p><b>2020</b> Medium Voltage and ANEMA Endurance Series® Motors.</p>	<p><b>2024</b> Marathon Electric Is acquired by WEG Group</p>		



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# GENERAL INFORMATION

## MARATHON® MOTORS

Since 1913, the Marathon name has been recognized for engineering excellence, custom-designed products and an extensive product line of industrial quality motors. Available in all popular enclosures from 1/3 HP through 3500 HP and in a variety of mounting configurations. The unique design of Marathon motors provides more options to add accessories such as; blowers, brakes and encoders, to our motors. Our state-of-the-art lab facilities are equipped and staffed with the finest resources available to ensure successful utilization of our products. "Performance matched solutions™" to all leading brands of PWM drives, we have what it takes to be a leader in understanding the interaction of drives that are applied with AC induction motors.

## WEBSITE AND E-COMMERCE

Information can be accessed instantly, any time of the day on our website. Marathon motor customers can also contact their sales representative for information.

## THE FOLLOWING INFORMATION CAN BE FOUND ON OUR WEBSITE

- Stock Availability
- Order Status
- Shipping Information
- Invoice information
- Product features and performance data
- Contact information

## HOW TO READ THE NAMEPLATE

The nameplate is the key to selecting the proper replacement motor.

Motor Specifications (Example)

Agency symbols

**1. DATE CODE** - The month and year manufactured

**2. MODEL** - The ID number

**3. SER.** - Serial number

**4. PART NO.** - Customer part number

**5. FRAME** - The size & mounting

**6. ENCL** - Enclosure (e.g. TEFC)

**7. PH** - Electrical phase usually 1 or 3

**8. IP** - International Protection rating of the enclosure to solids and liquids as defined by IEC 60034-5 and NEMA MG1

**9. IC** - Inherit Cooling

**10. MTG.** - Mounting

**11. DES.** - Code by NEMA®\* or IEC®\*

**12. CODE** - NEMA locked-rotor KVA

**13. INS CL** - Insulation class

**14. RISE** - The temperature rise over ambient expressed in °C when the motor operates at nameplated HP or KW

**15. S.F.** - Percentage of the rated horsepower the motor can safely operate at Example: 1.15 SF (115% of rated HP)

**16. MAX AMB** - The allowable surrounding air temperature

**17. ALTITUDE** - The allowable altitude

**18. VOLTS** - Voltage rating of the motor at the operating frequency

**19. HZ** - Input frequency of the power supply, usually 50 or 60 HZ

**20. HP** - Rated horsepower the motor will produce

**21. KW** - Rated output in watts

**22. PF / COS** - Power Factor / Cosine is the ratio of actual power to the apparent power

**23. RPM** - Full load speed at rated frequency

**24. NOM EFF** - Average efficiency

**25. F.L. AMPS** - The rated load current expressed in amps at nameplated horsepower with nameplate voltage and frequency

**26. DUTY** - Time rating under load

**27. TYPE** - Electrical type

**28. SHAFT END BEARING** - Manufacturer drive end bearing number

**29. OPP. END BEARING** - Manufacturer opposite drive end bearing number

**30. MTH/YR MFG.** - Month and year motor was manufactured

**31. WT/LBS** - Motor weight in pounds

**32. WT/KG** - Motor weight in kilograms

# GENERAL INFORMATION

## HOW TO READ THE MODEL NUMBER

Each Marathon® motor carries a model number that can be used to define some of the motor's physical and electrical characteristics.

Example (For Integral): 2QA215TBDR A7076ALL

This is a breakdown of the model on the nameplate:

<b>2</b>	<b>Q</b>	<b>A</b>	<b>215T</b>	<b>B</b>	<b>D</b>	<b>R</b>	<b>A</b>	<b>7076</b>	<b>AL</b>	<b>L</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>

1. DATE CODE	
Year of Manufacture (Not shown in catalog listings)	

2. THERMAL PROTECTION		
(Not shown in catalog listings)		
	UL®* Recognized Motor Protector Combination	UL Recognized Motor Construction
Automatic Reset	Automatic Reset	Automatic Reset
Q	Yes	Yes
S	No	No
U	No	Yes
W	#	Yes
Manual Reset	Manual Reset	Manual Reset
P	Yes	Yes
Z	No	Yes
X	No	No
None	None	None
V	No	Yes
# Motor protector combination is U.L. Recognized only if motor is used in direct drive fan duty application and is under locked rotor condition, or is running under no-load condition.		

3. DATE CODE	
Manufacturer (Not shown in catalog listings.)	

4. NEMA® FRAME SIZE	
(Integral motors - T and U designate standard shaft, TS and US designate short shaft)	

5. ELECTRICAL TYPE	
(Not shown in catalog listings)	
Single Phase	
A	Permanent split capacitor
B	Capacitor start, capacitor run
C	Capacitor start, induction run
N	Split phase start, capacitor run
S	Split phase
Three Phase	
T	Three phase
H	Inverter Duty/IEEE841 Inverter Duty

\*See back cover page for attribution.

This is a breakdown of the model in the catalog:

<b>215T</b>	<b>B</b>	<b>D</b>	<b>R</b>	<b>A</b>	<b>7076</b>
<b>4</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>

V	Medium Voltage
DC Power	
E	Permanent Magnet DC
6. ENCLOSURE	
D	Dripproof
E	Explosion proof, non-ventilated
F	Totally enclosed, fan cooled
G	Explosion proof, fan cooled
O	Open
P	Partial
S	Semi-enclosed
T	Totally enclosed, non-ventilated
V	Wash Down, non-ventilated
W	Wash Down, fan cooled

7. FRAME CONSTRUCTION	
Integral	
L	Aluminum (Full Frame)
Y	Aluminum (Full Frame)
Z	Aluminum (High Mount Down Frame)
H	Aluminum - Sourced
R	Rolled Steel (Full Frame)
W	Rolled Steel (Full Frame)
X	Rolled Steel (High Mount Down Frame)
B	Rolled Steel - Sourced
S	Cast Iron (Full Frame)
N	Cast Iron (Full Frame)
P	Cast Iron (High Mount Down Frame)
C	Cast Iron - Sourced
D	Stainless Steel

8. STYLE LETTER	
(A, B, C, etc . indicate redesign)	

9. SEQUENCE NUMBER	
--------------------	--

10. MINOR MODIFICATION LETTER(S)	
Fractional - 1 letter; Integral - 2 letters	

11. MANUFACTURING CODE	
A code for the factory where the motor was manufactured.	

# GENERAL INFORMATION

## ORDERING INFORMATION

When ordering, please include the model number, catalog number, description of the motor, quantity, shipping and billing instructions. For pricing of non-stock motors, or if you need assistance in selecting the proper motor, please contact your nearest Marathon sales representative or local Marathon Motor distributor. **All prices and data are subject to change without notice.**

## CANCELLATIONS AND RETURNS

Stock product can be returned for credit as defined herein. Equipment must be in original packaging, unused in "as shipped" condition and is **limited to products currently maintained in stock inventory**. The quantity returned can't exceed normal stock quantity level. All motors returned must have date codes no older than 8 months from date of manufacture. The minimum restocking charge is 15% of the original net purchase price. Modified and build to order motors cannot be returned for credit. Return freight charges are the responsibility of the customer returning the motor for credit. **No returns will be accepted without prior authorization.**

## NON-STOCK PRODUCT CANCELLATION POLICY

Cancellation charges for non-stock orders received and entered will be determined based on the percentage of completion in the engineering and manufacturing process, accounting for all costs plus a reasonable profit. Marathon's determination of the cancellation charges shall be conclusive.

## DISCOUNTS AND MULTIPLIERS

Except as noted, all prices in this catalog are list prices. 200 and 575 volt 3 phase ratings utilize the same list price as 230/460 volt. NEMA®\* short shaft (TS) utilize the same list price as standard shaft (T). Contact Marathon Motors for special bearing systems, including all requirements for sleeve or roller bearing. For your discount and multiplier, contact your local sales representative or local Marathon motor distributor.

## MODIFICATION/ ACCESSORIES

See the Modification/ Accessories sections for more information on modifications to create special motor variations.

## SERVICE

For service on any Marathon motor, contact your nearest Marathon authorized service station. For a complete listing of all domestic and foreign service stations, refer to our website.

## STOCK, NON-STOCK AND BUILD UP MODELS

Standard motors listed in this catalog, as indicated with a check mark (✓) next to the catalog number, are normally in stock. There is no minimum order quantity or minimum billing charge associated with stock motors, unless stated otherwise in your quotation or agreement with Marathon Motors.

Production of non-stock catalog models and all build-up model is subject to minimum order quantities or setup charges listed below.

180-210 Frames = 5 piece minimum or \$500 set up/model

Build-up motors must be thoroughly described and with all application details at time of order, and/or associated with a formal quotation issued by Marathon. Inclusion of product features for similar motors documented in this catalog should not be assumed

## OPERATION AND MAINTENANCE

For information on operation and maintenance, please consult the manual or card shipped with your new motor. Additional copies of "Installation, Operation & Maintenance Instructions" (brochure SB181) are available upon request or through our website.

## STORAGE PROCEDURES

In the event that long-term storage of motors is required, Marathon recommends the following precautions and procedures. This information is also contained in "Installation, Operation and Maintenance Instructions" (SB181).

### A. Keep motors clean

1. Store indoors
2. Keep covered to eliminate airborne dust and dirt.
3. Cover openings for ventilation, conduit connections, etc. to prevent entry of rodents, snakes, birds and insects.

### B. Keep motors dry

1. Store in a dry area indoors
2. Temperature swings should be minimal to prevent condensation.
3. Space heaters are recommended to prevent condensation.
4. Treat unpainted flanges, shafts and fittings with a rust inhibitor.
5. Check insulation resistance before putting motor into service .

### C. Keep bearings lubricated

1. Once per month, rotate shaft several turns to distribute grease in bearings.
2. If unit has been stored more than one year, add grease before start-up (refer to lubrication procedure).

## DIMENSION DRAWINGS

See our website or request certified drawings through your Marathon sales engineer, representative or local Marathon motor distributor.

Our complete terms and condition of sale are available on our website. See back cover for the website link.

\*See back cover page for attribution.

# GENERAL INFORMATION

## WARRANTY

Marathon® Motors warrants Fractional and Integral motors to be free from defects in materials and workmanship and to conform to Marathon's written specifications. For a copy of our Standard Terms and Conditions of Sale, please visit our website.

Motor Type	Warranty Period from date of Installation**	Warranty Period from date of Manufacture**
Standard warranty for any product not shown below	12	18
Medium voltage	12	18
EPAct compliant (aluminum, steel & cast iron frame)	24	30
Blue Max® motor, Black Max® motor, and MICROMAX™ motor inverter duty	36	42
All NEMA Premium®* incl . ODP, Blue Chip Series motor, Severe duty, Explosion proof, etc.	36	42
Blue Chip Series® motor IEEE-841 Extreme Duck™ Motors	60	66

\*\*Warranty period shown is in months, and is valid for whichever period expires first.

Note: Brake discs are considered a normal maintenance item and are not covered under warranty.

For more information on our warranty policy, refer to the "Terms and Condition of Sale" posted on our website. See back cover for website link.

\*See back cover page for attribution.

## SUBMITTAL DATA

Mechanical and electrical submittal data is available on many stock catalog motors through our website by following the three steps listed on the next page. All other submittal data is available upon request when accompanied by a purchase order for the specified motor, subject to the following additional charges.

## SUBMITTAL CHARGE SCHEDULE

Type	Elements	Net/ea
BASIC (.PDF Format)	Nameplate data	No Charge
	Motor characteristics	
	Performance data	
	Outline drawing	
	External connection diagram	
	Add for .dxf or .dwg format	\$50
BASIC-PLUS (.PDF format)	All "BASIC" elements, tailored to specific order	\$150
	"Cut sheets" of installed accessories	
	Add for .dxf or .dwg format	\$20
ADDITIONAL ITEMS (.pdf formats)	Speed/Torque curve	\$100
	Torque capability curve	\$100
	Certificate of conformance	\$200
	Thermal damage curve (48-326T frame)	\$1000 + cost of additional motor
	Thermal damage curve (364T-6805 frame)	\$3000 + cost of additional motor

\*\*\*Does not imply re-testing

# APPLICATION INFORMATION

## AGENCY LISTINGS UL®\* AND CSA®\*

Marathon® Fire Pump motors, Hazardous locations motors (Division 1 “Explosionproof”, some Division 2 motors), and some Nonhazardous (i.e. Ordinary) locations motors are UL Listed. Other motor types are UL Recognized, including models with inherent overheating protection as noted (i.e. thermally protected models). Marathon motors are also CSA®\* certified for Hazardous Locations (Division 1 “Explosionproof”, some Division 2 motors), as well as for non-hazardous (Ordinary) locations.

## AC MOTORS

Non-Explosion Proof	Note 1	Note 2
NEMA®* 143-449 FRAME	E49747 (Recognized motors, Listed motors)	LR2025
NEMA 500 and 5000 Frame	—	LR2025
IEC®* 80-315 Frame	E49747 (Recognized motors, Listed motors)	LR2025*
Thermally Protected motors	E6312	LR2025
Insulation Systems	E37900	LR2025
N. America Division 1/ Zone 1	Note 1	Note 2
NEMA 48 Frame	E12044	LR21839
NEMA 56-326 Frame	E12044	LR47504
NEMA 364-449	E12044	LR21839
Fire Pump Motors	Note 1	Note 2
NEMA 143-510 Frame ODP	EX5190	LR2025
NEMA 182-5011 Frame TEFC	EX5190	LR2025
IEC 80-355 Frame TEFC	EX5190	LR2025
N. America Division 2/ Zone 2	Note 1	Note 2
NEMA 48-449, 5000 Frame, totally enclosed, 3 Phase AC Induction	—	LR21839
NEMA 182-286 Frame, IEC 112-180 Frame, PMAC	—	LR21839
NEMA 213-449 Frame, TEFC, Sourced	E12044	—
European ATEX Zone 2/ Zone 22	Certificate No.	
NEMA 143-449 Frame, IEC 112-280 Frame Totally Enclosed, 3 Phase AC Induction	ITS 06 ATEX 45370	
Zone 2 / Zone 21/ Zone 22	Certificate No.	
IEC 80-355 Frame, TEFC, Sourced	DEMKO 17 ATEX 1836X	
Zone 2 / Zone 21/ Zone 22	Certificate No.	
IEC 80-355 Frame, TEFC, Sourced	IECEX UL 170014X (Zone 1, 2, 21, 22)	
PMDC Motors		
Non-Explosion Proof	UL File No. Note 1	CSA File No. Note 2
NEMA Subfractional to145 Frame	E49747	LR2025

Notes:

Note 1 - UL Certifications available online at [www.ul.com](http://www.ul.com), select "find a product certification" link and use "UL Product iQ" and search by UL file number."

Note 2 - CSA Certifications available online at [www.csagroup.org/services-industries/product-listing/](http://www.csagroup.org/services-industries/product-listing/), enter desired CSA File No. using six digit numerical format (e.g. 002025, 021839, etc.)

\* - Does not include coverage for use of VFD

## CONFORMITY EUROPEAN (CE)

CE®\* marking on the nameplates of Marathon motors is available upon request for most motors rated 600V or less. We do not apply the CE marking to explosion proof motors. The European “Low Voltage” Directive applies to electric motors. Contact a Marathon representative for details.

Non-explosion proof microMAX™, Black Max® and Blue Max® (TENV and TEFC) standard (catalog) models have the CE mark on the nameplate.

## ATMOSPHERES EXPLOSIBLES (ATEX DIRECTIVE)

Mandatory by law, the European Union (EU) Directive 2014/34/EU requires that electric motors for use in potentially explosive atmospheres carry the CE mark, notified body identifier, Ex symbol, equipment group and category, plus the date code. See “European Installations” for additional details, located on the next page.

## NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

Marathon motors are manufactured in accordance with all applicable areas of NEMA®\* standards in MG1-2021. When applied in accordance with the “Guidelines for the application of three phase motors on variable frequency drives”, **Marathon motors are in full compliance with NEMA MG1-2021, Part 31, Section 31.4.4.2**, as pertaining to voltage spikes. 460-volt motors must withstand voltage spikes of up to 1431 volts; 575-volt motors must withstand spikes of up to 1789 volts. See “Insulation Systems” for additional detail on this subject.

## COMMITMENT TO ROHS AND WEEE EUROPEAN DIRECTIVES

European Directive 2002/95/EC “Restriction of Use of Certain Hazardous Substances” (RoHS) and Directive 2002/96/EC “Directives on Waste Electrical and Electronic Equipment” (WEEE) were enacted to control the amount of certain hazardous substances contained in products shipped into the E.U. Restricted substances include lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated biphenyls and polybrominated diphenyl ethers.

The scope of products covered, affecting motors, are:

- Small and large household appliances
- IT and telecommunications equipment
- Consumer equipment
- And more

The Directives do not currently apply to medical devices, monitoring and control instruments, spare parts for the repair reuse of electrical and electronic equipment placed on the market before July 1, 2006 and most military and state security equipment.

Marathon Motors has worked closely with suppliers to assure that product falling within the scope of these Directives meets the specified levels of these substances. The Directives took effect July 1st, 2006; however, many products were converted in May and June.



\*See back cover page for attribution.

# APPLICATION INFORMATION

## BEARINGS

Frame size	Standard type shield ball	Comments
182 - 184T	Sealed Ball	
182 - 444T	Double Shield Ball	
284 - 449TS	Single Shield Ball	
445T - 6805	Double Shield Ball	Direct - coupled loads
445T - 6805	Roller (DE)/Ball	Belted loads

**Note: Belting data must be provided on all belted applications.**

Download the Form SB0395E Belting Data Form.

To Find more about guidelines for belted Applications consult the form SB528.

Standard horizontal motors can be mounted in a vertical shaft down orientation (except brakemotors). Contact a factory representative for shaft-up mounting arrangements, or submit a belt & chain submittal form to quote.

Motors for use in vertical shaft up or shaft down configurations must be reviewed by engineering before ordering.

Marathon® motors use Mobil POLYREX EM®\* grease, a specially formulated bearing grease designed for electric motors. POLYREX EM provides superior lubricity, durability and resists corrosion, rust and washout.

Maximum safe mechanical speed capability is a function of bearing size, type and grease selection, as well as rotor balance specifications. Consult the "Maximum Safe Mechanical Speed Limits" chart in the "Overspeed Capability" section. Note that these values do not imply maximum constant horsepower RPM.

## EFFICIENCY

The efficiency of a motor is the ratio of its useful power output to its total power input and is usually expressed in a percentage. Marathon motors are available with standard, high efficient EAct, and **NEMA Premium®\*** efficient ratings. Standard efficiency motors may only be used on applications that are exempt from legislated efficiencies. The high efficient motor line is in compliance with the Energy Policy Act of 1992 (EAct) and/or Canadian efficiencies as set by Natural Resources Canada (NRCan). The Energy Independence and Security Act of 2007 (**EISA07**) law on December 19, 2010, requiring current EAct-compliant motors to meet NEMA Premium efficiencies, and most EAct-exempt motors to meet EAct levels. XRI® Premium efficient motors in this catalog meet NEMA Premium unless otherwise noted.

The XRI® motor line is a premium efficiency line, which exceeds mandated efficiencies of EAct and /or NRCan. Unless otherwise noted, XRI premium efficient motors in this catalog meet NEMA Premium the newly promoted efficiency levels by NEMA and the Consortium for Energy Efficiency (CEE).

## ELECTRICAL TYPE/STARTING METHOD

Motors in this catalog are capacitor start, split phase, permanent split capacitor, three phase, PMAC Capacitor start motors have high starting torque, high breakdown torque, and relatively low starting current. Split phase motors have medium starting torque and medium starting current. Permanent split capacitor motors have low starting torque and low starting current. Three phase motors have high starting, extra breakdown torque, and typically very low starting current. Single phase motors cannot be applied on variable frequency drives with three phase output. PMAC which must incorporate a PM-Drive like the Platinum e Plus.

## ENCLOSURE AND METHOD OF COOLING

Marathon motors are available in various enclosures; Dripproof (DP), Dripproof Force Ventilated (DPFV), Totally Enclosed Fan Cooled (TEFC), Totally Enclosed Non-Ventilated (TENV), Totally Enclosed (TEAO) and Totally Enclosed Blower Cooled (TEBC). Application conditions will determine the type of motor enclosure required.

Dripproof motors have open enclosures and are suitable for indoor use and in relatively clean atmospheres. Dripproof motors have ventilating openings constructed so that drops of liquid or solid particles falling on the machine at an angle of not greater than 15 degrees from the vertical cannot enter the machine.

Totally enclosed motors are suitable for use in humid environments or dusty, contaminated atmospheres. Totally enclosed non-ventilated motors are NOT cooled by external means. Totally enclosed fan cooled motors are cooled by external means that are part of the motor but not in the internal workings of the motor. Totally enclosed air over motors are sufficiently cooled by external means, provided by the customer.

## NEMA® FRAME DESIGNATION

Motor dimensions and frame assignment numbers are interrelated by NEMA standards.

## SMALL MOTORS

Frame sizes for small motors have a two digit frame number followed by various letters - for example 56C. The frame number is 16 times the D dimension. To illustrate, a 56 frame has a D dimension equal to 3.50 inches;  $16 \times 3.50 = 56$

The letters B, C, G, H, J, M, N and Z may follow the two digits in the frame size.

B - Carbonator pump motor

C - C-Face bracket

G - Gasoline pump motor

H - Frame has an F dimension larger than that of the same frame without the suffix letter. For consistency, Marathon carried through the H in the frame size on footless motors even though the F dimension on motors without feet is irrelevant.

J - Jet pump motor. A jet pump motor is an open dripproof-type (ODP) motor built for horizontal or vertical operation for direct driven centrifugal ejector pumps. The motor may have a threaded shaft, possibly made from stainless steel.

M & N - Oil burner pump motor.

Z - All mounting dimensions are standard except the useable length of the shaft

## MEDIUM MOTORS

Frame sizes for medium motors are three or four digits, followed by various letters - for example, 213TC.

The first two digits of the frame number equal four times the D dimension in inches (the distance between the centerline of the shaft and bottom of motor's feet). When that product is not a whole number, the next higher whole number is used.

For example, a 213T series frame has a D dimension equal to 5.25 inches  $4 \times 5.25 = 21$ . The third (and fourth when applicable) digit is obtained from the value of 2F in inches by referring to the columns headed 0 to 15 in NEMA MG 1-1 993, Table 11 -1 .

For example, a 213T frame has a 2F dimension equal to 5.50 inches. Going to Table 11 -1 , the third digit is 3.

The letters T, U, HP, HPH, JM, JP, LP, LPH and VP and VPH fill the position immediately following the three or four digits in the frame size.

T - Currently used as part of the frame designation for which standard dimensions have been established. 213T.

U - Previously used as part of the frame designation for which standard dimensions have been established. U frame motors are no longer included in the NEMA MG 1 Standard. 284U.

JM and JP - close-coupled pump (CCP) motor having antifriction bearings and special NEMA defined dimensions.

Unique features include a C-Face style mounting bracket, special stepped shaft with a drilled & tapped hole, and a locked drive-end bearing 213JM.

HP. HPH. LP. LPH and VP - vertical solid-shaft motors with special NEMA defined dimensions. 445HP.

The following letters may appear next in the frame size.

S or R - S defines a standard short shaft and appears only with 284T (324U) and larger frame assignments. 286TS. R defines a motor with its drive end shaft tapered and extended per NEMA dimensions 213TR.

C. D. P or PH - the letters C and D define a C-Face bracket and a D-Flange respectively. P and H define vertical hollow-shaft motors having specific NEMA defined dimensions. 213TC.

FC or FD - these letters define a C-Face bracket or a D-Flange on the end opposite the normal drive shaft (F for fan end for example). (405TSCFC), Y or Z - the letter Y represents special mounting dimensions (either bracket face or foot pattern) and Z represents special shaft dimensions and can denote a standard or special double shaft extension. 326TZ.

For clarity for double shafts see the following dimensions:

## PREFIX LETTERS

Motor manufacturers may use any letter as a prefix to the frame number, but such a letter will have no reference to standard mounting dimensions. Marathon typically uses the letters G, K and L to differentiate frames with the same frame number but different overall lengths ("C" dimension).

## HAZARDOUS DUTY® MOTORS

Hazardous Duty motors are totally enclosed (fan-cooled, non-ventilated, or explosion proof) motors designed for applications in hazardous atmospheres containing flammable gases, flammable liquid-produced vapors (Class I), or combustible dust (Class II).

## NORTH AMERICAN INSTALLATIONS

North American standards for electric motors generally fall into one of two divisions. Division 1 Explosion Proof motors are UL®\* Listed in accordance with NFPA Class I (Flammable gases, vapors, liquids) or Class II (Combustible Dusts) and Groups (gases, vapors, liquids, or dusts), depending upon the atmosphere. Division 2 motors are either CSA®\* Certified or UL Listed and are marked similar to Division 1 equipment. Marathon's Division 1 motors, as well as Division 2 motors, are certified for both sine-wave and Inverter duty applications.

## EUROPEAN INSTALLATIONS

Motors for hazardous locations in Europe must meet a different set of standards and require different markings than those of North America. CENELEC sets the standards for equipment in hazardous locations for Europe. Motors for use in explosive atmospheres in Europe are often referred to as flameproof (Zone 1) or non-sparking or increased safety (Zone 2) motors. These motors must comply with the ATEX Directive. The ATEX Directive covers all electrical equipment used in explosive atmospheres. To ensure compliance with the Directive, equipment must meet the essential ATEX requirements and carry the CE®\* mark on the nameplate. Other information required on the nameplate includes the Ex symbol, group & category, Ex protection method, gas group, and temperature code, example ( II 3 G Ex nA IIC T3).

Additional details located on next page. See Tables.

## NEMA Double End Extensions - Dimensions (all values in inches)

Frame	T		TM		TS		U		UM		US	
	Diameter	Length	Diameter	Length	Diameter	Length	Diameter	Length	Diameter	Length	Diameter	Length
Size	(U or FU)	(N-W) or (FU-FW)	(U or FU)	(N-W) or (FU-FW)	(U or FU)	(N-W) or (FU-FW)	(U or FU)	(N-W) or (FU-FW)	(U or FU)	(N-W) or (FU-FW)	(U or FU)	(N-W) or (FU-FW)
-56	5/8	1 7/8	5/8	1 5/8	-	-	-	-	-	-	-	-
56Z	7/8	2 1/4	-	-	-	-	-	-	-	-	-	-
143-145	7/8	2 1/4	5/8	1 5/8	-	-	-	-	-	-	-	-
182-184	1 1/8	2 3/4	7/8	2 1/4	-	-	7/8	2 1/4	-	-	-	-
213-215	1 3/8	2 3/8	1 1/8	2 3/4	-	-	1 1/8	3	7/8	2 1/4	-	-
254-256	1 5/8	4	1 3/8	3 3/8	-	-	1 3/8	3 3/4	1 1/8	3	-	-
284-286	1 7/8	4 5/8	1 5/8	4	1 5/8	3 1/4	1 5/8	4 7/8	1 3/8	3 3/4	-	-
324-326	2 1/8	5 1/4	1 7/8	4 5/8	1 7/8	3 1/4	1 7/8	5 5/8	1 5/8	4 7/8	1 5/8	3 1/4
364-365	2 3/8	5 7/8	1 7/8	4 5/8	1 7/8	3 1/4	2 1/8	6 3/8	1 7/8	5 5/8	1 7/8	3 3/4
404-405	2 7/8	7 1/4	2 1/8	5 1/4	2 1/8	4 1/4	2 3/4	7 1/8	1 7/8	6 3/8	2 1/8	4 1/4
444-449	3 3/8	8 1/2	2 3/8	5 7/8	2 3/8	4 3/4	2 7/8	8 5/8	2 1/8	7 1/8	2 1/8	4 1/4

# APPLICATION INFORMATION

## DEGREES OF PROTECTION THE FIRST & SECOND NUMBERS

Indices of protection of electrical equipment enclosures in accordance with NEMA MG-1 & IEC 60034-5.

IEC	NEMA	First #	Basic Description/ Definition Solids & Dusts	Second #	Basic Description Definition (Note 1) Water
IP00	Open	0	Non-Protected Machine	0	Non-Protected Machine
IP12	Drip-proof	1 (Note 2)	Machine protected against solid objects greater than 1.968 in. (50 mm)	1	Machine protected against dripping water; Dripping water (vertically falling drops) shall have no harmful effect.
IP22	Drip-proof Guarded	2 (Note 2)	Machine protected against solid objects greater than 0.4724 in. (12 mm)	2	Machine protected against dripping water when tilted up to 15°; Vertically dripping water shall have no harmful effect when the machine is tilted at any angle up to 15° from its normal position.
IP23	Weather Protected 1	2 (Note 2)	Machine protected against solid objects greater than 0.4724 in. (12 mm)	3	Machine protected against spraying water; Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect.
IP24	Weather Protected 2	2 (Note 2)	Machine protected against solid objects greater than 0.4724 in. (12 mm)	4	Machine protected against splashing water; Water splashing against the machine from any direction shall have no harmful effect.
IP44	Totally Enclosed Guarded (Typically TEFC)	4 (Note 2)	Machine protected against solid objects greater than 0.0394 in. (1 mm)	4	Machine protected against splashing water; Water splashing against the machine from any direction shall have no harmful effect.
IP54	Totally Enclosed Severe Duty	5 (Note 3)	Dust-protected machine; Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the machine.	4	Machine protected against splashing water; Water splashing against the machine from any direction shall have no harmful effect.
IP55	Waterproof (TE severe duty w/ Forsheda® seals)	5 (Note 3)	Dust-protected machine; Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the machine.	5	Machine protected against water jets; Water projected by a nozzle against the machine from any direction shall have no harmful effect.
IP56	Waterproof (TE severe duty, Inpro® Seals both ends, waterproof conduit box)	5 (Note 3)	Dust-protected machine; Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the machine.	6	Machine protected against heavy seas; Water from heavy seas or water projected in powerful jets shall not enter the machine in harmful quantities.
IP66	Protected from total dust ingress	6 (Note 3)	Dust-tight machine; No ingress of dust	6	Machine protected against heavy seas; Water from heavy seas or water projected in powerful jets shall not enter the machine in harmful quantities.
IP67	Protected from total dust ingress	6 (Note 3)	Dust-tight machine; No ingress of dust	7	Machine protected against the effects of Immersion for 30-Min duration Ingress of water in the machine in a harmful quantity shall not be possible when the machine is immersed in water under stated conditions of pressure and time. (Example Machine in a 30 ft Column of Water)
IP68	Protected from total dust ingress	6 (Note 3)	Dust-tight machine; No ingress of dust	8	Machine protected against continuous submersion (Note 2); The machine is suitable for continuous submersion in water under conditions which shall be specified by the manufacturer.
IP69K	Protected from total dust ingress	6 (Note 3)	Dust-tight machine; No ingress of dust	9K	High Pressure and High Temperature water jet; The IP69K rating means a piece of equipment can withstand intensive cleaning with high-pressure, high-temperature jets

Blue Shade is for "Most Commonly Used"

### NOTES FOR FIRST #

- The brief description given in column 2 in this table should not be used to specify the type of protection.
- Machines assigned a first characteristic numeral 1, 2, 3, or 4 will exclude both regularly or irregularly shaped solid objects provided that three normally perpendicular dimensions of the object exceed the appropriate figure in column "Definition."
- The degree of protection against dust defined by this standard is a general one. When the nature of the dust (dimensions of particles, their nature, for instance fibrous particles) is specified, test conditions should be determined by agreement between manufacturer and user.

### NOTES FOR SECOND# —

- The brief description given in column 2 in this table should not be used to specify the type of protection.
- Normally, this means that the machine is hermetically sealed. However, with certain types of machines it can mean that water can enter but only in such a manner that it produces no harmful effect.

### Example of an IP55 machine

IP : Degree of protection

5 : Machine protected against dust and accidental contact.

Test result: no dust enters in harmful quantities, no risk of direct contact with rotating parts. The test will last for 2 hours.

5 : Machine protected against jets of water from all directions from hoses at 3 m distance with a flow rate of 12.5 l/min at 0.3 bar.

The test will last for 3 minutes. Test result: no damage from water projected onto the machine

# APPLICATION INFORMATION

## MARATHON® HAZARDOUS DUTY MOTOR AREA CLASSIFICATION CHART

NORTH AMERICAN CLASS I HAZARDOUS LOCATIONS (Flammable Gases, Vapors or Mists)		CLASS II AREA CLASSIFICATION (Combustible Dusts)	
Division 1 Explosion Proof	Division 2 TEFC & TENV	Division 1 Explosion Proof	Division 2 TEFC & TENV
Group A ①	Group A		
Group B ①	Group B		
Group C	Group C		
Group D	Group D		
-	-	Group E ①	
-	-	Group F	Group F (#)
-	-	Group G	Group G (#)

① Group is not available as a Marathon motor.

(#) Contact factory representative for availability.

Note: Catalog Division 1 motors are nameplated Class I, Group C, D, Class II Group F, G, with T3C Temperature Code. These motors can be additionally nameplated as "Zone 1 Group IIB" for applications in North America using the Zone marking scheme.

Note: Catalog Division 2 motors are nameplated Class I, Group A, B, C, D, Div 2/Zone 2 Group IIA, IIB, IIC, T3 @ 1.0SF and T2B @ 1.15SF on sine-waver power, T2D @ 1.0SF on PWM Type VFD. Contact factory representative for availability of other Temperature Codes

Note: Contact factory representative for motors for use in potentially explosive atmospheres in Europe (ATEX Certification) or Global (IECEX Certification)

## INSULATION SYSTEMS

### Class B

General Purpose motors that employ Class B insulation systems have a total temperature rating of 130°C and maximum allowable temperature rise of 80°C at 1.0 S.F.

### Class F

Motors with a Class F system have a total temperature rating of 155°C, with a maximum temperature rise of 105°C at 1.0 S.F. Many Marathon® motor designs utilize a Class F system but limit temperature rise to no higher than "B" rise, providing thermal "headroom" for longer insulation life.

### Class H

Class H insulated motors have a total temperature rating of 180°C and maximum allowable temperature rise of 125°C. All Marathon motors that employ a Class H system are designed to operate between "B" and "F" rise, giving the user a generous thermal cushion.

### CR<sup>200</sup>

Corona Resistant, 200° rated magnet wire is utilized in numerous general purpose and inverter duty motor designs to extend insulation life under the rigors of steep fronted voltage spikes, common with today's IGBT inverters. Refer to page 17 for product lines that employ the use of CR200 magnet wire.

Motors with the CR<sup>200</sup> insulation system can be operated at up to 475 feet from the drive on 460 volt systems, at 3 KHz carrier frequency. For other voltages and/or carrier frequency combinations, contact a factory representative.



## MAX GUARD® INSULATION

All PMAC- SyMAX® Black Max®, Blue Max®, Blue Chip Series®, XRI® Severe Duty and XRI-841 (IEEE841) motors feature the MAX GUARD® insulation system, either in conjunction with Class F or Class H materials. Combining corona-resistant magnet wire (CR<sup>200</sup>) with our patented "low stress" winding configuration and uncompromising quality standards.

MAX GUARD motors deliver long, dependable motor life under the adverse thermal and dielectric stresses imposed by IGBT-based variable frequency drives.

**MAX GUARD motors surpass the requirements of NEMA® MG1-2021, Part 31, Section 4.4.2. 460 Volt (or lower) motors equipped with MAX GUARD insulation can be operated at any distance from the drive and at any carrier frequency. 575 Volt motors can be operated at up to 650 feet cable length at 3 KHz.**



\*See back cover page for attribution.

# APPLICATION INFORMATION

## MOUNTING

Most Marathon motors are designed for horizontal mounting (shaft parallel with ground), unless designed otherwise, such as Vertical P base motors. As a general rule, a horizontal motor can also be mounted in a vertical shaft down orientation. Horizontal motors should never be mounted in a vertical shaft up orientation without consulting your application engineer, as this practice can cause damage to the motor, which is not covered under warranty. Brakemotors should not be mounted vertically (up or down), unless the brake has been specifically designed for such.

## NEMA SERVICE FACTOR RATINGS

Service factor is defined as the permissible amount of overload a motor will handle within its insulation class without overheating. When voltage and frequency are maintained at nameplate rated values, the motor may be overloaded up to the horsepower obtained by multiplying the rated horsepower by the service factor shown on the nameplate. As a note, locked rotor torque, locked rotor current and the breakdown torque are unchanged.

Service factor is used in order to accommodate inaccuracy predicting system horsepower needs, to lengthen insulation life by lowering winding temperature at rated load, to handle intermittent or occasional overloads, to compensate for low or unbalanced supply voltages, and to allow use of non-sinusoidal power supply at rated load.

Several cautions must be observed when using a service factor. Operation at service factor load will usually reduce the speed, life, and efficiency. The service factor is established for operation at rated voltage, frequency, ambient, and sea level. Any changes to one or more of these may cause problems with the motor overheating.

The table below lists the NEMA service factors for single phase, phase, dripproof motors. Totally enclosed and explosion proof motors 1.0 service factor except where noted.

HP	3600	1800	1200	900
1/12	1.4	1.4	1.4	1.4
1/8	1.4	1.4	1.4	1.4
1/6	1.35	1.35	1.35	1.35
1/4	1.35	1.35	1.35	1.35
1/3	1.35	1.35	1.35	1.35
1/2	1.25	1.25	1.25	1.15
3/4	1.25	1.25	1.15	1.15
1	1.25	1.15	1.15	1.15
1.5 & up	1.15	1.15	1.15	1.15

## OVERLOAD PROTECTION

There are many choices for motor overload protection and it will depend on end-user's application and expectations and costs: thermocouples, thermistors, winding and bearing detectors, and more. A manual overload must be physically reset to restart the motor. An automatic thermal overload will stop the motor when it is overloaded or overheated and restart it after the motor has cooled down. None means the motor has no protection. Thermostats are embedded in the winding and connected to the motor starter control circuit. Marathon motors are normally provided with one closed thermostat per phase.

**CAUTION!** A motor with an automatic reset protector must not be used where automatic restarting (after motor cool-down) would endanger personnel or equipment. Such application should use a

manual reset protector.

## PAYBACK ANALYSIS

How To Calculate Savings Saving electrical energy reduces the power bill. However, a sensible energy cost savings evaluation must equate the energy savings with the extra cost usually associated with a premium efficient motor.

Where:

HP = load on the motor

EffA = efficiency of motor A at HP

EffB = efficiency of motor B at HP

EffA < EffB

Hours = hours of operation under load

\$/KWh = average cost of electricity per kilowatt hr.

Operating load and time substantially affect savings. A motor loaded to half its rated load uses only half the full load input power and the savings can be only half as great. A motor operated on a two shift, five-day schedule uses twice as much power as the same motor operating on one shift. Meaningful calculations must reflect an effort to incorporate typical average values for these variables.

## HOW TO CALCULATE PAYBACK

Once the annual savings are known, the time needed for the savings to cover the motor price premium can be calculated as follows:

$$\text{Payback Period (years)} = \frac{\text{Price B} - \text{Price A}}{\text{Yearly Savings}}$$

A more complex analysis may take into account life cycle costs and return on investment. Your local electric utility may have a demand side energy management (DSM) program which pays cash incentives or rebates for the purchase of motors whose nominal efficiency meets or exceeds a level specified by the utility. The Payback Period equation must be modified to take into account rebates.

$$\text{Payback Period (years)} = \frac{\text{Price B} - \text{Price A} - \text{Rebate}}{\text{Yearly Savings}}$$

Most Marathon motors have efficiency ratings which should qualify for a rebate from participating utilities. Check with your local utility for details on their specific program.

## PHASE/POWER SUPPLY

Is the power supply three phase or single phase? Most home farm applications require single phase motors, while most factories, large commercial and industrial users require three phase motors. Single phase motors can be used on three phase systems. Three phase motors, however, cannot be operated from phase systems. Motor damage will result.

## ROTATION

Most motors in this catalog are reversible by electrical reconnection or by physical orientation. The standard rotation from the factory for a single phase Marathon motor is counterclockwise, when viewing the opposite shaft end of the motor.

## SPEED/RPM

3600, 1800, and 1200 are the most common 60HZ synchronous speeds with full load speed equivalents of 3450, 1725, and 1150.

# APPLICATION INFORMATION

## TERMINOLOGIES—

**Ambient Temperature** – Temperature of the medium, such as air, water or earth, into which the heat of the equipment is dissipated.

**Across The Line Start** – A method of motor starting that applies full line voltage to the motor. The motor is connected directly to the power source.

**Base Speed** – Nameplate rating where the motor will develop rated HP at rated load and voltage. With AC systems, it is commonly the point where 60 Hz is applied to the induction motor.

**Bearings** – Parts that assist objects rotation.

**Bearing Current Protection (BCP)** – usually consists of a Shaft Grounding Ring that gives electric current a low- resistance path between the shaft and frame. Rather than arcing through the bearings, currents flow harmlessly through the ring.

**Breakaway Torque** – The torque required to start a machine from standstill.

**Breakdown Torque (BDT)** – The maximum torque that an AC motor will develop with rated voltage applied at rated frequency while rotating.

**Cogging** – A condition in which a motor does not rotate smoothly but “steps” or “jerks” from one position to another during shaft revolution. Cogging is most pronounced at low motor speeds and can cause objectionable vibrations in the driven machine.

**Continuous Duty** – The continuous rating is the maximum constant load that can be carried continuously without exceeding established temperature rise limitations under prescribed conditions of load and within the limitations of established standards.

**Definite Purpose Motor** – Any motor design, listed and offered in standard ratings with standard operating characteristics and mechanical construction, for use under service conditions other than usual or for use on a particular type of application (NEMA®\*).

**Duty Cycle** – The relationship between the operating and resting times or repeatable operation at different loads and/or speeds.

**Efficiency** – Ratio of power output to power input indicated as a percentage. In motors, it is the effectiveness with which a motor converts electrical power into mechanical power.

**Frequency** – Number of cycles per second of alternating current 60HZ used primarily in North America, 50HZ normally used overseas.

**Full Load Torque (FLT)** – The torque necessary to produce rated horsepower at full load speed.

**General Purpose Motor** – This motor has a continuous duty rating and NEMA A or B design, listed and offered in standard ratings with standard operating characteristics and mechanical construction for use under usual service conditions without restriction to a particular application or type of application (NEMA).

**Hazardous duty** – A duty performed under circumstances in which an accident could result in serious injury or death.

**Inertia** – A measure of a body’s resistance to changes in velocity, whether the body is at rest or moving at a constant velocity. The velocity can be either linear or rotational. The moment of inertia ( $WK^2$ ) is the product of the weight ( $W$ ) of an object and the square of the radius of gyration ( $K^2$ ). The radius of gyration is a measure of

how the mass of the object is distributed about the axis of rotation.  $WK^2$  is usually expressed in units of lb-ft<sup>2</sup>.

**Inrush Current** – The initial surge of current into the windings. Inrush current can be up to ten times higher than the continuously needed current because there is low initial resistance.

**Intermittent Duty** – A motor that never reaches equilibrium temperature, but is permitted to cool down (to ambient temperature) between operations. For example, a crane, hoist or machine tool motor is often rated for 15, 30 or 60 minute duty.

**Inverter duty** – Refers to a motor whose speed is controlled by an inverter, or VFD (variable frequency drive). The difference between an inverter-duty motor and a standard motor is in the construction. These motors are specifically designed to operate at low speeds and not overheat.

**Load Sharing** – An application condition in which two or more similar-sized AC Induction motors are mechanically connected to each other and powered from the same inverter. Optimum load sharing is achieved with higher slip (NEMA Design B or C) motors.

**Locked Rotor Current (LRA)** – Steady state current taken from the line with the rotor at standstill, at rated voltage and frequency. This is the current when starting the motor and load across the line.

**Locked Rotor Torque (LRT)** – The minimum torque that a motor will develop at rest for all angular positions of the rotor, with rated voltage applied at rated frequency.

**Max Guard™** – Is an Insulation System to provide long, reliable service life under the stresses of today’s fast switching IGBT-based drives.

**No Load (Conditions)** – The state of a machine rotating at normal speed under rated conditions, but when no output is required from it.

**Overload protection** – Safety mechanisms that activate or “trip” motor operations in the event of a motor overheating/overloading. There are two types of protectors – automatic resets and manual resets depending on choice of the application engineer of the motor to ensure safety in an application.

**Part Winding Start (PWS)** – A method of reduced voltage starting that applies power to only one set of windings, then to the other set as the motor comes up to speed.

**Power Factor** – Power factor is the ratio of real power (kW) to total kVA, or the ratio of actual power (W) to apparent power (volt-amperes).

**Reactance** – The opposition to the flow of current made by an induction coil or a capacitor. Performance data expresses stator reactance as X1 and rotor reactance as X2.

**Resistance** – The opposition to voltage or current in an electrical circuit. Performance data expresses stator resistance as R1 and rotor resistance as R2.

**Rotor** – The rotating member of a machine with a shaft.

**Service Factor (SF)** – When used on a motor nameplate, a number which indicates how much above the nameplate rating a motor can be loaded intermittently without causing serious degradation (i.e. a motor with 1.15 SF can produce 15% greater torque than one with

\*See back cover page for attribution.

# APPLICATION INFORMATION

1.0 SF, within temperature constraints).

**Squirrel Cage Induction Motor** – When used on a motor nameplate, a number which indicates how much above the nameplate rating a motor can be loaded without causing serious degradation (i.e. a motor with 1.15 SF can produce 15% greater torque than one with 1.0 SF, within temperature constraints).

**Shock Load** – The load seen by a clutch, brake or motor in a system that transmits high peak loads. This type of load is present in crushers, separators, grinders, conveyors, winches and cranes.

**Slip** – The difference between the speed of the rotating magnetic field (synchronous speed) and mechanical rotational Speed (rotor speed) of AC induction motors. Usually expressed as a percentage of synchronous speed.

**Special Purpose Motor** – A motor with special operating characteristics, special mechanical construction, or both, designed for a particular application and not falling within the definition of a general purpose or definite purpose motor (NEMA®\*).

**Speed Range** – The minimum and maximum speeds at which a motor must operate under constant or variable torque load conditions. A 50:1 speed range for a motor with top speed of 1800 RPM means the motor must operate as low as 36 RPM and still operate within specifications.

**Starting Torque** – The torque exerted by the motor during the starting period.

**Stator** – The stationary portion of the magnetic circuit and the associated windings and leads of a rotating machine.

**Synchronous Speed** – The speed of an AC induction motor’s rotating magnetic field. It is determined by the frequency applied to the stator and the number of magnetic poles present in each phase of the stator windings. Mathematically, it is expressed as Sync Speed (RPM) = 120 x Applied Frequency (Hz)/Number of Poles per phase.

**Torque** – A turning force applied to a shaft, tending to cause rotation. Torque is normally measured in “pound-feet” and is equal to the force applied times the radius through which it acts.

**Torque-to-Inertia Ratio** – The rated motor torque divided by its rotor inertia. Helps determine a motor’s ability to accelerate loads and/or respond to commands from a drive to change speed or direction.

**Voltage Drop** – The reduction in voltage level from the source to the load caused by conductor resistance.

**Wye Start Delta Run (YD)** – A method of reduced voltage starting that first connects a motor in a wye to reduce voltage, then reconnects the motor in a delta to provide full line voltage.

## FORMULAS & CONVERSION FACTORS

<b>Horsepower (HP)</b>	= (Torque (lb-ft) x RPM) / 5252
<b>Horsepower (HP)</b>	= (Torque (lb-in) x RPM) / 63025
<b>Torque (lb-ft)</b>	= (HP x 5252) / RPM
<b>Torque (lb-in)</b>	= (HP x 63025) / RPM
<b>Efficiency</b>	= Power Out / Power In
<b>Synchronous RPM</b>	= 120 x Frequency / # Poles
<b>Ohms</b>	= Volts / Amperes (R = E/I)
<b>Amperes</b>	= Volts / Ohms (I = E/R)
<b>Volts</b>	= Amperes x Ohms (E = IR)
<b>Static Torque (T)</b>	= F x R (lb-ft) F = Force (lb) R = pulley or drum radius (ft)
<b>Pound-feet (torque)</b>	= .7376 x Newton-meters
<b>Newton-meters (torque)</b>	= 1.3558 x lb-ft
<b>Power (HP)</b>	= Torque (lb-ft) x 2π x RPM / 33000
<b>Temperature (Celsius)</b>	= 5/9 x (F° – 32)
<b>Temperature (Fahrenheit)</b>	= (9/5 x C°) + 32
<b>1 Kilowatt (KW)</b>	= 1.341 Horsepower
<b>1 Horsepower</b>	= 746 watts (.746 KW)
<b>Brake Torque</b>	= (5252 x P / N) x SF P = HP N = RPM SF = 1.4
<b>Use 2.0 to 2.5 SF for cranes and hoists (consult crane manufacturer or end-user).</b>	

\*See back cover page for attribution.

# VARIABLE SPEED OPERATION

Guidelines for application of general purpose, three phase, single speed motors on variable frequency drives meets NEMA®\* MG1-2006 part 30 and part 31 section 4.4.2.<sup>(3)</sup> Unless stated otherwise, motor nameplates do NOT include listed speed range.

Enclosure	Efficiency	Variable Torque	NEMA Motors							
			All Frames	143-215		254-286		324-365		404-449
		All Poles	2-Pole	4&6 Pole	2-Pole	4&6 Pole	2-Pole	4&6 Pole	2-Pole	4&6 Pole
ODP	Standard (EPAAct exempt)	10:1	2:1	2:1	Contact Engineering					
	EPAAct compliant	10:1	2:1	2:1	2:1	2:1	Contact Engineering			
	NEMA Premium®*	10:1	10:1	10:1	10:1	10:1	10:1	10:1	2:1	2:1
TEFC	Standard (EPAAct exempt)	10:1	2:1	2:1	Contact Engineering					
	EPAAct compliant	10:1	2:1	10:1	2:1	10:1	2:1	2:1	2:1	2:1
	NEMA Premium	10:1	2:1	20:1	2:1	20:1	2:1	20:1 (1)	2:1	20:1 (1)
TENV	EPAAct compliant	10:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1
	NEMA Premium	10:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1
Washdown TEFC	Standard (EPAAct exempt)	10:1	10:1 (2)	10:1 (2)	N/A	N/A	N/A	N/A	N/A	N/A
	EPAAct compliant	10:1	10:1 (2)	10:1 (2)	N/A	N/A	N/A	N/A	N/A	N/A
	NEMA Premium	10:1	10:1 (2)	10:1 (2)	N/A	N/A	N/A	N/A	N/A	N/A
Washdown TENV	Standard (EPAAct exempt)	10:1	1000:1	1000:1	N/A	N/A	N/A	N/A	N/A	N/A
	EPAAct compliant	10:1	1000:1	1000:1	N/A	N/A	N/A	N/A	N/A	N/A
	NEMA Premium	10:1	1000:1	1000:1	N/A	N/A	N/A	N/A	N/A	N/A
Explosion Proof	All efficiency levels	Explosion Proof motors must be properly nameplated with inverter duty information prior to use on VFD. See Marathon® motor catalog pages for specific rating capabilities. Motors with automatic overload protectors cannot be used on VFDs.								
IEC®* Motors		All Frames	80-90	100-225	250-315					
All enclosures	All efficiency levels	10:1	20:1	Up to 10:1	Up to 2:1					

Notes:  
 (1) 324-449T, 4 & 6 Pole XRI® motors are rated for 20:1 C.T. with fan modification; otherwise rated for 2:1 C.T. continuous duty, or 20:1 C.T. 60 minute duty at lowest RPM.  
 (2) Washdown TEFC motors are rated for 10:1 C.T. 60 minute duty or 2:1 C.T. continuous duty at lowest RPM.  
 (3) NEMA Part 30 equates to Inverter Rated and NEMA Part 31 equates to Inverter Duty/Vector Duty

## APPLICATION NOTES.

### Bearing Current Mitigation

Marathon recommends that any motors used with variable frequency drives be equipped with suitable means to protect the motor bearings from shaft currents caused by common mode voltages inherent with operation on a non-sinusoidal power supply. Marathon offers several options for motors in non-classified (non-hazardous) locations, including ground brushes, insulated bearings and non-contact shaft grounding rings. For more information on ground brushes and bearing currents, see the VARIABLE SPEED OPERATION section. For installation cost and available options, see the MOD CENTRAL section.

### Restricted Use

**DO NOT APPLY THE FOLLOWING MOTORS ON VARIABLE FREQUENCY DRIVES:** Single phase motors, motors with inherent overload protection or automatic overloads, Multi-speed motors, motors with 1.0 service factor on sine wave power.

### Hazardous Locations

Hazardous Locations Consult with your sales representative or contractor when applying motors and drives into hazardous locations, either Division/Zone 1 or Division/Zone 2 areas.

## MAXIMUM CABLE LENGTHS FROM THE MOTOR TO DRIVE

Product Description	3 Khz Carrier Frequency (Phase to Phase) <sup>□</sup>		
	230 Volt	460 Volt	575 Volt
182-326 NEMA, 100-225 IEC frames	600 ft.	125 ft.	40 ft.
364-5013 NEMA, 250-315 IEC frames	1000 ft.	225 ft.	60 ft.
Motors with CR200 corona resistant magnet wire Motors with MAX GUARD® insulation system Form-wound low voltage motors	1500 ft.	475 ft.	140 ft.
Motors with MAX GUARD insulation system	Unlimited	Unlimited	650 ft.
Form-wound low voltage motors	Unlimited	Unlimited	650 ft.

## STANDARD MOTOR INSULATION SYSTEMS

Cr200 Corona-Resistant Magnet Wire	Max Guard® Insulation System <sup>□</sup>
microMAX™ inverter duty	Black Max® Vector duty motor - All product Blue Max® Vector duty motor - All products
4-in-1® three phase, C-face with removable base Standard three phase stock brakemotors	Wash Down Duty® motor - three phase Blue Chip Series® XRI® severe duty motor
XRI SD and XRI IEEE 841	XRI SD and XRI-841 motor (IEEE841 compliant) Automotive duty "T" Frame
MAX +	Automotive duty "T" Frame Blue Chip Series / Hazardous Explosion Proof, XRI® Premium Efficiency Motor Globetrotter® IEC metric motors

<sup>□</sup>Higher carrier frequencies require shorter cable length to obtain normal (50Khrs) insulation life.

\*See back cover page for attribution.

# VARIABLE SPEED OPERATION

## VARIABLE SPEED INFORMATION

Marathon® Vector duty and Inverter duty motors, unless otherwise stated, are rated for continuous operation in a 40°C ambient and for altitudes up to 3300 feet (1000 meters) above sea level. Special application considerations, such as high or low ambient, intermittent ratings, high altitude, duty cycle rated, rated, extended constant horsepower range, special base speed, voltage or frequency, or any other special requirements, should be reviewed by a factory representative.

It is the responsibility of the startup personnel during commissioning of the VFD/motor system to properly tune the drive to the motor for the specific application. The correct voltage boost and volts/hertz settings are application dependent and unique to each motor design. Procedures for these adjustments should be in your VFD user manual. Many Vector Duty and Inverter Duty motors in this catalog are equipped with thermostats; warranty coverage may be denied if they are not properly utilized.

**WARNING!** Power factor correction capacitors should never be installed between the drive and the motor.

## INVERTER DUTY OR INVERTER RATED

“Inverter Duty” (often called “Inverter Rated”) motors are suitable for use with Variable Frequency Drives, as long as operation is within the application guidelines published in this catalog. In general, Marathon three phase, general purpose, Design B motors are considered “Inverter Duty,” and meet or exceed the requirements of NEMA®\* MG1, Part 30. As required under Federal law, these motors comply with EPCAct efficiencies when operating from utility power.



Many Marathon motor product lines have been enhanced to facilitate reliable operation on today’s variable speed drives, including wider constant torque speed range (up to 20:1) and improved insulation systems that withstand voltage spikes common with variable frequency operation.

Inverter Duty (Rated) motors are most often used in 10:1 speed range, variable torque or constant torque applications. A vector control is usually required for operation beyond 10:1 CT.

Refer to “Guidelines for Application of General Purpose, Single Speed Three Phase Motors on Variable Frequency Drives” in this section of this catalog for the allowable speed range and cable length restrictions (from VFD to motor). Additional detail regarding a specific product’s capabilities is available on its catalog page, or by consulting your application engineer.

## VECTOR DUTY

“Vector Duty” describes a class of motors that are used in conjunction with Open- (without encoder) or Closed-Loop (with encoder) Vector controls, that provide enhanced performance under low speed operating conditions, or in cases where torque (rather than speed) must be controlled.

“Vector Duty” motors can be applied to Volts/Hertz (scalar) drives as well.

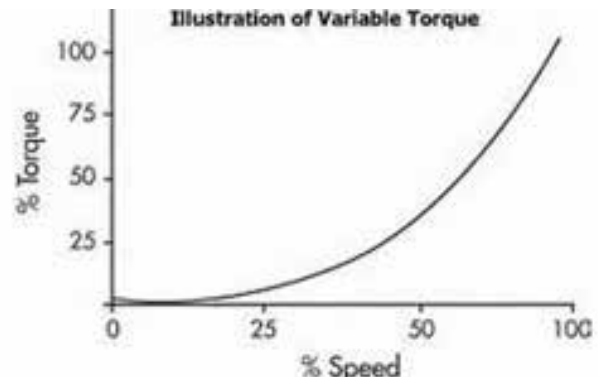
The Marathon “MAX” family, consisting of Blue Max®, Black Max® and microMAX™ motors, have been specifically designed for optimal operation on vector or volts/hertz controls. These motors feature a wide constant torque (up to 2000:1) and/or constant horsepower (up to 4:1) speed range and are performance-matched to all current technology IGBT drives.

\*See back cover page for attribution.

Vector Duty motors meet or exceed the requirements of NEMA MG1, Part 31 and are equipped with an enhanced MAX GUARD® or CR200. Consult the catalog page for each product’s capabilities and features. As these motors are specifically designed for operation through an inverter, they are exempt from EPCAct and EISA legislation. Model numbers contain the letter “H” in the “Electrical Type” field. See “HOWTO READ THE MODEL NUMBER”.

## VARIABLE TORQUE LOADS

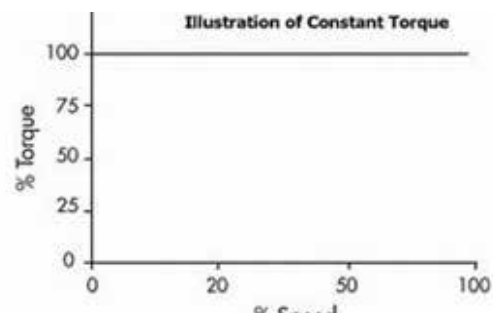
Some applications include Pumps, Fans, and Blowers. Torque varies as the square of the speed, and horsepower as the cube of the speed. Operation below base speed significantly lightens the load on the motor. While most variable torque applications do not require the motor to operate below half speed, the motor is fully capable of operation to zero speed. Operation above base speed significantly adds to the load on the motor; therefore, a factory representative must review applications requiring variable torque above base speed. Refer to the application chart found on the Variable Speed Operation chart for use of general purpose three phase motors on variable frequency drives. Marathon microMAX, Black Max or Blue Max motors are not necessarily required for operation in variable torque loads. A bypass circuit is often employed in variable torque applications. If this device is intended to be used, selection of a NEMA Design B motor is recommended, to withstand the inrush current during across-the-line starting.



## CONSTANT TORQUE LOADS

Applications include conveyors, elevators, hoists, extruders, positive displacement pumps, mixers and converting equipment. Torque remains constant throughout the range of operation, and extra care should be taken in the proper application of motors, especially at very low speeds. Most constant torque applications don’t require operation below 10:1 (i.e. 6 Hz operation on a 60 Hz motor), but an increasing number of applications historically reserved for servo and/or stepper systems are being served with motors capable of operation beyond 20:1, up to 2000:1 (zero speed, constant torque). Refer to the application chart found on the Variable Speed Operation chart for use of general purpose three phase motors on variable frequency drives.

## CONSTANT TORQUE LOADS (CONT'D.)



# VARIABLE SPEED OPERATION

Applications requiring greater than 20:1 C.T. are ideal for microMAX, Black Max or Blue Max motors. These motors provide full rated torque within their listed speed range, without exceeding a Class F temperature rating while under inverter power (many operate at Class B). Ratings in this catalog have been developed, based on extensive testing on IGBT inverters, set at a minimum 3 KHz (or equivalent) carrier frequency.

Marathon® vector duty and inverter duty motors are designed for operation at 150% of rated load for one minute, up to the base speed of the motor (overload capability declines to 100% as the motor reaches maximum constant HP speed). These motors accommodate constant horsepower operation to 1-1/2 to 2 times base speed, subject to the motor's maximum safe mechanical speed limit. Refer to the maximum safe mechanical speed chart, as well as the performance section for each motor's capability.

Motors rated for zero RPM continuous duty (1000:1 or 2000:1) must be powered by vector drives to produce rated torque without overheating. Optimum zero speed and low-speed full torque performance may require a closed loop vector drive (with encoder feedback).

## CONSTANT HORSEPOWER LOADS

Applications include coil winders, band saws, grinders, and turret lathes. Operation requires the motor to deliver the same horsepower rating, regardless of shaft speed. Torque increases at low speed and decreases at higher speed. Most general purpose motors can deliver constant horsepower up to 1 1/2 times base speed (consult a factory representative to verify performance). However, many constant HP applications require operation to twice base speed, and some, such as coil winders, up to 4 times base speed. MICROMAX, Black Max and Blue Max motors are designed for 1 1/2 to 2 times base speed, and the wide CHP motors, contact a Marathon distributor for higher than 2 times base speed.

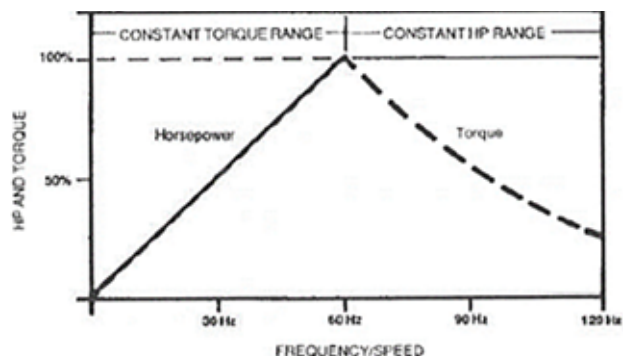


Figure 1 – Conventional VF Installation

## BEARING CURRENTS

As stated NEMA\* MG1-31.4.4.3, to protect a motor from inverter-sourced shaft voltages, either both bearings must be insulated or the motor shaft must be effectively grounded. Marathon offers several effective means to protect the bearings from inverter sourced EDM (electrical discharge machining). A shaft grounding device is standard in Blue Max motors, in frame sizes 444T and larger. Insulating the motor bearings will not prevent damage to bearings of a connected load, and insulated couplings should be employed to protect the load. Adding a ground brush to a motor with insulated bearings will divert motor shaft currents and help protect the bearings of the connected load.



## THE MARATHON SOLUTION TO BEARING CURRENTS

A variety of Marathon products have the BCP device. Models are noted with a -P type catalog number, or a "P" footnote features a current mitigation device.

## MOTOR GROUNDING

Frames and accessories of all motors must be grounded in accordance with the National Electric Code (NEC) Article 430. Refer to NEC Article 250 for general information on grounding. Proper grounding of inverter-driven motors is essential to protect personnel and livestock from inverter-sourced common mode voltages, which may reach hazardous levels on the frame of ungrounded or poorly grounded motors.

## LOW INPUT VOLTAGE

If, due to lower utility supply voltage, the input voltage from the VFD to the motor is lower than the motor's rated voltage, de-rating of the motor's base frequency, horsepower, full load RPM, and constant HP RPM is required. The revised values can be calculated by multiplying by the ratio of the voltage change. For example, to operate a 460 volt motor from an inverter fed by 50 or 60 HZ, 400 volt utility power, the multiplier is 400/460 or 0.87.

The VFD can be reprogrammed to match the new base point values, allowing the motor to provide rated torque at rated current from the new base speed down to its original minimum constant torque speed. The motor's CHP range will begin at the new base frequency and will be shortened by the same ratio as described above.

## OVERSPEED CAPABILITY

Maximum safe mechanical speed capability is a function of bearing size and type, lubrication, rotor balancing technique and specifications, air gap, enclosure, frame construction and connection to the driven load. In addition, consideration must be given to ambient noise levels, as operation above base speed will increase motor noise and vibration, and reduce bearing life. Under no circumstances should bearing hub temperature exceed 100°C. Belted loads should not exceed 60 Hz operating RPM by more than 25% (NEMA®\* "TS" shafts are not suitable for belted loads). Due to external cooling fans, TEFC (and Explosion Proof Fan Cooled) motors are limited to 4000 RPM maximum speed.

Marathon® Motors, through extensive testing in our state-of-the-art laboratory and in actual field experience, has developed a number of high speed motors whose maximum safe mechanical speed exceeds the values in the table below. The following table depicts maximum safe speed limits for continuous operation, direct-coupled, non-explosion proof motors, and does not imply constant horsepower capability. Please consult a factory representative for requirements beyond those listed, or for intermittent duty motors.

Additional detail regarding a specific product's capabilities is available on its catalog page, or by consulting your application engineer.

# VARIABLE SPEED OPERATION

## MAXIMUM SAFE MECHANICAL SPEED LIMITS (ODP, TENV,DPFV OR TEBC ENCLOSURES) 60 HZ BASE FREQUENCY

Frame Size	2-Pole	4, 6 or 8-Pole
182-184	7200	5400
213-256	5400	4200
284-286	5400	3600
324-326	4000	3600
364-365	4000	2800
404-449	3600	2800
5000 Fr	N/A	CALL
6800 Fr	N/A	CALL

## HIGH SPEED OPERATION

When motors are run at speeds above base speed, mechanical limitations can develop. Critical areas of concern include bearing life, rotor integrity, balance, fan integrity (on self-cooled motors), and breakdown.

As the motor's speed crosses into constant horsepower operating range, the motor's breakdown torque (BDT) begins to decrease since the inverter voltage cannot be raised above the supply voltage even though the frequency is still increasing. Don't hesitate to get in touch with us for help reviewing your application when applying motors over the nominal maximum speed rating.

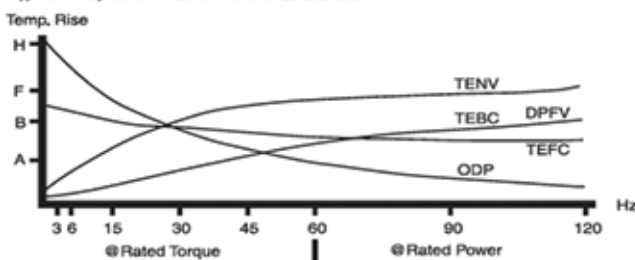
## OTHER APPLICATION CONSIDERATION

For proper selection, the following should be considered:

- Horsepower or torque requirements at various speeds.
- Desired speed range of the load and motor.
- Acceleration and deceleration rate requirements of the process being controlled.
- Starting requirements including the frequency of starting and a description of the load (reflected inertia at the motor, load torque during starting).
- Whether the application is a continuous process or duty cycle of starts, stops and speed changes.
- A general description of the type of application including the environment in which the VFD system components must operate (determines motor enclosure and/or explosion proof classification).
- Description of the available electrical power supply and wiring.
- Special performance requirements, if any.
- Whether the drive will be configured with a by-pass circuit. In case of its deployment, the motor will operate like its fixed speed counterpart and may require a NEMA B design which limits in-rush current, or selection of a larger motor starter or other protective circuitry.
- Load sharing
- Mounting and other mechanical considerations

Additional detail regarding a specific product's capabilities is available on its catalog page, or by consulting your application engineer.

Typical Temperature Rise Of Various Enclosures



• \*See back cover page for attribution.

# GENERAL PURPOSE MOTORS

## SINGLE PHASE ODP MOTORS

STANDARD AND PREMIUM EFFICIENCY

For use where exposure to water, dust and dirt exists. Ideally suited for use on pumps, compressors, fans, conveyors, and other industrial equipment.

### Specifications

115/208 & 230V - Rigid mount - 1 HP - 10 HP

182T through 215T frame

C-FACE Motors - 3 HP - 7 1/2 HP - 184TC - 215TC

### Features

- Durable rolled steel construction
- NEMA®\* Design B performance
- Meets or exceeds NEMA service factors
- Double shielded ball bearings
- Continuous duty
- Thermally protected ratings
- UL®\* Recognized component listing
- and CSA®\* Certified



# GENERAL PURPOSE MOTORS

## SINGLE PHASE, (NEMA®\* SERVICE FACTOR), DRIPPROOF

### FEATURES

- Heavy gauge steel frame and base
- Ball bearings
- Capacitor start / capacitor run designs
- Capacitor start / induction run designs as noted
- Service factor, as noted
- UL®\* Recognized and CSA®\* certified



### RIGID BASE

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1	1200	115/230	182T	NONE	I141A	182TCDW17084		15.6/7.8	83	14.19	2, 13, 18
	1800	115/208-230	182T	NONE	-	131515.00	√	24.5/13-12.4	56	13.19	2, 13, 18
2	1800	115/208-230	182T	MANUAL	-	131536.00	√	24.5/13-12.4	63	13.19	2, 13, 19
	1800	115/208-230	182T	AUTO	-	131535.00		24.5/13-12.4	63	13.19	2, 13, 20
3	3600	115/208-230	182T	NONE	-	131636.00	√	28/15.2-14	74	14.18	1, 13, 18
	1800	115/208-230	184T	NONE	-	131534.00	√	33.8/18-16.9	69	14.19	2, 13, 19
	1800	115/230	184T	MANUAL	-	131561.00	¶	33.8/16.9	76	14.19	2, 13, 19
	1800	115/230	184T	AUTO	-	131530.00		33.8/16.9	69	14.19	2, 13, 19
	1200	230	215T	NONE	I144	215TBDW7079	¶	16.0	134	18.05	1, 13, 18
5	3600	208-230	184T	NONE	-	131616.00	√	24.0-22.0	84	14.69	1, 13, 18
	1800	208-230	184T	NONE	-	131537.00	√	23.0-21.0	83	14.69	1, 13, 18
	1800	208	184T	NONE	-	131560.00	√	23.2	82	14.69	1, 13, 18
	1800	208-230	184T	MANUAL	-	131622.00	√	23.0-21.0	82	14.69	2, 13, 18
7 1/2	3600	208-230	184T	TSTAT	-	132044.00	√	34.0-31.0	110	16.69	2, 13, 19
	3600	208-230	213T	NONE	I105B	213TBDBD7001		33.5-30.5	115	18.04	
	1800	230	215T	NONE	-	140155.00	√	40.5	116	17.26	2, 13, 18
10	1800	230	215T	NONE	I115A	215TBDBD7026	√	33.5	115	18.14	
	3600	208-230	215T	NONE	-	140681.00	√	41.5-37.0	135	18.05	2, 13, 19
	1800	230	215T	NONE	-	141430.00	√	39.0	159	14.79	2, 13, 19

### FEATURES

- Heavy gauge steel frame and base
- Ball bearings mechanically locked on shaft end
- Capacitor start / capacitor run designs
- Capacitor start / induction run designs as noted



### C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	115/230	184TC	NONE	-	131544.00	¶	33.8/16.9	73	14.20	2, 13, 18
5	3600	208-230	184TC	NONE	-	131777.00		23.0-22.2	70	14.70	1, 13, 18
	1800	208-230	184TC	NONE	-	131539.00		23.0-21.0	81	14.70	1, 13, 18

### FEATURES

- Heavy gauge steel frame and base
- Capacitor start / capacitor run designs
- Capacitor start / induction run designs as noted



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	208-230	184TC	MANUAL	-	131853.00		14.6-13.8	100	13.20	1, 13, 18
	1800	115/230	184TC	MANUAL	-	131629.00	√	33.8/16.9	69	14.20	2, 13, 18
5	3600	208-230	184TC	NONE	-	131781.00	¶	23.0-22.2	73	14.70	1, 13, 18
	1800	208-230	184TC	MANUAL	-	131630.00	√	23.0-21.0	80	14.70	1, 13, 18
7 1/2	3600	208-230	184TC	TSTAT	-	132043.00	√	34.0-31.0	112	16.70	1, 13, 18
	1800	230	215TC	NONE	-	140806.00		36.0	120	17.26	1, 13, 18

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet the USA efficiency legislations.

\*See back cover page for attribution.

# SINGLE PHASE TEFC MOTORS

STANDARD AND PREMIUM EFFICIENCY

marathon®

**For use where exposure to water, dust and dirt exists. Ideally suited for use on pumps, compressors, fans, conveyors, and other industrial equipment.**

Standard and Premium Efficiency General Purpose  
115/208 - 230 Volt

Rigid Mount - 2 HP - 10 HP - 182T through 215T frame  
C Face Motors - 3 HP - 10 HP - 184TC through 215TC

## Features

- Durable rolled steel construction
- NEMA® Design B performance
- Meets or exceeds NEMA service factors
- Double shielded ball bearings
- Continuous duty
- Thermally protected ratings
- UL® recognized component listing and CSA® Certified



# GENERAL PURPOSE MOTORS

## SINGLE PHASE, TOTALLY ENCLOSED

### FEATURES

- Heavy gauge steel constructions
- Ball bearings
- Capacitor start / capacitor run designs
- Service factor, as noted
- UL®\* Recognized and CSA®\* certified



### RIGID BASE

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1800	115/208-230	182T	NONE	I212	182TBFR5326		20.0/10.8-10.0	52	15.65	F, 1, 18
	1800	115/208-230	182T	NONE	-	131509.00	√	24.8/13-12.4	65	14.46	1, 13, 17
3	3600	115/208-230	182T	NONE	I206	182TBFR5301		24.6/13.9-12.3	57	15.81	1, 13, 17
	3600	115/208-230	182T	NONE	-	131637.00	√	26.8/14.4-13.4	78	14.96	2, 13, 18
	1800	115/208-230	184T	NONE	-	131533.00	√	33.6/18-16.8	83	16.46	1, 13, 17
	1800	208-230	184T	MANUAL	-	131855.00		14.4-13.6	88	14.96	2, 13, 18
	1800	115/208-230	184T	NONE	I213A	184TBFW17044	√	28.4/14.8-14.2	72	14.96	1, 13, 14, 17
5	3600	208-230	184T	NONE	I223A	184TBFW7701	√	22.0-19.8	98	16.49	1, 13, 14, 17
	3600	230	184T	NONE	-	131549.00	√	19.8	93	16.96	2, 13, 18
	3600	230	184T	MANUAL	-	132042.00	√	19.8	103	16.97	2, 13, 18
	1800	230	184T	NONE	-	131538.00	√	23.0	95	17.46	2, 13, 17
	1800	208-230	184T	MANUAL	-	131856.00	√	23.0-21.0	95	15.96	2, 13, 17
	1800	208-230	184T	NONE	I214A	184TBFW7726	√	21.5-19.5	103	17.46	1, 13, 14, 18
	1800	208-230	213T	NONE	I216	213TBFW7026	√	24.5-22.0	106	18.73	1, 14, 17
7 1/2	3600	208-230	213T	NONE	I224	213TBFW7001	√	36.0-32.0	112	20.23	1, 14, 17
	3600	208-230	213T	NONE	-	140684.00	√	36.0-32.0	120	18.34	2, 13, 17
	1800	230	215T	NONE	-	141428.00	√	30.5	172	21.09	2, 13, 18
	1800	208-230	215T	NONE	I215	215TBFW7026	√	35.0-30.0	133	21.48	1, 14, 17, F
10	3600	208-230	215T	NONE	I225	215TBFW7001		44.0-41.5	141	20.23	1, 14, 17, F
	3600	208-230	215T	NONE	-	140685.00	√	44.0-41.5	138	19.84	2, 13, 17
	1800	230	215T	NONE	-	140581.00	√	40.0	202	20.71	2, 13, 18
	1800	230	215T	NONE	I217	215TBFW7027	√	41.5	144	21.48	1, 14, 17

### FEATURES

- Ball bearings mechanically locked on shaft end
- Suitable for horizontal or vertical mounting
- Capacitor start / capacitor run designs
- Capacitor start / induction run designs as noted
- Will accept brake kits, see accessory section (except as noted)
- Heavy gauge steel constructions
- Service factor, as noted
- UL Recognized and CSA certified



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230	184TC	MANUAL	-	131857.00	√	12.8	104	17.61	2, 13, 18
	1800	115/208-230	184TC	MANUAL	-	131631.00	√	33.6/18-16.8	84	16.47	1, 13, 17
5	3600	230	184TC	MANUAL	-	131632.00	√	19.8	103	16.97	2, 13, 18
	1800	230	184TC	MANUAL	-	131633.00	√	23.0	86	16.97	2, 13, 17
7 1/2	3600	208-230	213TC	NONE	I324	213TBFBD7009	√	36.0-32.0	150	19.47	
	1800	230	215TC	NONE	-	141429.00		30.5	171	21.82	2, 13, 18, 24
10	3600	208-230	215TC	NONE	-	140695.00	√	44.0-41.5	138	20.57	2, 13, 17, 24
	1800	230	215TC	NONE	-	140678.00	√	40.0	152	20.71	2, 13, 18, 24

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet the USA efficiency legislations.

\*See back cover page for attribution.



## PROTECT YOUR MOTORS FROM BEARING DAMAGE

The bearing protection used in Marathon Electric motors like the Globetrotter<sup>®</sup> General Purpose Motors

### Electrical Bearing Damage Can Take Down Your Motor

Electric motors run by variable frequency drives, or VFDs, are at risk of shaft voltage that can lead to premature bearing failure. The unique design of the AEGIS Ring frees you from the frustration and expense of unnecessary downtime caused by electrical bearing damage.

### Protect Motor Bearings with AEGIS<sup>®</sup> Shaft Grounding Rings

By channeling VFD-induced discharges safely to ground, AEGIS<sup>®</sup> Shaft Grounding Rings prevent electrical bearing damage. Proven in millions of installations worldwide, AEGIS<sup>®</sup> Rings provide unmatched protection of motors against electrical bearing damage, motor failure, and unplanned downtime.



# LOBETROTTER® MOTORS

THREE PHASE, DP, TEFC

marathon®

**For use where exposure to water, dust and corrosives exists. Ideally suited for use on pumps, compressors, fans, blowers, conveyors, machine tools and other industrial applications.**

## Features

- Inverter-rated
- Class F insulation system
- Shielded ball bearings for direct coupled applications
- 182T-365T models steel frame
- 404T-449T models cast iron frame
- Dynamically balanced rotors
- Torques exceed NEMA®\* performance standards
- UL®\* Recognized component listing and CSA®\* Certified



\*See back cover page for attribution.

# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, DRIPPROOF

### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- NEMA Premium models are in compliance with EISA2007
- Bearing Current Protection™ (BCP), as noted
- 182T-365T models steel frame (exceptions highlighted in blue)
- 404T-449T models cast iron frame
- Inverter duty 10:1 variable torque and 2:1 constant torque, 1.0 SF
- 1.15 service factor
- Class F insulation
- Standard assembly F1, reversible to F2 assembly
- Dual frame mounting holes
- UL®\* Recognized, CSA®\* certified, CE®\* mark
- Three year warranty



### RIGID BASE

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
1 1/2	1200	208-230/460	182T		<b>GT0005A</b>	182TTDBD6076	√	86.5	4.8-4.6/2.3	69	12.25		A160A
	900	230/460	184T		<b>GT00103</b>	184TTDBD6101		77.0	5.6/2.8	86	13.25		A160A
2	1200	208-230/460	184T		<b>GT0008A</b>	184TTDBD6076	√	87.5	7.0-6.4/3.2	79	13.25		A160A
	900	230/460	213T		<b>GT00105</b>	213TTDBD6101	√	86.5	6.8/3.4	133	17.52		A161A
3	1800	200	182T		<b>GT0810</b>	182TTDBD6039	√	89.5	9.2	75	12.25		A160A
	1800	208-230/460	182T		<b>GT0010A</b>	182TTDBD6026	√	89.5	8.6-8.0/4.0	64	12.25		A160A
	1800	208-230/460	182T		<b>GT0010A-P</b>	182TTDBD6070	√	89.5	8.6-8.0/4.0	69	12.25	P	A160A
	1800	208-230/460	182T	TSTAT	<b>GT6024</b>	182TTDBD6428		89.5	8.6-8.0/4.0	69	12.25	TS	A160A
	1800	575	182T		<b>GT0110</b>	182TTDBD6030	√	89.5	3.2	64	12.25		A160A
	1200	230/460	213T		<b>GT0011A</b>	213TTDBD6076	√	88.5	8.4/4.2	126	17.52		A161A
5	3600	200	182T		<b>GT0812</b>	182TTDBD6000		86.5	15.2	85	13.72		A160A
	3600	208-230/460	182T		<b>GT0012A</b>	182TTDBD6001	√	86.5	14.0-13.2/6.6	85	12.25		A160A
	3600	230/460	182T		<b>GT0012A-P</b>	182TTDBD6002	¶	86.5	13.2/6.6	85	12.25	P	A160A
	3600	575	182T		<b>GT0112</b>	182TTDBD6005	¶	86.5	5.3	85	12.25		A160A
	1800	208-230/460	184T		<b>GT0013A</b>	184TTDBD6026	√	89.5	14.0-13.2/6.6	77	13.25		A160A
	1800	230/460	184T		<b>GT0013A-P</b>	184TTDBD6070	√	89.5	13.2/6.6	84	13.25	P	A160A
	1800	208-230/460	184T	TSTAT	<b>GT6030</b>	184TTDBD6428		89.5	7.0-13.2/6.6	84	13.25	TS	A160A
	1800	230/460	184T		<b>GT2313</b>	184TTDBD6034	¶	89.5	12.6/6.3	135	13.25		A160A
	1800	200	184T		<b>GT0813</b>	184TTDBD6039	√	89.5	15.2	86	13.25		A160A
	1800	575	184T		<b>GT0113</b>	184TTDBD6030	√	89.5	5.3	84	13.25		A160A
	1200	230/460	215T		<b>GT0014A</b>	215TTDBD6076	√	89.5	13.8/6.9	128	17.52		A161A
	7 1/2	900	230/460	254T		<b>GT00109</b>	254TTDBD6101		88.5	14.2/7.1	275	22.64	
3600		200	184T		<b>GT0815</b>	184TTDBD6000		88.5	21.2	64	13.25		A160A
3600		208-230/460	184T		<b>GT0015A</b>	184TTDBD6001	√	88.5	19.6-18.4/9.2	64	13.25		A160A
3600		208-230/460	184T		<b>GT0015A-P</b>	184TTDBD6002	¶	88.5	19.6-18.4/9.2	64	13.25	P	A160A
3600		208-230/460	184T	TSTAT	<b>GT6033</b>	184TTDBD6006		88.5	19.6-18.4/9.2	121	17.52	TS	A160A
3600		575	184T		<b>GT0115</b>	184TTDBD6005	¶	88.5	7.4	64	13.25		A160A
1800		200	213T		<b>GT0816</b>	213TTDBD6039	√	91.0	22.8	126	17.52		A161A
1800		208-230/460	213T		<b>GT0016A</b>	213TTDBD6026	√	91.0	21.2-19.8/9.9	122	17.52		A161A
1800		230/460	213T		<b>GT0016A-P</b>	213TTDBD6070	√	91.0	19.8/9.9	121	17.52	P	A161A
1800		230/460	213T		<b>GT2316</b>	213TTDBD6034	¶	91.0	19.8/9.9	249	17.52		A161A
1800		575	213T		<b>GT0116</b>	213TTDBD6030	√	91.0	7.9	123	17.52		A161A
10		1200	230/460	254T		<b>GT0057</b>	254TTDBD6076	√	90.2	20.2/10.1	250	22.64	
	900	230/460	256T		<b>GT00111</b>	256TTDBD6101		89.5	20.8/10.4	289	24.22		A163A
	3600	200	215T		<b>GT0818</b>	213TTDBD6000		89.5	27.8	125	17.52		A161
	3600	230/460	213T		<b>GT0018A</b>	213TTDBD6001	√	89.5	24.2/12.1	125	17.52		A161
	1800	200	215T		<b>GT0819</b>	215TTDBD6039	√	91.7	29.2	140	17.52		A161
	1800	208-230/460	215T		<b>GT0019A</b>	215TTDBD6026	√	91.7	27.7-25.4/12.7	143	17.52		A161
	1800	208-230/460	215T		<b>GT0019A-P</b>	215TTDBD6070	√	91.7	27.8-25.4/12.7	136	17.52	P	A161
	1800	575	215T		<b>GT0119</b>	215TTDBD6030	√	91.7	10.2	143	17.52		A161
	1200	208-230/460	256T		<b>GT0058</b>	256TTDBD6076	√	91.7	27.8-25.6/12.8	254	24.22		A163A
	900	230/460	284T		<b>GT00113</b>	284TTDBD6101		90.2	30.0/15.0	350	25.71	YD	A165A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

Continued on next page.

\*See back cover page for attribution.

# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, DRIPPROOF

### RIGID BASE

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
15	3600	200	215T		<b>GT0821</b>	215TTDBD6000		90.2	41.5	128	17.52		A161
	3600	208-230/460	215T		<b>GT0021A</b>	215TTDBD6001	√	90.2	39.5-36.0/18.0	128	17.52		A161
	3600	575	215T		<b>GT0121</b>	215TTDBD6005		90.2	14.4	128	17.52		A161
	1800	200	254T		<b>GT0859</b>	254TTDBD6039	¶	93.0	43.5	271	22.64		A163A
	1800	208-230/460	254T		<b>GT0059</b>	254TTDBD6026	√	93.0	40.5-37.5/18.8	271	22.64		A163A
	1800	208-230/460	254T		<b>GT0059-P</b>	254TTDBD6070	√	93.0	40.5-37.5/18.8	271	22.64	P	A163A
	1800	575	254T		<b>GT0159</b>	254TTDBD6030	¶	93.0	15.1	271	22.64		A163A
	1200	230/460	284T		<b>GT0060</b>	284TTDBD6076	√	91.7	41.0/20.6	318	25.71	YD	A165A
	900	230/460	286T		<b>GT00115</b>	286TTDBD6101		90.2	42.0/21.0	371	27.09	YD	A165A
20	3600	200	254T		<b>GT0861</b>	254TTDBD6000		91.0	55.0	315	22.64		A162A
	3600	208-230/460	254T		<b>GT0061</b>	254TTDBD6001	√	91.0	51.4-48.0/24.0	315	22.64		A162A
	3600	575	254T		<b>GT0161</b>	254TTDBD6005		91.0	19.2	315	22.64		A162A
	1800	200	256T		<b>GT0862</b>	256TTDBD6039	√	93.0	56.0	254	24.22		A163A
	1800	208-230/460	256T		<b>GT0062</b>	256TTDBD6026	√	93.0	53.0-48.5/24.3	254	24.22		A163A
	1800	230/460	256T		<b>GT0062-P</b>	256TTDBD6070	¶	93.0	48.5/24.3	289	24.22	P	A163A
	1800	575	256T		<b>GT0162</b>	256TTDBD6030	¶	93.0	19.5	289	24.22		A163A
	1200	230/460	286T		<b>GT0063</b>	286TTDBD6076	√	92.4	52.5/26.3	362	27.09	YD	A165A
	3600	208-230/460	256T		<b>GT0064</b>	256TTDBD6001	√	91.7	63.6-59.5/29.7	291	24.22		A162A
25	1800	208-230/460	284T		<b>GT0065</b>	284TTDBD6026	√	93.6	66.0-62.5/31.0	329	25.71	YD	A165A
	1800	230/460	284T		<b>GT0065-P</b>	284TTDBD6070	√	93.6	62.5/31.0	324	25.71	P, YD	A165A
	1800	230/460	284TS		<b>GT0066</b>	284TSTDBD6026		93.6	62.5/31.0	324	24.34	YD	A165A
	1800	575	284T		<b>GT0165</b>	284TTDBD6030	√	93.6	25.0	324	25.71		A165A
	1200	230/460	324T		<b>GT0068</b>	324TTDBD6076	√	93.0	65.0/32.5	430	28.55	YD	A167A
	3600	230/460	284TS		<b>GT0069</b>	284TSTDBD6001	√	91.7	71.5/35.5	350	24.34	YD	A164A
30	1800	208-230/460	286T		<b>GT0067</b>	286TTDBD6026	√	94.1	78.0-73.0/36.5	362	27.09	YD	A165A
	1800	230/460	286T		<b>GT0067-P</b>	286TTDBD6070	√	94.1	73.0/36.5	362	27.09	P, YD	A165A
	1800	230/460	286TS		<b>GT0070</b>	286TSTDBD6026	√	94.1	73.0/36.5	366	25.72	YD	A165A
	1800	575	286T		<b>GT0167</b>	286TTDBD6030	√	94.1	29.2	366	27.09		A165A
	1200	208-230/460	326T		<b>GT0071</b>	326TTDBD6076	√	93.6	82.0-75.0/37.5	530	29.73	YD	A167A
	3600	208-230/460	286TS		<b>GT0072</b>	286TSTDBD6001	√	92.4	101-93.0/46.5	375	25.72	YD	A164A
40	1800	208-230/460	324T		<b>GT0073</b>	324TTDBD6026	√	94.1	103-95.5/47.5	501	28.55	YD	A167A
	1800	208-230/460	324TS		<b>GT0074</b>	324TSTDBD6026	√	94.1	103-95.5/47.5	517	27.05	YD	A167A
	1800	575	324T		<b>GT0173</b>	324TTDBD6030		94.1	38.0	517	28.55		A167A
	1200	208-230/460	364T		<b>GT0075</b>	364TTDBD6086	√	94.1	105-97.0/48.5	673	31.69	YD	A169A
	3600	208-230/460	324TS		<b>GT0076</b>	324TSTDBD6001	√	93.0	127-115/57.5	459	27.05	YD	A166A
50	1800	208-230/460	326T		<b>GT0077</b>	326TTDBD6026	√	94.5	127-118/59.0	556	29.73	YD	A167A
	1800	230/460	326T		<b>GT0077-P</b>	326TTDBD6070	√	94.5	118/59.0	551	29.73	P, YD	A167A
	1800	208-230/460	326TS		<b>GT0078</b>	326TSTDBD6026	√	94.5	127-118.0/59.0	512	28.23	YD	A167A
	1800	575	326T		<b>GT0177</b>	326TTDBD6030	¶	94.5	47.0	512	29.73		A167A
	1200	208-230/460	365T		<b>GT0079</b>	365TTDBD6086	√	94.1	131-120/60.0	756	33.27	YD	A169A
	3600	208-230/460	326TS		<b>GT0080</b>	326TSTDBD6001	√	93.6	151-136/68.0	523	28.23	YD	A166A
60	1800	208-230/460	364T		<b>GT0081</b>	364TTDBD6060	√	95.0	154-140/70.0	677	31.69	YD	A169A
	1800	208-230/460	364TS		<b>GT0082</b>	364TSTDBD6060	√	95.0	154-140/70.0	738	29.57	YD	A169A
	1800	575	364T		<b>GT0181</b>	364TTDBD6030	¶	95.0	56.0	738	31.69		A169A
	1200	208-230/460	404T		<b>GT0041A</b>	404TTDCD6086	√	94.5	155-141/70.5	1147	37.20	YD	A415A
	3600	208-230/460	364TS		<b>GT0083</b>	364TSTDBD6001	√	93.6	192-172/86.0	706	29.57	YD	A168A
75	1800	230/460	365T		<b>GT0084</b>	365TTDBD6060	√	95.0	172/86.0	781	33.27	YD	A169A
	1800	230/460	365TS		<b>GT0085</b>	365TSTDBD6060	√	95.0	172/86.0	776	31.14	YD	A169A
	1800	575	365T		<b>GT0184</b>	365TTDBD6030	¶	95.0	68.5	847	33.27		A169A
	1200	208-230/460	405T		<b>GT0044A</b>	405TTDCD6081	√	94.5	194-174/87.0	1268	38.78	YD	A415A

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
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 Blue shaded areas are cast iron frames.

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# GLOBETROTTER® GENERAL PURPOSE MOTORS

## THREE PHASE, DRIPPROOF

### RIGID BASE

HP	RPM	VOLTS	FRAME	OVER LOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
100	3600	208-230/460	365TS		<b>GT0086</b>	365TSTDDBD6001	√	93.6	252-228/114	728	31.14	YD	A168A
	1800	208-230/460	404T		<b>GT0046A</b>	404TTDCCD6060	√	95.4	250-228/114	1219	37.20	YD	A415A
	1800	208-230/460	404TS		<b>GT0093A</b>	404TSTDCCD6060	√	95.4	250-228/114	1219	33.86	YD	A415A
	1800	575	404T		<b>GT0146</b>	404TTDCCD6030	¶	95.4	91.0	1219	37.20		A415A
	1200	230/460	444T		<b>GT0047A</b>	444TTDCCD6077		95.0	232/116	1500	44.57	YD	A417A
125	3600	460	404TS		<b>GT0048A</b>	404TSTDCCD6001	√	94.1	139	1065	33.86	PW	A414A
	1800	460	405T		<b>GT0049A</b>	405TTDCCD6060	√	95.4	142	1303	38.78	PW	A415A
	1800	460	405TS		<b>GT0088</b>	405TSTDCCD6060	√	95.4	142	1305	35.44	PW	A415A
	1200	460	445T		<b>GT0050A</b>	445TTDCCD6076	√	95.0	145	2017	44.57	PW	A417A
150	3600	460	405TS		<b>GT0051A</b>	405TSTDCCD6007	√	94.1	165	1149	35.44	PW	A414A
	1800	460	444T		<b>GT0052A</b>	444TTDCCD6060	√	95.8	168	1786	44.57	PW	A417A
	1800	460	444TS		<b>GT0089</b>	444TSTDCCD6060	√	95.8	168	1786	40.83	PW	A417A
	1800	575	444T		<b>GT0152</b>	444TTDCCD6030		95.8	134	1786	44.57		A417A
	1200	460	447T		<b>GT0053A</b>	447TTDCCD6077	√	95.4	173	2021	49.69	PW	A417A
200	3600	460	444TS		<b>GT0054A</b>	444TSTDCCD6003	√	95.0	215	1947	40.83	PW	A416A
	1800	460	445T		<b>GT0055A</b>	445TTDCCD6060	√	95.8	223	2017	44.57	PW	A417A
	1800	460	445TS		<b>GT0090</b>	445TSTDCCD6060	√	95.8	223	2017	40.83	PW	A417A
	1200	460	449T		<b>GT00016</b>	449TTDCCD6077	√	95.4	230	2227	49.69	RB, PW	N/A
	1200	460	449T		<b>GT0056A</b>	449TTDCCD6076	√	95.4	230	2227	49.69	PW	A417A
250	3600	460	445TS		<b>GT00017</b>	445TSTDCCD6001		95.0	270	1787	40.83	YD	A416A
	1800	460	447T		<b>GT00018</b>	447TTDCCD6026		95.8	281	2021	49.69	YD	A417A
	1800	460	447T		<b>GT00020</b>	447TTDCCD6033		95.8	281	2450	49.69	RB, YD	N/A
	1200	460	447T		<b>GT00021</b>	447TTDCCD6086	√	95.8	290	2450	49.69	YD	A417A
	1200	460	447T		<b>GT00022</b>	447TTDCCD6076		95.8	290	2450	49.69	RB, YD	N/A
300	3600	460	447TS		<b>GT00023</b>	447TSTDCCD6002	√	95.4	321	2200	45.95	YD	A416A
	1800	460	447T		<b>GT00024</b>	447TTDCCD6060	√	95.8	338	2508	49.69	YD	A417A
	1800	460	447TS		<b>GT00025</b>	447TSTDCCD6060		95.8	338	2508	45.95	YD	A417A
	1200	460	449T		<b>GT00027</b>	449TTDCCD6086		95.8	352	2227	49.69	YD	A417A
350	3600	460	447TS		<b>GT00029</b>	447TSTDCCD6003		95.4	373	2341	45.95	YD	A416A
	1800	460	447TS		<b>GT00032</b>	447TSTDCCD6040	√	95.8	395	2510	45.95	YD	A417A
400	3600	460	449TS		<b>GT00036</b>	449TSTDCCD6001	√	95.8	427	2384	45.95	YD	A416A
	1800	460	449T		<b>GT00037</b>	449TTDCCD6060		95.8	452	2574	49.69	YD	A417A
	1800	460	449TS		<b>GT00039</b>	449TSTDCCD6060		95.8	452	2574	45.95	YD	A417A
450	3600	460	449TS		<b>GT00041</b>	449TSTDCCD6002		96.5	483	2384	45.95	YD	A416A

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# GLOBETROTTER GENERAL PURPOSE MOTORS

THREE PHASE, DRIPPROOF



## C-FACE RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	208-230/460	182TC	<b>GT0210</b>	182TTDBD6028	√	89.5	8.6-8.0/4.0	80	13.00	
5	3600	230/460	182TC	<b>GT0212</b>	182TTDBD6003	√	86.5	13.2/6.6	65	13.00	
	1800	230/460	184TC	<b>GT0213</b>	184TTDBD6028	√	89.5	13.2/6.6	98	14.00	
7 1/2	3600	208-230/460	184TC	<b>GT0215</b>	184TTDBD6003	√	88.5	19.6-18.4/9.2	77	14.00	
	1800	208-230/460	213TC	<b>GT0216-P</b>	213TTDBD6069		91.0	21.2-19.8/9.9	135	19.04	
	1800	230/460	213TC	<b>GT0216</b>	213TTDBD6028	√	91.0	19.8/9.9	135	19.04	
10	3600	230/460	213TC	<b>GT0218</b>	213TTDBD6003	√	89.5	24.2/12.1	135	19.04	
	1800	208-230/460	215TC	<b>GT0219</b>	215TTDBD6028	√	91.7	27.8-25.4/12.7	149	19.04	
	1800	208-230/460	215TC	<b>GT0219-P</b>	215TTDBD6069		91.7	27.8-25.4/12.7	149	19.04	
15	3600	230/460	215TC	<b>GT0221</b>	215TTDBD6003	√	90.2	36.0/18.0	131	19.04	
	1800	208-230/460	254TC	<b>GT0259</b>	254TTDBD6028	√	93.0	40.5-37.5/18.8	284	23.14	
	1800	208-230/460	254TC	<b>GT0259-P</b>	254TTDBD6069		93.0	40.5-37.5/18.8	284	23.14	
20	3600	208-230/460	254TC	<b>GT0261</b>	254TTDBD6003		91.0	51.4-48.0/24.0	315	23.14	
	1800	230/460	256TC	<b>GT0262</b>	256TTDBD6028	√	93.0	48.5/24.3	254	24.72	
25	3600	208-230/460	256TC	<b>GT0264</b>	256TTDBD6003	√	91.7	63.6-59.5/29.7	275	24.72	
	1800	208-230/460	284TC	<b>GT0265-P</b>	284TTDBD6069		93.6	66-62.5/31.0	329	25.71	YD
	1800	230/460	284TC	<b>GT0265</b>	284TTDBD6028	¶	93.6	62.5/31.0	329	25.71	YD
	1800	230/460	284TSC	<b>GT0266</b>	284TSTDBD6028		93.6	62.5/31.0	329	24.34	YD
30	3600	230/460	284TSC	<b>GT0269</b>	284TSTDBD6003		91.7	71.5/35.5	350	24.34	YD
	1800	230/460	286TC	<b>GT0267</b>	286TTDBD6028	¶	94.1	73.0/36.5	365	27.09	YD
	1800	230/460	286TSC	<b>GT0270</b>	286TSTDBD6028	√	94.1	73.0/36.5	365	25.72	YD
40	3600	208-230/460	286TSC	<b>GT0272</b>	286TSTDBD6003		92.4	101-93.0/46.5	425	25.72	YD
	1800	208-230/460	324TC	<b>GT0273</b>	324TTDBD6028	¶	94.1	103-95.5/47.5	455	28.55	YD
	1800	575	324TC	<b>GT2173</b>	324TTDBD6035		94.1	38.0	455	28.55	
50	3600	208-230/460	324TSC	<b>GT0276</b>	324TSTDBD6003		93.0	127-115/57.5	459	27.05	YD
	1800	230/460	326TC	<b>GT0277</b>	326TTDBD6028	√	94.5	118/59.0	556	29.73	YD
	1800	230/460	326TSC	<b>GT0278</b>	326TSTDBD6028		94.5	118/59.0	556	28.23	YD
	1800	575	326TC	<b>GT2177</b>	326TTDBD6035		94.5	47.0	556	29.73	
60	3600	208-230/460	326TSC	<b>GT0280</b>	326TSTDBD6003		93.6	151-136/68.0	523	28.23	YD
	1800	208-230/460	364TC	<b>GT0281</b>	364TTDBD6028	¶	95.0	154-140/70.0	792	31.69	YD
	1800	230/460	364TSC	<b>GT0282</b>	364TSTDBD6028		95.0	140/70.0	792	31.69	YD
75	3600	208-230/460	364TSC	<b>GT0283</b>	364TSTDBD6003		93.6	192-172/86.0	706	31.69	YD
	1800	230/460	365TC	<b>GT0284</b>	365TTDBD6028		95.0	172/86.0	781	33.27	YD
	1800	230/460	365TSC	<b>GT0285</b>	365TSTDBD6028	√	95.0	172/86.0	781	33.27	YD
100	3600	208-230/460	365TSC	<b>GT0286</b>	365TSTDBD6003		93.6	252-228/114	725	33.27	YD
	1800	208-230/460	404TC	<b>GT0246</b>	404TTDCCD6028		95.4	250-228/114	1219	37.20	YD
	1800	230/460	404TSC	<b>GT0293</b>	404TSTDCD6028		95.4	228/114	1219	33.86	YD
125	3600	460	404TSC	<b>GT0248</b>	404TSTDCD6003	√	94.1	139	1065	33.86	PW
	1800	460	405TSC	<b>GT0288</b>	405TSTDCD6028		95.4	142	1303	35.44	PW
150	3600	460	405TSC	<b>GT0251</b>	405TSTDCD6003		94.1	165	1149	35.44	PW
	1800	460	444TSC	<b>GT0289</b>	444TSTDCD6028		95.8	168	1786	40.63	PW
200	1800	460	445TSC	<b>GT0290</b>	445TSTDCD6028		95.8	223	1850	40.63	PW

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# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, DRIPPROOF

### C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	208-230/460	182TC	<b>GT0310</b>	182TTDBD6029	√	89.5	8.6-8.0/4.0	81	13.0	
5	3600	230/460	182TC	<b>GT0312</b>	182TTDBD6004	√	86.5	13.2/6.6	60	13.0	
	1800	230/460	184TC	<b>GT0313</b>	184TTDBD6029	√	89.5	13.2/6.6	120	14.00	
7 1/2	3600	208-230/460	184TC	<b>GT0315</b>	184TTDBD6004	√	88.5	19.6-18.4/9.2	78	14.00	
	1800	230/460	213TC	<b>GT0316</b>	213TTDBD6029		91.0	19.8/9.9	133	19.04	
	1200	230/460	254TC	<b>GT0317</b>	254TTDBD6081		90.2	20.2/10.1	230	22.96	
10	3600	230/460	213TC	<b>GT0318</b>	213TTDBD6004	√	89.5	24.2/12.1	125	19.04	
	1800	230/460	215TC	<b>GT0319</b>	215TTDBD6034		91.7	25.4/12.7	144	19.95	
	1200	208-230/460	256TC	<b>GT0320</b>	256TTDBD6081		91.7	27.8-25.6/12.8	285	24.54	
15	3600	230/460	215TC	<b>GT0321</b>	215TTDBD6004		90.2	36.0/18.0	127	19.04	
	1800	230/460	254TC	<b>GT0359</b>	254TTDBD6029	√	90.9	39.5-36.0/18.0	127	19.95	
	1200	230/460	284TC	<b>GT0360</b>	284TTDBD6081	¶	91.7	41.0/20.6	127	25.61	YD
20	3600	230/460	254TC	<b>GT0361</b>	254TTDBD6004	√	91.0	48.0/24.0	256	22.64	
	1800	230/460	256TC	<b>GT0362</b>	256TTDBD6029	√	91.0	48.0/24.0	256	22.64	
25	3600	230/460	256TC	<b>GT0364</b>	256TTDBD6004	√	93.6	66.0-62.5/31.0	329	25.71	
	1800	230/460	284TC	<b>GT0365</b>	284TTDBD6029	√	93.6	66.0-62.5/31.0	329	25.71	YD
30	3600	230/460	284TSC	<b>GT0369</b>	284TSTDBD6004	√	91.7	71.5/35.5	376	24.34	YD

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# GLOBETROTTER® TOTALLY ENCLOSED MOTORS

THREE PHASE, CAST IRON, GENERAL PURPOSE

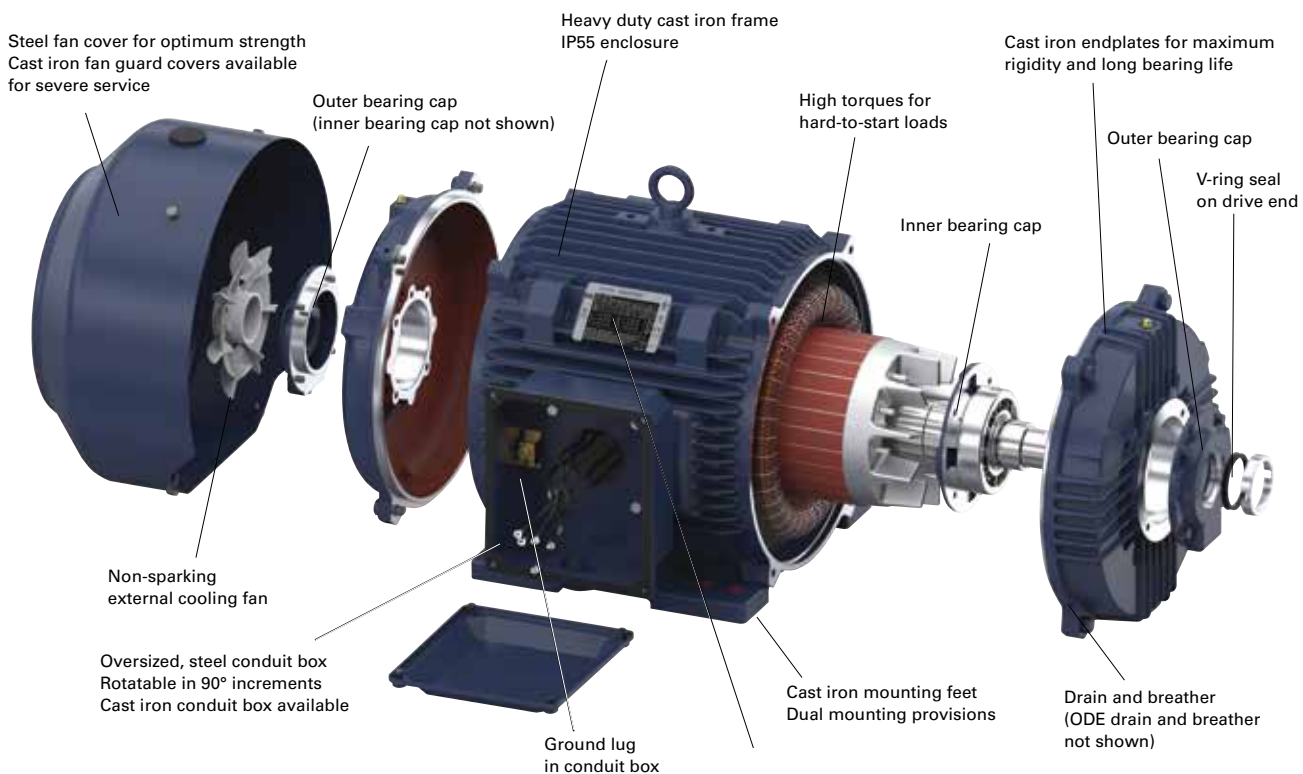
For reliable performance in heavy-duty industrial applications, nothing beats the Marathon® Globetrotter. With their cast iron construction and 1.15 service factor, they are ideal to get the Job done.

## The totally enclosed cast iron Globetrotter motors include:

- IP55 protection
- Division 2/ Zone 2, Class I (gases), Groups A, B, C, D
- Dual frame mounting holes
- F1 to F2 mounting capability

## Additional Features

- Enhanced quality from a dependable product
- Ability to stock interchangeable parts and modifications



# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- NEMA Premium models are in compliance with EISA 2007
- Cast iron frame material, as noted
- Rolled steel C-face models are Hazardous Duty® Division 2
- Hazardous Duty Division 2 UL certification nameplate, as noted
- Division 2 / Zone 2 Class 1 (gases), Groups A, B, C, D
- IP55 enclosure on cast iron frames, as noted
- Inverter duty 10:1 variable torque and 10:1 constant torque, 1.0 SF
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Meets temperature code T2B
- Class F Insulation
- Standard assembly F1, reversible to F2 assembly
- For C-Face, D-Flange, or cast iron upgrade kits, see accessory section
- UL®\* Recognized, CSA®\* certified, CE®\* mark
- Three year warranty



### RIGID BASE

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
1	900	230/460	182T	Y	<b>GT10101</b>	182TTFCD6101		75.5	4.0/2.0	76	15.08	75	A420
	1800	230/460	145T	N	<b>GT1004</b>	145TTFCD6026	√	86.5	4.0/2.0		14.20	75	
1 1/2	1200	230/460	182T	Y	<b>GT1005A</b>	182TTFCD6076	¶	87.5	4.6/2.3	93	15.08	75	A420
	1200	230/460	182T	Y	<b>GT10102</b>	182TTTCD6101		87.5	4.6/2.3	92	12.68	75, N	A420
	1200	230/460	182T	N	<b>GT1505</b>	182TTFBD6080	√	87.5	4.6/2.3	80	15.10	75	A401
	1200	575	182T	Y	<b>GT1105A</b>	182TTFCD6080	¶	87.5	1.8	93	15.08	75	A420
	900	230/460	184T	Y	<b>GT10103</b>	184TTFCD6101	√	78.5	5.2/2.6	105	16.08	75	A420
	900	230/460	184T	N	<b>GT15103</b>	184TTFBD6101	¶	78.5	5.0/2.5	70	16.10	75	A401
	1800	230/460	145T	N	<b>GT1007</b>	145TTFCD6027	√	86.5	5.0/2.5	60	14.20	75	
	1200	230/460	184T	Y	<b>GT1008A</b>	184TTFCD6076	√	88.5	6.2/3.1	110	16.08	75	A420
2	1200	230/460	184T	N	<b>GT1508</b>	184TTFBD6080	¶	88.5	6.2/3.1	88	16.10	75	A401
	1200	575	184T	Y	<b>GT1108A</b>	184TTFCD6080	¶	88.5	2.5	86	16.08	75	A420
3	900	230/460	213T	Y	<b>GT10105</b>	213TTFCD6101		84.0	6.4/3.2	133	18.53	75	A421
	3600	200	182T	N	<b>GT1859</b>	182TTFBD6000		86.5	9.2	73	15.10	75	A401
	3600	230/460	182T	Y	<b>GT1009A</b>	182TTFCD6001	√	86.5	8.0/4.0	79	15.08	75, A	A420
	3600	230/460	182T	N	<b>GT1509</b>	182TTFBD6002	√	86.5	8.0/4.0	60	15.10	75	A401
	3600	575	182T	Y	<b>GT1109A</b>	182TTFCD6005	¶	86.5	3.2	79	15.08	75	A420
	1800	200	182T	N	<b>GT1860</b>	182TTFBD6039	¶	89.5	9.6	69	15.10	75	A401
	1800	200/400	182T	Y	<b>GT1810</b>	182TTFCD6039	√	89.5	9.5/4.7	102	15.08	75	A420
	1800	208-230/460	182T	Y	<b>GT1010A</b>	182TTFCD6026	√	89.5	8.6-8.3/4.1	94	15.08	75	A420
	1800	230/460	182T	Y	<b>GT1010A-P</b>	182TTFCD6070	√	89.5	8.3/4.1	98	15.08	P, 75	A420
	1800	230/460	182T	N	<b>GT1510</b>	182TTFBD6027	√	89.5	8.3/4.1	80	15.10	75	A401
	1800	230/460	182T	N	<b>GT1510-P</b>	182TTFBD6070	√	89.5	8.3/4.1	77	15.10	P, 75	A401
	1800	575	182T	Y	<b>GT1110A</b>	182TTFCD6030	√	89.5	3.3	86	15.08	75	A420
	1200	230/460	213T	Y	<b>GT1011A</b>	213TTFCD6076	√	89.5	8.6/4.3	157	18.53	75	A421
	1200	230/460	213T	N	<b>GT1511</b>	213TTFBD6080	√	89.5	8.6/4.3	149	18.35	75	A171
	1200	575	213T	Y	<b>GT1111A</b>	213TTFCD6080	√	89.5	3.4	130	18.53	75	A421
	900	230/460	215T	Y	<b>GT10107</b>	215TTFCD6101	√	85.5	9.2/4.6	200	20.03	75	A421
5	3600	200	184T	N	<b>GT1862</b>	184TTFBD6000	¶	88.5	14.3	78	16.10	75	A401
	3600	230/460	184T	Y	<b>GT1012A</b>	184TTFCD6001	√	88.5	12.4/6.2	94	16.08	75, A	A420
	3600	230/460	184T	N	<b>GT1512</b>	184TTFBD6002	√	88.5	12.4/6.2	74	16.10	75	A401
	3600	575	184T	Y	<b>GT1112A</b>	184TTFCD6005	√	88.5	5.0	82	16.08	75	A420
	1800	200	184T	N	<b>GT1863</b>	184TTFBD6039	√	89.5	15.2	93	16.10	75	A401
	1800	200/400	184T	Y	<b>GT1813</b>	184TTFCD6039	¶	89.5	15.2/7.6	117	16.08	75	A420
	1800	230/460	184T	Y	<b>GT1013A</b>	184TTFCD6026	√	89.5	13.2/6.6	99	16.08	75, A	A420
	1800	230/460	184T	Y	<b>GT1013A-P</b>	184TTFCD6070	√	89.5	13.2/6.6	115	16.08	P, 75	A420
	1800	230/460	184T	N	<b>GT1513</b>	184TTFBD6027	√	89.5	13.2/6.6	92	16.10	75	A401
	1800	230/460	184T	N	<b>GT1513-P</b>	184TTFBD6070		89.5	13.2/6.6	103	16.10	P, 75	A401
	1800	230/460	184T	N	-	132236.00	√	89.5	12.6/6.3	90	14.96	75	-
	1800	575	184T	Y	<b>GT1113A</b>	184TTFCD6030	√	89.5	5.3	99	16.08	75	A420
	1200	230/460	215T	Y	<b>GT1014A</b>	215TTFCD6076	√	89.5	13.6/6.8	146	20.03	75	A421

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

Continued on next page.

\*See back cover page for attribution.

# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
5	1200	230/460	215T	N	<b>GT1514</b>	215TTFBD6080	√	89.5	13.6/6.8	170	19.85	75	A171
	1200	575	215T	Y	<b>GT1114A</b>	215TTFCD6080	¶	89.5	5.5	146	20.03	75	A421
	900	230/460	254T	Y	<b>GT10109</b>	254TTFCD6101		86.5	14.2/7.1	250	24.15	75	A173A
7 1/2	3600	200	213T	N	<b>GT1865</b>	213TTFBD6000	√	89.5	21.2	150	18.35	75	A171
	3600	230/460	213T	N	<b>GT1515</b>	213TTFBD6002	√	89.5	18.4/9.2	100	18.35	75	A171
	3600	230/460	213T	Y	<b>GT1015A</b>	213TTFCD6001	√	89.5	18.4/9.2	135	18.53	75, A	A421
	3600	575	213T	Y	<b>GT1115A</b>	213TTFCD6005	¶	89.5	7.4	135	18.53	75	A421
	1800	200	213T	Y	<b>GT1816</b>	213TTFCD6039	¶	91.7	21.9	194	18.53	75	A421
	1800	200	213T	N	<b>GT1866</b>	213TTFBD6039	√	91.7	21.9	150	18.35	75	A171
	1800	208-230/460	213T	Y	<b>GT1016A</b>	213TTFCD6026	√	91.7	20.6-19.5/9.5	171	18.53	75	A421
	1800	230/460	213T	Y	<b>GT1016A-P</b>	213TTFCD6070	√	91.7	19.0/9.5	206	18.53	P, 75	A421
	1800	230/460	213T	N	<b>GT1516</b>	213TTFBD6027	√	91.7	19.0/9.5	150	18.35	75	A171
	1800	230/460	213T	N	<b>GT1516-P</b>	213TTFBD6070		93.3	19/9.5	150	18.35	P, 75	A171
	1800	575	213T	Y	<b>GT1116A</b>	213TTFCD6030	√	91.7	7.6	152	18.53	75	A421
	1200	230/460	254T	Y	<b>GT1017A</b>	254TTFCD6076	√	91.0	19.8/9.9	247	24.15	75	A173A
	1200	575	254T	Y	<b>GT1117A</b>	254TTFCD6080	¶	91.0	7.9	247	24.15	75	A173A
	900	230/460	256T	Y	<b>GT10111</b>	256TTFCD6101	√	86.5	21.0/10.5	250	25.89	75	A173A
	10	3600	200	215T	N	<b>GT1868</b>	215TTFBD6000		90.2	27.2	162	19.85	75
3600		230/460	215T	Y	<b>GT1018A</b>	215TTFCD6001	√	90.2	23.6/11.8	152	20.03	75	A421
3600		230/460	215T	N	<b>GT1518</b>	215TTFBD6002	√	90.2	23.6/11.8	200	19.85	75	A171
3600		575	215T	Y	<b>GT1118A</b>	215TTFCD6005	¶	90.2	9.5	152	18.53	75	A421
1800		200	215T	Y	<b>GT1819</b>	215TTFCD6039		91.7	28.8	183	20.03	75	A421
1800		200	215T	N	<b>GT1869</b>	215TTFBD6039		91.7	28.8	162	19.85	75	A171
1800		208-230/460	215T	Y	<b>GT1019A</b>	215TTFCD6026	√	91.7	27.3-25.0/12.5	165	20.30	75	A421
1800		208-230/460	215T	Y	<b>GT1019A-P</b>	215TTFCD6070	√	91.7	27.3-25.0/12.5	192	20.03	P, 75	A421
1800		208-230/460	215T	N	<b>GT1519</b>	215TTFBD6027	√	91.7	27.3-25.0/12.5	162	19.85	75	A171
1800		208-230/460	215T	N	<b>GT1519-P</b>	215TTFBD6070		91.7	27.3-25.0/12.5	162	19.85	P, 75	A171
1800		575	215T	Y	<b>GT1119A</b>	215TTFCD6030	√	91.7	10.0	148	20.03	75	A421
1200		230/460	256T	Y	<b>GT1020A</b>	256TTFCD6076	√	91.0	25.8/12.9	265	25.89	75	A173A
1200		575	256T	Y	<b>GT1120A</b>	256TTFCD6080	¶	91.0	10.3	324	25.89	75	A173A
900		230/460	284T	Y	<b>GT10113</b>	284TTFCD6101	¶	89.5	27.6/13.8	425	26.65	75	A175A
15		3600	230/460	215T	Y	<b>GT10114</b>	215TTFCD16001	√	91.0	35.5/17.8	150	20.03	75
	3600	230/460	254T	Y	<b>GT1021A</b>	254TTFCD6001	√	91.0	35.5/17.8	301	24.15	75	A173A
	3600	575	254T	Y	<b>GT1121A</b>	254TTFCD6005	¶	91.0	14.3	293	24.15	75	A173A
	1800	200	254T	Y	<b>GT1822</b>	254TTFCD6039	¶	92.4	43.5	229	24.15	75	A173A
	1800	208-230/460	254T	Y	<b>GT1022A</b>	254TTFCD6026	√	92.4	40.0-37.5/18.8	271	24.15	75	A173A
	1800	230/460	254T	Y	<b>GT1022A-P</b>	254TTFCD6070	√	92.4	37.5/18.8	318	24.15	P, 75	A173A
	1800	575	254T	Y	<b>GT1122A</b>	254TTFCD6030	√	92.4	15.1	260	24.15	75	A173A
	1200	230/460	284T	Y	<b>GT1023A</b>	284TTFCD6076	√	91.7	40.0/20.0	412	26.65	YD	A175A
	1200	575	284T	Y	<b>GT1123A</b>	284TTFCD6080	¶	91.7	16.0	525	26.65		A175A
	900	230/460	286T	Y	<b>GT10115</b>	286TTFCD6106	√	89.5	40.0/20.0	530	28.14		A175A
20	3600	230/460	256T	Y	<b>GT1024A</b>	256TTFCD6001	√	91.0	47.5/23.7	265	25.89	75	A173A
	3600	575	256T	Y	<b>GT1124A</b>	256TTFCD6005	¶	91.0	19.0	322	25.89	75	A173A
	1800	200/400	256T	Y	<b>GT1825</b>	256TTFCD6039	√	93.0	55.5/27.8	335	25.89	75	A173A
	1800	208-230/460	256T	Y	<b>GT1025A</b>	256TTFCD6026	√	93.0	53.0-48.5/24.2	315	25.89	75	A173A
	1800	230/460	256T	Y	<b>GT1025A-P</b>	256TTFCD6070	√	93.0	48.5/24.2	361	25.89	P, 75	A173A
	1800	575	256T	Y	<b>GT1125A</b>	256TTFCD6030	√	93.0	19.4	335	25.89	75	A173A
	1200	208-230/460	286T	Y	<b>GT1026A</b>	286TTFCD6076	√	91.7	56.0-52.0/26.0	386	28.14	YD	A175A
	1200	575	286T	Y	<b>GT1126A</b>	286TTFCD6080	¶	91.7	20.8	549	28.14		A175A
	900	230/460	324T	Y	<b>GT10117</b>	324TTFCD6101	¶	90.2	54.0/27.0	607	29.69		A177A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

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# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
25	3600	230/460	284TS	Y	<b>GT1027A</b>	284TSTFCD6001	√	91.7	60.0/30.0	386	25.28	YD	A175A
	3600	575	284TS	Y	<b>GT1127A</b>	284TSTFCD6005	¶	91.7	24.0	500	25.28		A175A
	1800	208-230/460	284T	Y	<b>GT1028A</b>	284TTFCD6026	√	93.6	65.0-60.0/30.0	399	26.65	YD	A175A
	1800	230/460	284T	Y	<b>GT1028A-P</b>	284TTFCD6070	√	93.6	60.0/30.0	492	26.65	P, YD	A175A
	1800	230/460	284TS	Y	<b>GT1057</b>	284TSTFCD6026	¶	93.6	60.0/30.0	186	25.28	YD	A175A
	1800	575	284T	Y	<b>GT1128A</b>	284TTFCD6030	√	93.6	24.0	395	26.65		A175A
	1200	230/460	324T	Y	<b>GT1029A</b>	324TTFCD6076	√	93.0	64.0/32.0	516	29.69	YD	A177A
	1200	575	324T	Y	<b>GT1129A</b>	324TTFCD6080	¶	93.0	25.6	516	29.69		A177A
30	3600	230/460	286TS	Y	<b>GT1030A</b>	286TSTFCD6001	√	91.7	71.0/35.5	353	26.77	YD	A175A
	3600	575	286TS	Y	<b>GT1130A</b>	286TSTFCD6005	¶	91.7	28.5	432	26.77		A175A
	1800	208-230/460	286T	Y	<b>GT1031A</b>	286TTFCD6026	√	93.6	78.0-71.0/35.5	437	28.14	YD	A175A
	1800	230/460	286T	Y	<b>GT1031A-P</b>	286TTFCD6070	√	93.6	71.0/35.5	407	28.14	P, YD	A175A
	1800	230/460	286TS	Y	<b>GT1058</b>	286TSTFCD6026	¶	93.6	71.0/35.5	410	26.77	YD	A175A
	1800	575	286T	Y	<b>GT1131A</b>	286TTFCD6030	√	93.6	28.4	487	28.14		A175A
	1200	230/460	326T	Y	<b>GT1032A</b>	326TTFCD6076	√	93.0	76.0/38.0	1136	31.19	YD	A177A
	1200	575	326T	Y	<b>GT1132A</b>	326TTFCD6080	¶	93.0	30.5	670	31.19		A177A
40	3600	230/460	324TS	Y	<b>GT1033A</b>	324TSTFCD6001	√	92.4	92.0/46.0	512	28.19	YD	A177A
	3600	575	324TS	Y	<b>GT1133A</b>	324TSTFCD6005	¶	92.4	37.0	690	28.19		A177A
	1800	230/460	324T	Y	<b>GT1034A</b>	324TTFCD6026	√	94.1	95.0/47.5	624	29.69	YD	A177A
	1800	230/460	324T	Y	<b>GT1034A-P</b>	324TTFCD6070	√	94.1	95.0/47.5	609	29.69	P, YD	A177A
	1800	230/460	324TS	Y	<b>GT1059</b>	324TSTFCD6026	¶	94.1	95.0/47.5	558	28.19	YD	A177A
	1800	575	324T	Y	<b>GT1134A</b>	324TTFCD6030	√	94.1	38.0	560	29.69		A177A
	1200	230/460	364T	Y	<b>GT1035A</b>	364TTFCD6086	√	94.1	96.0/48.0	849	33.32	YD	A179A
	1200	575	364T	Y	<b>GT1135A</b>	364TTFCD6080	√	94.1	38.5	831	33.32		A179A
50	3600	230/460	326TS	Y	<b>GT1036A</b>	326TSTFCD6001	√	94.1	113/56.5	580	28.19	YD	A177A
	3600	575	326TS	Y	<b>GT1136A</b>	326TSTFCD6005	¶	94.1	45.0	640	29.69		A177A
	1800	230/460	326T	Y	<b>GT1037A</b>	326TTFCD6026	√	94.5	117/58.5	611	31.19	YD	A177A
	1800	230/460	326T	Y	<b>GT1037A-P</b>	326TTFCD6070	√	94.5	117/58.5	680	31.19	P, YD	A177A
	1800	230/460	326TS	Y	<b>GT1060</b>	326TSTFCD6026	√	94.5	117/58.5	609	29.69	YD	A177A
	1800	575	326T	Y	<b>GT1137A</b>	326TTFCD6030	√	94.5	47.0	617	31.19		A177A
	1200	230/460	365T	Y	<b>GT1038A</b>	365TTFCD6086	√	94.1	121/60.5	878	34.30	YD	A179A
	1200	575	365T	Y	<b>GT1138A</b>	365TTFCD6080	¶	94.1	48.5	1100	34.30		A179A
60	3600	230/460	364TS	Y	<b>GT1039A</b>	364TSTFCD6001	√	93.6	135/67.5	897	31.19	YD	A179A
	3600	575	364TS	Y	<b>GT1139A</b>	364TSTFCD6005	¶	93.6	54.0	776	31.19		A179A
	1800	230/460	364T	Y	<b>GT1040A</b>	364TTFCD6036	√	95.0	136/68.0	831	33.32	YD	A179A
	1800	230/460	364TS	Y	<b>GT1061</b>	364TSTFCD6036	¶	95.0	136/68.0	807	31.19	YD	A179A
	1800	575	364T	Y	<b>GT1140A</b>	364TTFCD6040	¶	95.0	54.5	807	33.32		A179A
	1200	230/460	404T	Y	<b>GT1041A</b>	404TTFCD6086	√	94.5	143/71.5	1131	38.77	YD	A425A
	1200	575	404T	Y	<b>GT1141A</b>	404TTFCD6080	¶	94.5	57.0	1217	38.77		A425A
	75	3600	230/460	365TS	Y	<b>GT1042A</b>	365TSTFCD6001	√	94.5	168/84.0	950	32.17	YD
3600		575	365TS	Y	<b>GT1142A</b>	365TSTFCD6002	√	94.5	67.0	933	32.17		A179A
1800		230/460	365T	Y	<b>GT1043A</b>	365TTFCD6036	√	95.5	170/85.0	915	34.30	YD	A179A
1800		230/460	365TS	Y	<b>GT1062</b>	365TSTFCD6036	√	95.5	170/85.0	908	32.17	YD	A179A
1800		575	365T	Y	<b>GT1143A</b>	365TTFCD6040	√	95.5	68.0	922	34.30		A179A
1200		230/460	405T	Y	<b>GT1044A</b>	405TTFCD6086	√	94.5	178/89.0	1303	38.77	YD	A425A
1200		575	405T	Y	<b>GT1144A</b>	405TTFCD6080	√	94.5	71.0	1200	38.77		A425A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
Blue shaded areas are cast iron frames.

Continued on next page.

# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
100	3600	230/460	405TS	Y	<b>GT1045A</b>	405STFC6001	√	94.5	222/111	1039	35.77	YD	A424A
	3600	575	405TS	Y	<b>GT1145A</b>	405STFC6005	¶	94.5	89.0	1129	35.77		A424A
	1800	230/460	405T	Y	<b>GT1046A</b>	405TFC6036	√	95.4	226/113	1202	38.77	YD	A425A
	1800	230/460	405T	Y	<b>GT1046A-P</b>	405TFC6037	¶	95.4	226/113	1325	38.77	P, YD	A425A
	1800	230/460	405TS	Y	<b>GT1063</b>	405STFC6036	√	95.4	226/113	1270	35.77	YD	A425A
	1800	575	405T	Y	<b>GT1146A</b>	405TFC6040	√	95.4	90.5	1292	38.77		A425A
	1200	230/460	444T	Y	<b>GT1047A</b>	444TFC6086	¶	95.0	229/115	1764	46.71	YD	A427A
	1200	575	444T	Y	<b>GT1147A</b>	444TFC6080	√	95.0	91.5	1850	46.71		A427A
125	3600	460	444TS	Y	<b>GT1048A</b>	444STFC6001		95.0	138	1566	42.96	PW	A426A
	3600	575	444TS	Y	<b>GT1148A</b>	444STFC16002	¶	95.0	110	1667	42.96		A426A
	1800	460	444T	Y	<b>GT1049A</b>	444TFC6036	√	95.4	140	1705	46.71	PW	A427A
	1800	460	444TS	Y	<b>GT1064</b>	444STFC6036	√	95.4	140	1909	42.96	PW	A427A
	1800	575	444T	Y	<b>GT1149A</b>	444TFC6044	√	95.4	112	1566	46.71		A427A
	1200	460	445T	Y	<b>GT1050A</b>	445TFC6086	√	95.0	143	1852	46.71	PW	A427A
	1200	575	445T	Y	<b>GT1150A</b>	445TFC6080	√	95.0	114	1852	46.71		A427A
	150	3600	460	445TS	Y	<b>GT1051A</b>	445STFC6001	√	95.0	161	1786	42.96	PW
3600		575	445TS	Y	<b>GT1151A</b>	445STFC6005	√	95.0	128	1881	42.96		A426A
1800		460	445T	Y	<b>GT1052A</b>	445TFC6036	√	95.8	169	1764	46.71	PW	A427A
1800		460	445T	Y	<b>GT1052A-P</b>	445TFC6038	√	95.8	169	1950	46.71	P, PW	A427A
1800		460	445TS	Y	<b>GT1065</b>	445STFC6036	√	95.8	169	1742	42.96	PW	A425A
1800		575	445T	Y	<b>GT1152A</b>	445TFC6037	√	95.8	135	1874	46.71		A427A
1200		460	445T	Y	<b>GT10135</b>	445TFC6088		95.8	171	1895	51.08	PW, RB	A427A
1200		460	447T	Y	<b>GT1053A</b>	447TFC6087	¶	95.8	171	2452	55.21	PW	A427A
200	1200	575	447T	Y	<b>GT1153A</b>	447TFC6080	√	95.8	136	2500	55.21		A427A
	3600	460	447TS	Y	<b>GT1054A</b>	447STFC6004	√	95.4	217	2311	51.46	PW	A426A
	3600	575	447TS	Y	<b>GT1154A</b>	447STFC6005	√	95.4	174	2328	51.46		A426A
	1800	460	447T	Y	<b>GT1055A</b>	447TFC6038	√	96.5	219	2300	55.21	PW	A427A
	1800	460	447TS	Y	<b>GT1066</b>	447STFC6038	√	96.5	219	2275	51.46	PW	A427A
	1800	575	447T	Y	<b>GT1155A</b>	447TFC6039	√	96.5	175	990	55.21		A427A
	1200	460	449T	Y	<b>GT1056A</b>	449TFC6088	√	95.8	230	2494	55.21	PW	A427A
	1200	575	449T	Y	<b>GT1156A</b>	449TFC6080	√	95.8	184	2370	55.21		A427A
250	3600	460	449TS	Y	<b>GT1068</b>	449STFC6005	√	95.8	266	2458	51.46	PW	A426A
	1800	460	449T	Y	<b>GT1069</b>	449TFC6026	√	96.2	272	2500	55.21	PW	A427A
	1800	460	449T	Y	<b>GT1070</b>	449TFC6038	√	96.2	272	2520	55.21	RB, PW	A427A
	1200	460	449T	Y	<b>GT10138</b>	449TFC6086	¶	95.8	285	2745	55.21	RB	A427A
	1200	460	449T	Y	<b>GT1071</b>	449TFC6076	√	95.8	285	2745	55.21	PW	A427A
	3600	460	449TS	Y	<b>GT1072</b>	449STFC6006		95.8	320	2495	51.46	PW	A426A
300	1800	460	449T	Y	<b>GT1073</b>	449TFC6027	¶	96.2	332	2680	55.21	PW	A427A
	1800	460	449T	Y	<b>GT1073-P</b>	449TFC16374	√	96.2	332	2700	55.21	P, PW	A427A
	1200	460	449T	Y	<b>GT1075</b>	449TFC6077	√	95.8	342	2995	59.15	PW	A427A
	1200	460	449T	Y	<b>GT1076</b>	449TFC6390		95.8	342	2995	59.15	RB	A427A
350	3600	460	449TS	Y	<b>GT1077</b>	449STFC6003		95.8	373	2739	51.46	PW	A426A
	1800	460	449T	Y	<b>GT1078</b>	449TFC6036	√	96.2	390	2770	55.21	PW	A427A
	1800	460	449T	Y	<b>GT1079</b>	449TFC16333		96.2	390	3125	55.21	RB, PW	A427A
400	3600	460	449TS	Y	<b>GT1083</b>	449STFC6004		95.8	327	2960	55.40	PW	A426A
	1800	460	449T	Y	<b>GT1084</b>	449TFC16375	√	96.2	440	3258	59.15	PW	A427A
	1800	460	449T	Y	<b>GT1085</b>	449TFC16334		96.2	440	3125	59.15	RB, PW	A427A

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

# GLOBETROTTER GENERAL PURPOSE MOTORS

THREE PHASE, TOTALLY ENCLOSED



## C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1800	230/460	56C	N	-	132596.00	√	87.5	6/3&5.2/2.6	75	14.62	75
	1200	230/460	182TC	N	<b>GT1305A</b>	182TFBD6079	√	87.5	4.6/2.3	91	15.85	
2	1200	230/460	184TC	N	<b>GT1308A</b>	184TFBD6079	¶	88.5	6.2/3.1	94	16.85	
	3600	230/460	182TC	N	<b>GT1309A</b>	182TFBD6004	√	86.5	8.0/4.0	83	15.85	
3	1800	230/460	56C	N	<b>GT13195</b>	182TFBD16029	√	89.5	8.0/4.0	87	14.62	
	1800	230/460	182TC	N	<b>GT1310A</b>	182TFBD6029	√	89.5	8.0/4.0	87	15.85	
	1800	575	182TC	N	<b>GT1910</b>	182TFBD6044	¶	89.5	3.6	87	15.85	
	1200	230/460	213TC	N	<b>GT1311A</b>	213TFBD6079	√	89.5	8.6/4.3	136	19.10	
	3600	230/460	184TC	N	<b>GT1312A</b>	184TFBD6004	√	88.5	12.4/6.2	95	16.85	
5	1800	230/460	184TC	N	<b>GT1313A</b>	184TFBD6029	√	89.5	13.2/6.6	110	16.85	
	1200	230/460	215TC	N	<b>GT1314A</b>	215TFBD6079	√	89.5	13.6/6.8	145	20.70	
	3600	230/460	184TC	N	<b>GT13192</b>	184TFBD6005	√	89.5	17.6/8.8	120	16.85	
7 1/2	3600	230/460	213TC	N	<b>GT1315A</b>	213TFBD6004	√	89.5	18.4/9.2	119	19.10	
	1800	230/460	213TC	N	<b>GT1316A</b>	213TFBD6029	√	91.7	19.0/9.5	153	19.10	
	3600	230/460	215TC	N	<b>GT1318A</b>	215TFBD6004	√	90.2	23.6/11.8	155	20.70	
10	1800	208-230/460	215TC	N	<b>GT1319A</b>	215TFBD6029	√	91.7	27.3-25.0/12.5	165	20.70	
	3600	230/460	215TC	N	<b>GT1317A</b>	215TFBD6005	√	91.7	35.0/17.4	150	20.70	
15	1800	230/460	254TC	Y	<b>GT1322</b>	254TFCD6042	√	92.4	37.5/18.8	318	24.65	
	20	1800	230/460	256TC	Y	<b>GT1325</b>	256TFCD6042	√	93.0	48.5/24.2	330	26.39
40	1800	230/460	324TC	Y	<b>GT1334</b>	324TFCD6039	√	94.1	95.0/47.5	624	29.69	YD



## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182TC	N	<b>GT1205A</b>	182TFBD6078	√	87.5	4.6/2.3	91	15.85	
2	1200	230/460	184TC	N	<b>GT1208A</b>	184TFBD6078	√	88.5	6.2/3.1	104	16.85	
	3600	230/460	182TC	N	<b>GT1209A</b>	182TFBD6003	√	86.5	8.0/4.0	83	15.85	
3	3600	575	182TC	N	<b>GT1409A</b>	182TFBD6007	√	86.5	3.2	83	15.85	
	1800	230/460	182TC	N	<b>GT1210A</b>	182TFBD6028	√	89.5	8.0/4.0	105	15.85	
	1800	575	182TC	N	<b>GT1410A</b>	182TFBD6032	¶	89.5	3.2	108	15.85	
	1200	230/460	213TC	N	<b>GT1211A</b>	213TFBD6078	√	89.5	8.6/4.3	164	19.10	
	3600	230/460	184TC	N	<b>GT1212A</b>	184TFBD6003	√	88.5	12.4/6.2	97	16.85	
5	3600	575	184TC	N	<b>GT1412A</b>	184TFBD6007	¶	88.5	5.0	97	16.85	
	1800	230/460	184TC	N	<b>GT1213A</b>	184TFBD6028	√	89.5	13.2/6.6	105	16.85	
	1800	230/460	184TC	N	<b>GT1213A-P</b>	184TFBD6030	¶	89.5	13.2/6.6	105	16.85	
	1800	575	184TC	N	<b>GT1413A</b>	184TFBD6032	√	89.5	5.2	105	16.85	
	1200	230/460	215TC	N	<b>GT1214A</b>	215TFBD6078	√	89.5	13.6/6.8	185	20.70	
7 1/2	3600	230/460	213TC	N	<b>GT1215A</b>	213TFBD6003	√	89.5	18.4/9.2	136	19.10	
	3600	575	213TC	N	<b>GT1415A</b>	213TFBD6007	√	89.5	7.4	138	19.10	
	1800	230/460	213TC	N	<b>GT1216A</b>	213TFBD6028	√	91.7	19/9.5	158	19.10	
	1800	230/460	213TC	N	<b>GT1216A-P</b>	213TFBD6030	√	91.7	19/9.5	158	19.10	
	1800	575	213TC	N	<b>GT1416A</b>	213TFBD6032	¶	91.7	7.6	157	19.10	
10	1200	230/460	254TC	Y	<b>GT1217A</b>	254TFCD6078	¶	91.0	19.8/9.9	315	24.65	
	3600	230/460	215TC	N	<b>GT1218A</b>	215TFBD6003	√	90.2	23.6/11.8	155	20.70	
	3600	230/460	215TC	N	<b>GT1218A-P</b>	215TFBD6010	√	90.2	23.6/11.8	155	20.70	
	3600	575	215TC	N	<b>GT1418A</b>	215TFBD6007	¶	90.2	10.0	172	20.70	
	1800	208-230/460	215TC	N	<b>GT1219A</b>	215TFBD6028	√	91.7	27.3-25.0/12.5	175	20.70	
15	1800	575	215TC	N	<b>GT1419A</b>	215TFBD6032	¶	91.7	10.0	186	20.70	
	1200	230/460	256TC	Y	<b>GT1220A</b>	256TFCD6078	√	91.0	25.8/12.9	345	26.39	
	3600	230/460	215TC	N	<b>GT1217A</b>	215TFBD6001	√	91.7	35.0/17.4	158	20.70	
	3600	230/460	254TC	Y	<b>GT1221A</b>	254TFCD6003	√	91.0	35.5/17.8	336	24.65	
	3600	575	254TC	Y	<b>GT1421A</b>	254TFCD6007	¶	91.0	14.0	336	24.65	
15	1800	230/460	254TC	Y	<b>GT1222A</b>	254TFCD6028	√	92.4	37.5/18.8	311	24.65	
	1800	575	254TC	Y	<b>GT1422A</b>	254TFCD6032	¶	92.4	15.0	325	24.65	
	1200	230/460	284TC	Y	<b>GT1223</b>	284TFCD6078	¶	91.7	40.0/20.0	450	26.65	YD

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

Continued on next page.

# GLOBETROTTER GENERAL PURPOSE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
20	3600	230/460	256TC	Y	<b>GT1224A</b>	256TTFCD6003	√	91.0	47.5/23.7	330	26.39	
	1800	230/460	256TC	Y	<b>GT1225A</b>	256TTFCD6028	√	93.0	48.5/24.2	330	26.39	
	1200	230/460	286TC	Y	<b>GT1226</b>	286TTFCD6078		91.7	52.0/26.0	530	28.14	YD
25	3600	230/460	284TSC		<b>GT1227A</b>	284TSTFCD6003	√	91.7	60.0/30.0	293	25.28	YD
	3600	230/460	284TC		<b>GT12127</b>	284TTFCD6001	√	91.7	60.0/30.0	385	25.28	YD
	1800	230/460	284TC	Y	<b>GT1228A</b>	284TTFCD6028	√	93.6	60.0/30.0	500	26.65	YD
	1200	230/460	324TC	Y	<b>GT1229</b>	324TTFCD6078		93.0	64.0/32.0	645	29.69	YD
30	3600	230/460	286TC	Y	<b>GT12130</b>	286TTFCD6001	¶	91.7	71.0/35.5	353	28.14	YD
	3600	230/460	286TSC	Y	<b>GT1230A</b>	286TSTFCD6003	√	91.7	71.0/35.5	500	26.77	YD
	1800	230/460	286TC	Y	<b>GT1231A</b>	286TTFCD6028	√	93.6	71.0/35.5	504	28.14	YD
	1200	230/460	326TC	Y	<b>GT1232</b>	326TTFCD6078		93.0	76.0/38.0	730	31.19	YD
40	3600	230/460	324TSC	Y	<b>GT1233A</b>	324TSTFCD6003	√	92.4	92.0/46.0	675	28.19	YD
	1800	230/460	324TC	Y	<b>GT1234A</b>	324TTFCD6028	√	94.1	95.0/47.5	750	29.69	YD
	1800	230/460	324TSC	Y	<b>GT1259</b>	324TSTFCD6028	√	94.1	95.0/47.5	558	28.19	YD
	1200	230/460	364TC	Y	<b>GT1235</b>	364TTFCD6078		94.1	96.0/48.0	900	33.32	YD
50	3600	230/460	326TSC	Y	<b>GT1236A</b>	326TSTFCD6003	√	94.1	113/56.5	725	29.69	YD
	1800	230/460	326TC	Y	<b>GT1237A</b>	326TTFCD6028	√	94.5	117/58.5	775	31.19	YD
	1800	230/460	326TSC	Y	<b>GT1260</b>	326TSTFCD6028	√	94.5	117/58.5	609	29.69	YD
	1200	230/460	365TC	Y	<b>GT1238</b>	365TTFCD6078		94.1	121/60.5	1040	34.30	YD
60	3600	230/460	364TSC	Y	<b>GT1239A</b>	364TSTFCD6003	√	93.6	135/67.5	925	31.19	YD
	1800	230/460	364TC	Y	<b>GT1240A</b>	364TTFCD6038	√	95.0	138/69.0	1000	33.32	YD
	1800	230/460	364TSC	Y	<b>GT1261</b>	364TSTFCD6038		95.0	138/69.0	1000	31.19	YD
	1200	230/460	404TC	Y	<b>GT1241</b>	404TTFCD6078		94.5	143/71.5	1360	38.77	YD
75	3600	230/460	365TSC	Y	<b>GT1242A</b>	365TSTFCD6003	√	94.5	168/84.0	1025	32.17	YD
	1800	230/460	365TC	Y	<b>GT1243A</b>	365TTFCD6038	√	95.4	171/85.5	1100	34.30	YD
	1800	230/460	365TSC	Y	<b>GT1262</b>	365TSTFCD6038		95.4	172/86.0	908	32.17	YD
	1200	230/460	405TC	Y	<b>GT1244</b>	405TTFCD6078		94.5	178/89.0	1450	38.77	YD
100	3600	230/460	405TSC	Y	<b>GT1245A</b>	405TSTFCD6003	√	94.5	222/111	1250	35.77	YD
	1800	230/460	405TC	Y	<b>GT1246A</b>	405TTFCD6038	√	95.4	226/113	1375	38.77	YD
	1800	230/460	405TSC	Y	<b>GT1263</b>	405TSTFCD6038	¶	95.4	226/113	1191	35.77	YD
	1200	230/460	444TC	Y	<b>GT1247</b>	444TTFCD6078		95.0	229/115	1764	46.71	YD

### C-FACE FOOTED (RIGID BASE) BCP, F3 - TOP MOUNTED CONDUIT BOX

HP	RPM	VOLTS	FRAME	IP55	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182TC	N	<b>GT12309</b>	182TTFBD6015		86.5	7.6/3.8	83	15.75	
	1800	230/460	182TC	N	<b>GT12310</b>	182TTFBD6035		89.5	7.8/3.9	105	15.75	
5	3600	230/460	184TC	N	<b>GT12312</b>	184TTFBD6015		88.5	13.4/6.7	97	16.73	
	1800	230/460	184TC	N	<b>GT12313</b>	184TTFBD6035		89.5	12.4/6.2	105	16.73	
7 1/2	3600	230/460	213TC	N	<b>GT12315</b>	213TTFBD6015	√	89.5	18.4/9.2	136	19.12	
	1800	230/460	213TC	N	<b>GT12316</b>	213TTFBD6035		91.7	19.0/9.5	158	19.12	
10	3600	230/460	215TC	N	<b>GT12318</b>	215TTFBD6015		90.2	23.6/11.8	155	20.62	
	1800	208-230/460	215TC	N	<b>GT12319</b>	215TTFBD6035		91.7	27.3-25.0/12.5	150	20.62	

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
Blue shaded areas are cast iron frames.

# XRI-SEVERE DUTY MOTORS

## TEFC COOLING TOWER: SINGLE-SPEED, THREE PHASE

### FEATURES

- 100% cast iron construction for rigidity and reduced vibration
- Internal and external epoxy paint
- MAX GUARD® motor Class F insulation system
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Rated 60/50 hertz, 190/380 or 380 volt at next lower horsepower
- Extended grease tubes, regreasable in service
- T-drains provided for effective drainage (Installed in both endshields)
- Suitable for shaft down mounting
- Shaft slinger
- Forsheda®\* seals on both ends
- Ball bearings
- Actual test and vibration data supplied with each motor
- UL®\*\* recognized (through 5011) and CSA®\*\* certified
- Suitable for 10:1 VT and CT (as noted) on VFD
- Three year warranty



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF	FL. AMPS	WT.	"C" DIM.
3	1800	230/460	182T	<b>U867B</b>	182TTFCD6557	√	10:1	89.5	8.0/4.0	145	15.20
5	1800	230/460	184T	<b>U868B</b>	184TTFCD6555	¶	10:1	89.5	13.0/6.5	128	16.20
7 1/2	1800	230/460	213T	<b>U869C</b>	213TTFCD6550	√	10:1	91.7	19.0/9.5	226	18.53
	1800	230/460	213T	<b>U869B</b>	213TTFND6550	¶	20:1	91.7	19.2/9.6	226	19.63
10	1800	230/460	215T	<b>U870C</b>	215TTFCD6546	¶	10:1	91.7	25.0/12.5	245	20.03
15	1800	230/460	254T	<b>U871B</b>	254TTFCD16568	√	10:1	92.4	37.5/18.8	349	24.15
20	1800	230/460	256T	<b>U872B</b>	256TTFCD16574	√	10:1	93.0	48.5/24.2	375	25.89
25	1800	230/460	284T	<b>U873B</b>	284TTFCD6832	√	10:1	93.6	60.0/30.0	440	26.64
25	1800	230/460	284T	<b>U873A</b>	284TTFNA16832	¶	10:1	93.6	62.0/31.0	468	26.63
30	1800	230/460	286T	<b>U874B</b>	286TTFCD16572	√	10:1	93.6	71.0/35.5	503	28.14
30	1800	230/460	286T	<b>U874A</b>	286TTFNA16572	¶	10:1	94.1	73.0/36.5	487	28.13
40	1800	230/460	324T	<b>U875B</b>	324TTFCD6837	¶	2:1	94.1	95.0/47.5	567	29.85
50	1800	230/460	326T	<b>U876B</b>	326TTFCD16574	√	2:1	94.5	117/58.5	644	31.35
60	1800	230/460	364T	<b>U877B</b>	364TTFCD6558		2:1	95.0	136/68.0	1078	33.40
75	1800	230/460	365T	<b>U878B</b>	365TTFCD16827		2:1	95.5	170/85.0	1169	34.40
100	1800	230/460	405T	<b>U879B</b>	405TTFCD16834	√	2:1	95.4	226/113	1458	38.88
125	1800	460	444T	<b>U880B</b>	444TTFCD16549		2:1	95.4	140	1990	46.83
150	1800	460	445T	<b>U881B</b>	445TTFCD16866	√	2:1	95.8	169	2343	46.83
200	1800	460	445T	<b>U882B</b>	445TTFCD16852		2:1	96.5	219	2556	51.20
250	1800	460	449T	<b>U884B</b>	449TTFCD36649	√	2:1	96.2	272	2409	55.33

√- Available    ¶- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.  
 Specifications are subject to change without notice.  
 \*See back cover page for attribution.

# XRI-SEVERE DUTY MOTORS

## TEAO COOLING TOWER: SINGLE-SPEED, THREE PHASE

### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- Bearing Current Protection (BCP)
- 100% cast iron construction for rigidity and reduced vibration
- Internal and external epoxy paint
- MAX GUARD® motor Class F insulation system
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Rated 60/50 hertz, 190/380 or 380 volt at next lower horsepower
- Extended grease tubes, regreasable in service
- T-drains provided for effective drainage (Installed in both endshields)
- Suitable for all angle mounting
- Inpro/Seal®\* quality VBX®\* bearing isolators
- Ball bearings
- Actual test and vibration data supplied with each motor
- UL®\* Recognized and CSA®\* certified
- Suitable for 10:1 VT and 20:1 CT on VFD
- Three year warranty



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.
3	1800	230/460	182T	<b>U1867A</b>	182TTTCD16571	√	10:1	89.5	8.0/4.0	200
	1200	230/460	213T	<b>U1852</b>	213TTTCD6580		10:1	89.5	8.6/4.3	102
5	1800	230/460	184T	<b>U1868A</b>	184TTTCD16545	√	10:1	89.5	13.0/6.5	225
	1800	230/460	184T	<b>U1868</b>	184TTTN16545	¶	20:1	90.2	12.4/6.2	144
	1200	230/460	215T	<b>U1853</b>	215TTTCD6580		10:1	89.5	13.6/6.8	176
7 1/2	1800	230/460	213T	<b>U1869B</b>	213TTTCD16539	√	10:1	91.7	19.0/9.5	210
	1200	230/460	254T	<b>U1854</b>	254TTTCD6580		10:1	91.0	22.0/11.0	247
10	1800	230/460	215T	<b>U1870B</b>	215TTTCD16541	√	10:1	91.7	25.0/12.5	331
	1200	230/460	256T	<b>U1855</b>	256TTTCD6580		10:1	91.0	27.0/13.5	265
15	1800	230/460	254T	<b>U1871A</b>	254TTTCD16545		10:1	92.4	37.5/18.8	357
	1200	230/460	284T	<b>U1856</b>	284TTTCD6580		10:1	91.7	40.0/20.0	412
20	1800	230/460	256T	<b>U1872A</b>	256TTTCD16544	√	10:1	93.0	48.5/24.2	463
	1200	230/460	286T	<b>U1857</b>	286TTTCD6580		10:1	91.7	52.0/26.0	385
25	1800	230/460	284T	<b>U1873A</b>	284TTTCD16540	√	10:1	93.6	60.0/30.0	490
	1200	230/460	324T	<b>U1858</b>	324TTTCD6580		10:1	93.0	62.0/31.0	516
30	1800	230/460	286T	<b>U1874A</b>	286TTTCD16541	√	10:1	93.6	71.0/35.5	613
	1200	230/460	326T	<b>U1859</b>	326TTTCD6580		10:1	93.0	77.0/38.5	758
40	1800	230/460	324T	<b>U1875A</b>	324TTTCD16535		2:1	94.1	95.0/47.5	775
	1200	230/460	364T	<b>U1860</b>	364TTTCD6580		2:1	94.1	104/52.0	849
50	1800	230/460	326T	<b>U1876A</b>	326TTTCD16533		2:1	94.5	117/58.5	850
	1200	230/460	365T	<b>U1861</b>	365TTTCD6580		2:1	94.1	125/62.5	878
60	1800	230/460	364T	<b>U1877A</b>	364TTTCD16534	√	2:1	95.0	136/68.0	980
	1200	230/460	404T	<b>U1862</b>	404TTTCD6580		2:1	94.5	150/75.0	1131
75	1800	230/460	365T	<b>U1878A</b>	365TTTCD16536		2:1	95.5	170/85.0	930
	1200	230/460	405T	<b>U1863</b>	405TTTCD6580		2:1	95.0	177/88.5	1175
100	1800	230/460	405T	<b>U1879A</b>	405TTTCD16537	√	2:1	95.4	226/113	1162
	1200	230/460	444T	<b>U1864</b>	444TTTCD6580		2:1	95.0	230/115	1764
125	1800	460	444T	<b>U1880A</b>	444TTTCD16535	√	2:1	95.4	140	1650
	1200	460	445T	<b>U1865</b>	445TTTCD6580		2:1	95.0	143	1852
150	1800	460	445T	<b>U1881A</b>	445TTTCD16536		2:1	95.8	169	1670
	1200	460	445T	<b>U1866</b>	445TTTCD16580		2:1	95.8	171	1895
200	1800	460	445T	<b>U1882A</b>	445TTTCD16537	√	2:1	96.5	219	2042
	1200	460	447/449T	<b>U1883</b>	449TTTCD6580		2:1	95.8	230	2494
250	1800	460	447/449T	<b>U1884A</b>	449TTTCD16539	√	2:1	96.2	272	2409
	1200	460	447/449T	<b>U1885</b>	449TTTCD16580		2:1	95.8	284	2745

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# XRI<sup>®</sup>-SD AND XRI-841 MOTORS

DESIGNED FOR EXTREME APPLICATIONS

marathon<sup>®</sup>

**Guaranteed efficiencies offer an extra Return On your Investment (ROI) when using these premium efficiency motors on high cycle or long run applications.**

## Features

- Available stock ready to ship
- 1 HP to 400 HP
- Meets or exceeds NEMA Premium<sup>®\*</sup> efficiencies
- MAX GUARD<sup>®</sup> motor Class H insulation system
- Precision balanced to .08"/sec
- Extended grease tubes, regreasable in service
- Corrosion resistant bronze sintered drain and breather



\*See back cover page for attribution.

# GLOBETROTTER® MOTOR VERSUS XRI®-SD MOTOR AND XRI®-841 MOTOR



Specifications	Features	Globetrotter TEFC Motors	XRI-Severe Duty Motor	XRI-IEEE841 Motor
Enclosures	Totally Enclosed Fan Cooled (TEFC)	•	•	•
	Totally Enclosed Non-Ventilated (TENV)	•	•	•
	Open dripproof	•		
Voltage	200 volt	•		
	230/460 volt through 100 HP; 460 volts 125 HP and larger	•	•	•
	460 volt (three lead)		•	•
	575 volt (three lead)	•	•	•
Service Factor (sine wave)	1.15	•	•	•
	1.25 through 40 HP (with nameplate mod)	•	•	•
Inverter Duty	10:1 variable torque	•	•	•
	Up to 10:1 constant torque	•	•	•
	Up to 20:1 constant torque	•	•	•
	Provisions to add hollow shaft encoder (TEFC only)	•	•	•
Insulation System	Class F, Non-hygroscopic system 184T-449T	•		
	Class H, Non-hygroscopic system		•	•
	Max Guard® motor		•	•
Balance	Special balance average 0.08 in/sec		•	•
Bearings & Lubrication	Shielded ball bearings, C-3 fit with premium Mobil Polyrex® EM grease (-30°C to +150°C)	•	•	•
	Open Bearings	•		
	Open Bearings (Roller Bearings only)		•	•
	Zerk fittings	•	•	•
Bearing Caps	Extended grease tubes for regreasing without disassembly	•	•	•
	182T and larger		•	•
	254T and larger (Open Dripproof)	•		
Construction	324T and larger (Totally Enclosed)	•		
	Rolled Steel	•		
Conduit Box	Cast Iron	•	•	•
	Steel 182T-449T, NPT threaded, cast iron 5000 frame	•		
Leads	Cast iron, oversized, fully gasketed		•	•
	Lead lugs 364T and larger		•	•
Fan Guard (TEFC)	Permanently marked leads with lead separator		•	•
	Steel	•		
	Polypropylene (182T-326T)	•		
Fan (External)	Cast iron	•	•	•
	Non-sparking polypropylene (TEFC)	•	•	•
Drains	Corrosion resistant bronze sintered drain and breather		•	•
	Drilled and tapped hole	•		
Epoxy Finish	Internal and external corrosion resistant epoxy		•	•
Hardware	Corrosion resistant zinc dichromate plated hex head hardware		•	•
	Listing provisions, 182T and larger	•	•	•
IP Code	IP21 (Open Dripproof)	•		
	IP43 (Rolled Steel)	•		
	IP55 (Cast Iron)	•	• <sup>1</sup>	
	IP56			•
Ground	Ground lug provision in conduit box	•	•	•
	External grounding provision			•
Nameplate	Stainless steel - includes NEMA® nominal efficiency and power factor	•	•	•
	AFBMA® bearing identification plate		•	•
Seals	V-Ring (Forsheda) seal on drive end	•	•	
	Inpro/ Seal® VBX® bearing isolators on drive end of TENV and both ends of TEFC			•
Marine Duty	Meets IEEE45 and USCG		•	•
	Meets API RP14F for offshore platforms			•
Division 2 Hazardous Duty	CSA® Certification nameplate, Class I Groups A,B,C,D, Temperature Code T2B	•	•	•
Motor Testing	Actual short commercial test data plus max. vibration test supplied with each motor		•	
	Actual short commercial test data plus 2 additional vibration tests supplied with each motor			•
Agency Listings	UL® recognized	•	•	•
	CSA certified	•	•	•
	CE® mark	•	•	•
Warranty	36 mo. From date of first use, 42 mo. From date of manufacture	•	•	
	60 mo. From date of first use, 66 mo. From date of manufacture			•
	Optional extended warranties are available	•	•	•

\*See back cover page for attribution.

1 = Except as Noted

# XRI®-SEVERE DUTY / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM®\*, XRI®, THREE PHASE, TOTALLY ENCLOSED

## APPLICATIONS

Chemical plants, paper mills, refineries, mines, food processing, foundries, and other severe duty environments where long life and ultra-high efficiency are desired. Guaranteed efficiencies offer an extra return on your Investment when using these premium efficiency motors on high cycle or long run applications.

## FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- NEMA Premium models are in compliance with EISA 2007
- Bearing Current Protection (BCP), as noted
- 100% cast iron construction for rigidity and reduced vibration
- Provisions to add stub shaft for an encoder (182T-449T, TEFC only)
- Internal and external epoxy paint
- MAX GUARD® motor Class H insulation system
- Constant torque speed range is listed in CT speed range column
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Bearing caps (182T and larger)
- Precision balanced to .08"/sec
- Extended grease tubes, regreasable in service
- Corrosion resistant bronze sintered drain and breather
- Meets IEEE45 USCG Marine Duty
- Meets Ford®\* EM1 automotive duty specification
- BCP (-P) models are not Hazardous Duty® motors certified for Division 2 locations
- Hazardous Duty motor Division 2 CSA certification nameplate
- Division 2 / Zone 2 Class I (gases), Groups A, B, C, D
- Meets temperature code T2B
- Actual test and vibration data supplied with each motor
- Ball bearings (except as noted)
- UL®\* Recognized (through 5011) and CSA®\* certified and CE®\* mark



- Three year warranty
- V-Ring Seal (DE & ODE)
- All models are IP55 except as noted
- 1.25 service factor (sinewave only)
- 50Hz at same HP, 1.0 service factor (sinewave only)
- Any nameplate changes are subject to modification charges (see MOD central section)
- Contact your sales representative for optional nameplate markings on 50 HP and larger

## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
1 1/2	1200	230/460	182T	E465A	<b>182TTTCD6578</b>		10:1	87.5	4.6/2.3	106	12.82	75, N	A641A
	1200	460	182T	E380B	<b>182TTFCD16584</b>	¶	10:1	87.5	2.3	118	15.20	75	A641A
	1200	460	182T	E632A	<b>182TTTCD6576</b>	¶	10:1	87.5	2.3	109	12.82	75, N	A641A
2	1200	230/460	184T	E468A	<b>184TTTCD6582</b>	√	10:1	88.5	6.0/3.0	124	13.62	-	A641A
	1200	460	184T	E388B	<b>184TTFCD6576</b>		10:1	88.5	3.0	129	16.20	75	A641A
	1200	460	184T	E633A	<b>184TTTCD6576</b>	√	10:1	88.5	3.0	102	13.82	75, N	A641A
3	3600	230/460	182T	E390A	<b>182TTFCD6501</b>		10:1	86.5	8.0/4.0	97	15.20	75	A641A
	3600	460	182T	E601	<b>182TTTS6501</b>	¶	1000:1	89.5	3.8	103	12.74	75, N, F, IP54	A644
	3600	575	182T	E392A	<b>182TTFCD6505</b>		2:1	86.5	3.2	100	15.20	75	A641A
	3600	575	182T	E853A	<b>182TTTCD6505</b>		2:1	89.5	2.8	105	13.82	75, N	A641A
	1800	230/460	182T	E470A	<b>182TTTCD6538</b>	√	10:1	89.5	7.8/3.9	112	13.82	75, N	A641A
	1800	460	182T	E616A	<b>182TTTCD6526</b>	√	10:1	89.5	3.9	112	13.82	75, N	A641A
	1800	575	182T	E669	<b>182TTTS6530</b>		20:1	90.2	3.2	103	12.74	75, NF, IP54	A644
	1800	575	182T	E669A	<b>182TTTCD6530</b>	¶	10:1	89.5	3.1	120	13.82	75, N	A641A
	1200	230/460	213T	E471B	<b>213TTFCD6594</b>	¶	20:1	89.5	8.6/4.3	179	18.53	75	A646A
5	1200	460	213T	E634B	<b>213TTFCD6576</b>	√	20:1	89.5	4.3	179	18.53	75	A646A
	3600	230/460	184T	E472A	<b>184TTFCD6810</b>	√	20:1	88.5	12.0/6.0	103	16.20	75	A641A
	3600	460	184T	E602A	<b>184TTFCD6501</b>	√	10:1	88.5	6.0	106	16.20	75	A641A
	3600	575	184T	E655A	<b>184TTFCD6505</b>	¶	2:1	88.5	4.8	111	16.20	75	A641A
	1800	230/460	184T	E473A	<b>184TTFCD6844</b>	√	20:1	89.5	13.0/6.5	126	16.20	75	A641A
	1800	460	184T	E617A	<b>184TTFCD6526</b>	√	20:1	89.5	6.5	118	16.20	75	A641A
	1800	575	184T	E670A	<b>184TTFCD6530</b>	¶	10:1	89.5	5.2	118	16.20	75	A641A
	1200	230/460	215T	E474B	<b>215TTFCD6881</b>	√	20:1	89.5	13.6/6.8	209	20.03	75	A646A
	1200	460	215T	E635B	<b>215TTFCD6576</b>	√	20:1	89.5	6.8	203	20.03	75	A646A
1200	575	215T	E683B	<b>215TTFCD6580</b>	¶	10:1	89.5	5.5	194	20.03	75	A646A	

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

Continued on next page.

# XRI®-SEVERE DUTY / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM®, XRI®, THREE PHASE, TOTALLY ENCLOSED

## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
7 1/2	3600	230/460	213T	<b>E475B</b>	213TTTCD6502	¶	2:1	91.0	17.4/8.7	176	15.97	75, N	A646A
	3600	460	213T	<b>E396B</b>	213TTFCD6501		20:1	89.5	9.2	156	18.53	75	A646A
	3600	460	213T	<b>E603B</b>	213TTTCD6501	√	2:1	91.0	8.7	176	15.97	75, N	A646A
	3600	575	213T	<b>E656B</b>	213TTTCD6505	¶	2:1	91.0	7.0	190	15.97	75, N	A646A
	1800	230/460	213T	<b>E476B</b>	213TTFCD6531	√	20:1	91.7	19.0/9.5	197	18.53	75	A646A
	1800	460	213T	<b>E618B</b>	213TTFCD6526	√	20:1	91.7	9.5	205	18.53	75	A646A
	1800	575	213T	<b>E671B</b>	213TTFCD6530	¶	10:1	91.7	7.6	201	18.53	75	A646A
	1200	230/460	254T	<b>E477A</b>	254TTFCD6590		10:1	91.0	19.8/9.9	299	24.15	75	A284A
	1200	460	254T	<b>E636A</b>	254TTFCD6576		10:1	91.0	9.9	299	24.15	75	A284A
1200	575	254T	<b>E684A</b>	254TTFCD6578		10:1	91.0	7.9	297	24.15	75	A284A	
10	3600	230/460	215T	<b>E478B</b>	215TTFCD6807	√	20:1	90.2	23.6/11.8	210	20.03	75	A646A
	3600	460	215T	<b>E604B</b>	215TTFCD6501	√	20:1	90.2	11.8	227	20.03	75	A646A
	3600	575	215T	<b>E657B</b>	215TTFCD6505		2:1	90.2	9.5	195	20.03	75	A646A
	1800	230/460	215T	<b>E479B</b>	215TTFCD6527	√	20:1	91.7	25.0/12.5	228	20.03	75	A646A
	1800	230/460	215T	<b>E479B-P</b>	215TTFCD16847	¶	10:1	91.7	25.0/12.5	212	20.03	75, P	A646A
	1800	460	215T	<b>E619B</b>	215TTFCD6526	√	20:1	91.7	12.5	212	20.03	75	A646A
	1800	575	215T	<b>E672B</b>	215TTFCD6530	¶	10:1	91.7	10.0	216	20.03	75	A646A
	1200	230/460	256T	<b>E480A</b>	256TTFCD6596	√	10:1	91.0	25.8/12.9	319	25.89	75	A284A
	1200	460	256T	<b>E637A</b>	256TTFCD6576	√	10:1	91.0	12.9	344	25.89	75	A284A
15	3600	230/460	254T	<b>E481A</b>	254TTFCD6515	√	20:1	91.0	35.5/17.8	335	24.15	75	A284A
	3600	460	254T	<b>E605A</b>	254TTFCD6501	√	20:1	91.0	17.8	333	24.15	75	A284A
	3600	575	254T	<b>E658A</b>	254TTFCD6503	¶	2:1	91.0	14.3	335	24.15	75	A284A
	1800	230/460	254T	<b>E482A</b>	254TTFCD6529	√	10:1	92.4	37.5/18.8	345	24.15	75	A284A
	1800	460	254T	<b>E620A</b>	254TTFCD6526	√	20:1	92.4	18.8	347	24.15	75	A284A
	1800	460	254T	<b>E620A-P</b>	254TTFCD16838	¶	10:1	92.4	18.8	347	24.15	75, P	A284A
	1800	575	254T	<b>E673A</b>	254TTFCD6528	√	10:1	92.4	15.1	327	24.15	75	A284A
	1200	230/460	284T	<b>E483A</b>	284TTFCD6876	√	10:1	91.7	40.0/20.0	479	26.64		A618A
	1200	460	284T	<b>E638A</b>	284TTFCD6576	¶	10:1	91.7	20.0	479	26.64		A618A
1200	575	284T	<b>E694A</b>	284TTFCD6580		10:1	91.7	16.0	479	26.64		A618A	
20	3600	230/460	256T	<b>E484A</b>	256TTFCD6523	√	2:1	91.0	47.5/23.7	345	25.89	75	A284A
	3600	460	256T	<b>E606A</b>	256TTFCD6501	√	2:1	91.0	23.7	375	25.89	75	A284A
	1800	230/460	256T	<b>E485A</b>	256TTFNA6529	¶	10:1	93.0	48.0/24.1	355	25.89	75	A284A
	1800	460	256T	<b>E621A</b>	256TTFCD6526	√	20:1	93.0	24.2	425	25.89	75	A284A
	1800	460	256T	<b>E621A-P</b>	256TTFCD16855	√	10:1	93.0	24.2	425	25.89	75, P	A284A
	1800	575	256T	<b>E674A</b>	256TTFCD6528	¶	10:1	93.0	19.4	425	25.89	75	A284A
	1200	230/460	286T	<b>E486A</b>	286TTFCD6876	√	10:1	91.7	52.0/26.0	479	28.14		A618A
	1200	460	286T	<b>E639A</b>	286TTFCD6576	√	10:1	91.7	26.0	490	28.14		A618A
	1200	460	286T	<b>E639A</b>	286TTFCD6576	√	10:1	91.7	26.0	490	28.14		A618A
25	3600	230/460	284TS	<b>E487A</b>	284TSTFCD6807	¶	2:1	91.7	60.0/30.0	450	25.27		A618A
	3600	460	284TS	<b>E607A</b>	284TSTFCD6501	√	2:1	91.7	30.0	440	25.27		A618A
	3600	575	284TS	<b>E660A</b>	284TSTFCD6502		2:1	91.7	24.0	481	25.27		A618A
	1800	230/460	284T	<b>E1228</b>	284TTFCD6635	√	10:1	93.6	60.0/30.0	494	26.64	RB	A618A
	1800	230/460	284T	<b>E488A</b>	284TTFCD6837	√	10:1	93.6	60.0/30.0	494	26.64		A618A
	1800	460	284T	<b>E622A</b>	284TTFCD6526	√	10:1	93.6	30.0	486	26.64		A618A
	1800	460	284T	<b>E622A-P</b>	284TTFCD16851	¶	20:1	93.6	30.0	486	26.64	P	A618A
	1800	575	284T	<b>E675A</b>	284TTFCD6527	¶	20:1	93.6	24.0	432	26.64		A618A
	1200	460	324T	<b>E1229</b>	324TTFCD6685	√	2:1	93.0	32.0	620	29.85	RB	A177A
1200	460	324T	<b>E640A</b>	324TTFCD6576	√	20:1	93.0	32.0	620	29.85		A177A	
30	3600	230/460	286TS	<b>E490A</b>	286TSTFCD6804	¶	2:1	91.7	71.0/35.5	450	26.77		A618A
	3600	460	286TS	<b>E608A</b>	286TSTFCD6501	¶	2:1	91.7	35.5	450	26.77		A618A
	1800	230/460	286T	<b>E1231</b>	286TTFCD6635	√	10:1	93.6	71.0/35.5	529	28.14	RB	A618A
	1800	230/460	286T	<b>E491</b>	286TTFNA6570		20:1	94.1	73.0/36.5	538	27.84	F, IP54	A618
	1800	230/460	286T	<b>E491A</b>	286TTFCD6570	√	10:1	93.6	71.0/35.5	529	28.14		A618A
	1800	460	286T	<b>E623A</b>	286TTFCD6526	√	10:1	93.6	35.5	527	28.14		A618A
	1800	460	286T	<b>E623A-P</b>	286TTFCD16847		10:1	93.6	35.5	530	28.14	P	A618A
	1800	575	286T	<b>E676A</b>	286TTFCD6527	√	10:1	93.6	28.4	525	28.14		A618A
	1200	460	326T	<b>E1232</b>	326TTFCD6685	√	2:1	93.0	38.0	658	31.35	RB	A177A
1200	460	326T	<b>E641</b>	326TTF6576	¶	20:1	93.0	38.5	725	30.37	F, IP54	A214	
1200	575	326T	<b>E400A</b>	326TTFCD6580	√	2:1	93.0	30.5	658	31.35		A177A	

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

Continued on next page.

# XRI-SEVERE DUTY / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM®\* XRI®, THREE PHASE, TOTALLY ENCLOSED

## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
40	3600	460	324TS	<b>E609A</b>	324TSTFC6501	√	2:1	92.4	46.0	600	28.35		A177A
	3600	575	324TS	<b>E662A</b>	324TSTFC6505		2:1	92.4	37.0	452	28.35		A177A
	1800	460	324T	<b>E1234</b>	324TTFCD6635	√	2:1	94.1	47.5	657	29.85	RB	A177A
	1800	460	324T	<b>E624A</b>	324TTFCD6526	¶	20:1	94.1	47.5	702	29.85		A177A
	1800	460	324T	<b>E624A-P</b>	324TTFCD16860	¶	2:1	94.1	47.5	657	29.85	P	A177A
	1800	575	324T	<b>E677A</b>	324TTFCD6527	¶	20:1	94.1	38.0	670	29.85		A177A
	1200	460	364T	<b>E1235</b>	364TTFCD6685	√	2:1	94.1	48.0	882	33.40	RB	A179A
	1200	460	364T	<b>E642B</b>	364TTFCD16584	√	2:1	94.1	48.0	882	33.40		A179A
	1200	575	364T	<b>E401B</b>	364TTFCD16585	√	2:1	94.1	38.5	882	33.40		A179A
50	3600	460	326TS	<b>E610A</b>	326TSTFC6501	√	2:1	94.1	56.5	695	29.85		A177A
	3600	575	326TS	<b>E663A</b>	326TSTFC6502		2:1	94.1	45.0	725	29.85		A177A
	1800	460	326T	<b>E1237</b>	326TTFCD6635	√	2:1	94.5	58.5	730	31.35	RB	A177A
	1800	460	326T	<b>E625A</b>	326TTFCD6526	√	2:1	94.5	58.5	716	31.35		A177A
	1800	460	326T	<b>E625A-P</b>	326TTFCD16844	√	2:1	94.5	58.5	730	31.35	P	A177A
	1800	460	326TS	<b>E453A</b>	326TSTFC6536	¶	10:1	94.5	58.5	765	29.85		A177A
	1800	575	326T	<b>E678A</b>	326TTFCD6527	¶	2:1	94.5	47.0	730	31.35		A177A
	1200	460	365T	<b>E1238</b>	365TTFCD6685	√	2:1	94.1	60.5	987	34.40	RB	A179A
	1200	460	365T	<b>E643B</b>	365TTFCD16591	√	10:1	94.1	60.5	987	34.40		A179A
1200	575	365T	<b>E402B</b>	365TTFCD16592		2:1	94.1	48.5	987	34.40		A179A	
60	3600	460	364TS	<b>E611A</b>	364TSTFC6501	¶	2:1	93.6	67.5	830	33.27		A179A
	3600	575	364TS	<b>E664A</b>	364TSTFC6505	√	2:1	93.6	54.0	900	33.27		A179A
	1800	460	364T	<b>E1240</b>	364TTFCD6635	√	2:1	95.0	68.0	900	33.40	RB	A179A
	1800	460	364T	<b>E1240-P</b>	364TTFCD6535		2:1	95.0	68.0	805	33.40	RB, H, P	A179A
	1800	460	364T	<b>E626A</b>	364TTFCD6536	√	10:1	95.0	68.0	932	33.40		A179A
	1800	460	364T	<b>E626A-P</b>	364TTFCD16833		10:1	95.0	68.0	900	33.40	P	A179A
	1800	460	364TS	<b>E454A</b>	364TSTFC6526	√	20:1	95.0	68.0	980	33.27		A179A
	1800	575	364T	<b>E679A</b>	364TTFCD6537	¶	20:1	95.0	54.5	980	33.40		A179A
	1200	460	404T	<b>E1241</b>	404TTFCD6685		2:1	94.5	71.5	1200	38.88	RB	A425A
75	1200	460	404T	<b>E644A</b>	404TTFCD6586	√	20:1	94.5	71.5	1200	38.88		A425A
	1200	575	404T	<b>E403A</b>	404TTFCD6592		2:1	94.5	57.0	1200	38.88		A425A
	3600	460	365TS	<b>E612A</b>	365TSTFC6501	¶	2:1	94.5	84.0	939	34.27		A179A
	3600	575	365TS	<b>E665A</b>	365TSTFC6502		2:1	94.5	67.0	939	34.27		A179A
	1800	460	365T	<b>E1243</b>	365TTFCD6635	√	2:1	95.5	85.0	1064	34.40	RB	A179A
	1800	460	365T	<b>E627A</b>	365TTFCD6536	√	10:1	95.5	85.0	979	34.40		A179A
	1800	460	365T	<b>E627A-P</b>	365TTFCD16862		2:1	95.5	85.0	1064	34.40	P	A179A
	1800	460	365TS	<b>E455A</b>	365TSTFC6526	√	2:1	95.5	85.0	1028	34.27		A179A
	1800	575	365T	<b>E680A</b>	365TTFCD6537		10:1	95.5	68.0	1028	34.40		A179A
100	1200	460	405T	<b>E1244</b>	405TTFCD6685	√	2:1	94.5	89.0	1306	38.88	RB	A425A
	1200	460	405T	<b>E645A</b>	405TTFCD6586	¶	2:1	94.5	89.0	1306	38.88		A425A
	3600	460	405TS	<b>E613A</b>	405TSTFC6501	√	2:1	94.5	111	1185	35.88		A424A
	3600	575	405TS	<b>E493A</b>	405TSTFC6502		2:1	94.5	89.0	1146	35.88		A424A
	1800	460	405T	<b>E1246</b>	405TTFCD6635		2:1	95.4	113	1295	38.77	RB	A425A
	1800	460	405T	<b>E628A</b>	405TTFCD6536	√	2:1	95.4	113	1325	38.88		A425A
	1800	460	405T	<b>E628A-P</b>	405TTFCD16865	√	2:1	95.4	113	1295	38.88	P	A425A
	1800	460	405TS	<b>E456A</b>	405TSTFC6526	¶	2:1	95.4	113	1295	35.88		A427A
	1800	575	405T	<b>E681A</b>	405TTFCD6538	¶	2:1	95.4	90.5	1295	38.88		A425A
100	1200	460	444T	<b>E1247</b>	444TTFCD6685		2:1	95.0	115	1864	46.71	RB	A427A
	1200	460	444T	<b>E327A</b>	444TTFCD16577		20:1	95.0	115	1957	46.71		A427A
	1200	460	444T	<b>E646B</b>	444TTFCD16581	√	2:1	95.0	115	1864	46.83		A427A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

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# XRI-SEVERE DUTY / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM<sup>®\*</sup>, XRI<sup>®</sup>, THREE PHASE, TOTALLY ENCLOSED

## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
125	3600	460	444TS	<b>E614A</b>	444TSTFCD6501	√	2:1	95.0	138	1680	43.08		A426A
	3600	575	444TS	<b>E494A</b>	444TSTFCD6505	√	2:1	95.0	110	1761	43.08		A426A
	1800	460	444T	<b>E1249</b>	444TTFCD6635	√	2:1	95.4	140	1700	46.83	RB	A427A
	1800	460	444T	<b>E629A</b>	444TTFCD6536	√	2:1	95.4	140	1707	46.83		A427A
	1800	460	444T	<b>E629A-P</b>	444TTFCD16574		2:1	95.4	140	1707	46.83	P	A427A
	1800	575	444T	<b>E697A</b>	444TTFCD6540	¶	2:1	95.4	112	1707	46.83		A427A
	1800	460	444TS	<b>E457A</b>	444TSTFCD6526	¶	2:1	95.4	140	1707	43.08		A427A
	1200	460	445T	<b>E1250</b>	445TTFCD6685	√	2:1	95.0	143	1950	46.83	RB	A427A
1200	460	445T	<b>E647A</b>	445TTFCD6586	¶	2:1	95.0	143	1961	46.83		A427A	
150	3600	460	445TS	<b>E615A</b>	445TSTFCD6501	√	2:1	95.0	161	1909	43.08		A426A
	3600	575	445TS	<b>E495A</b>	445TSTFCD6502		2:1	95.0	128	1909	43.08		A426A
	1800	460	445T	<b>E1252</b>	445TTFCD6635	√	2:1	95.8	169	1867	46.83	RB	A427A
	1800	460	445T	<b>E630A</b>	445TTFCD6536	√	2:1	95.8	169	1900	46.83		A427A
	1800	460	445TS	<b>E458A</b>	445TSTFCD6526	¶	2:1	95.8	169	1900	43.08		A427A
	1800	575	445T	<b>E682A</b>	445TTFCD6537		2:1	95.8	135	1900	46.83		A427A
	1200	460	445T	<b>E448A</b>	445TTFCD6587	√	2:1	95.8	171	2429	51.20	RB	A427A
	1200	460	447T	<b>E1253</b>	447TTFCD6685		10:1	95.8	170	2483	51.20	RB	A427A
1200	575	445T	<b>E407A</b>	445TTFCD6591	√	2:1	95.8	136	2483	51.20		A427A	
1200	575	447T	<b>E1353</b>	447TTFCD6680	√	2:1	95.8	136	2483	51.20	RB	A427A	
200	3600	460	445TS	<b>E449A</b>	445TSTFCD6505	√	2:1	95.4	217	2278	47.45		A426A
	3600	575	445TS	<b>E496A</b>	445TSTFCD6506		2:1	95.4	174	2303	47.45		A426A
	1800	460	445T	<b>E631A</b>	445TTFCD6538	√	2:1	96.5	219	2276	51.20	RB	A427A
	1800	460	445TS	<b>E459A</b>	445TSTFCD6528	¶	2:1	96.5	219	2257	47.45		A427A
	1800	460	447T	<b>E1255</b>	447TTFCD6635		2:1	96.5	219	2310	51.20	RB	A427A
	1800	460	449T	<b>E770A</b>	449TTFCD6530	¶	2:1	96.5	219	2309	55.33		A427A
	1800	460	449T	<b>E854A</b>	449TTFCD6540	¶	2:1	96.5	219	2310	55.33	RB	A427A
	1800	575	449T	<b>E856A</b>	449TTFCD6564	√	2:1	96.5	175	2437	55.33	RB	A427A
	1200	460	449T	<b>E1256</b>	449TTFCD6685		2:1	95.0	230	2750	55.33	RB	A427A
	1200	460	449T	<b>E687A</b>	449TTFCD6588	√	2:1	95.8	230	2570	55.33	RB	A427A
	1200	460	449T	<b>E773A</b>	449TTFCD6578	√	2:1	95.8	230	2568	55.33		A427A
	1200	575	449T	<b>E1356</b>	449TTFCD6680		2:1	95.8	184	2570	55.33	RB	A427A
1200	575	449T	<b>E408A</b>	449TTFCD6582		2:1	95.8	184	2570	55.33	RB	A427A	
250	3600	460	449TS	<b>E699A</b>	449TSTFCD6503	√	2:1	95.8	266	2458	51.58		A426A
	1800	460	449T	<b>E690A</b>	449TTFCD6538	√	2:1	96.2	272	2770	55.33	RB	A427A
	1800	460	449T	<b>E771A</b>	449TTFCD6528	√	2:1	96.2	272	2638	55.33		A427A
	1200	460	449T	<b>E688A</b>	449TTFCD6587		2:1	95.8	285	3414	55.33		A427A
	1200	460	449T	<b>E774A</b>	449TTFCD6577	¶	2:1	95.8	285	2213	55.33		A427A
300	3600	460	449TS	<b>E698A</b>	449TSTFCD6502	√	2:1	95.8	320	2549	51.58		A426A
	1800	460	449T	<b>E691A</b>	449TTFCD6537	√	2:1	96.2	332	2473	55.33	RB	A427A
	1800	460	449T	<b>E772A</b>	449TTFCD6527	¶	2:1	96.2	332	2840	55.33		A427A
	1800	575	449T	<b>E345A</b>	449TTFCD16534	√	2:1	96.2	266	3221	55.33		A427A
1200	460	449T	<b>E360</b>	449TTFCD6576	√	2:1	95.8	342	3415	59.27	d	A427A	
350	3600	460	449TS	<b>E769A</b>	449TSTFCD6501	√	2:1	95.8	373	2621	51.58		A426A
	1800	460	449T	<b>E692A</b>	449TTFCD6536	√	2:1	96.2	390	2860	55.33	RB	A427A
400	3600	460	449TS	<b>E369A</b>	449TSTFCD6500		2:1	95.8	327	2631	55.51		A426A
	1800	460	449T	<b>E776A</b>	449TTFCD16553	√	N/A	96.2	440	3154	59.27		A427A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# XRI-SEVERE DUTY / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM<sup>®</sup>\*, XRI<sup>®</sup>, THREE PHASE, TOTALLY ENCLOSED

## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182TC	<b>E025</b>	182TTFCD6588	√	10:1	87.5	4.6/2.3	106	15.95	
2	1200	230/460	184TC	<b>E028</b>	184TTFCD6588		10:1	88.5	6.0/3.0	125	16.95	
3	1800	230/460	182TC	<b>E030</b>	182TTFCD6540	√	10:1	89.5	8.0/4.0	153	15.95	
	1200	230/460	213TC	<b>E031</b>	213TTFCD6588		10:1	89.5	8.6/4.3	220	19.28	
5	1800	230/460	184TC	<b>E033</b>	184TTFCD6540	√	10:1	89.5	13.0/6.5	105	16.95	
	1200	230/460	215TC	<b>E034</b>	215TTFCD6588		10:1	89.5	13.6/6.8	225	20.78	
7 1/2	1800	230/460	213TC	<b>E036</b>	213TTFCD6540	√	10:1	91.7	19.0/9.5	221	19.28	
	1200	230/460	254TC	<b>E037</b>	254TTFCD6588		10:1	91.0	19.8/9.9	362	24.65	
10	1800	230/460	215TC	<b>E039</b>	215TTFCD6540		10:1	91.7	25.0/12.5	227	20.78	
	1200	230/460	256TC	<b>E040</b>	256TTFCD6588		10:1	91.0	25.8/12.9	375	26.39	
15	1800	230/460	254TC	<b>E042</b>	254TTFCD6540	√	10:1	92.4	37.5/18.8	367	24.65	
	1200	230/460	284TC	<b>E043</b>	284TTFCD6588		10:1	91.7	40.0/20.0	479	26.64	
20	1800	230/460	256TC	<b>E045</b>	256TTFCD6540	√	10:1	93.0	48.5/24.2	377	26.39	
	1200	230/460	286TC	<b>E046</b>	286TTFCD6588		10:1	91.7	52.0/26.0	491	28.14	
25	1800	230/460	284TC	<b>E048</b>	284TTFCD6540	√	10:1	93.6	60.0/30.0	481	26.64	
	1200	460	324TC	<b>E049</b>	324TTFCD6588		2:1	93.0	32.0	730	29.85	
30	1800	230/460	286TC	<b>E051</b>	286TTFCD6540	√	10:1	93.6	71.0/35.5	501	28.14	
	1200	460	326TC	<b>E052</b>	326TTFCD6588	√	2:1	93.0	38.0	730	31.35	
40	1800	460	324TC	<b>E054</b>	324TTFCD6540	√	2:1	94.1	47.5	780	29.85	
	1200	460	364TC	<b>E055</b>	364TTFCD6588	√	2:1	94.1	48.0	955	33.40	
50	1800	460	326TC	<b>E057</b>	326TTFCD6540	√	2:1	94.5	58.5	780	31.35	
	1200	460	365TC	<b>E058</b>	365TTFCD6588		2:1	94.1	60.5	1010	34.40	
60	1800	460	364TC	<b>E060</b>	364TTFCD6540	√	2:1	95.0	68.0	940	33.40	
	1200	460	404TC	<b>E061</b>	404TTFCD6588		2:1	94.5	71.5	1220	38.88	
75	1800	460	365TC	<b>E063</b>	365TTFCD6540	√	2:1	95.5	85.0	1120	34.40	
	1200	460	405TC	<b>E064</b>	405TTFCD6588		2:1	94.5	89.0	1320	38.88	
100	1800	460	405TC	<b>E066</b>	405TTFCD6540	√	2:1	95.4	113	1280	38.88	
	1200	460	444TC	<b>E067</b>	444TTFCD6588		2:1	95.0	115	2020	46.83	

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

Specifications are subject to change without notice.

\*See back cover page for attribution.

# XRI-841 / AUTOMOTIVE DUTY MOTORS

## NEMA PREMIUM<sup>®</sup>, XRI<sup>®</sup>, THREE PHASE, TOTALLY ENCLOSED

### APPLICATIONS

For extreme applications in the process industries such as chemical plants, pulp and paper mills, refineries, above-ground mines, food processing, foundries, and other severe duty environments where long life and ultra-high efficiency are required. Guaranteed efficiencies offer an extra return on your investment when using these premium efficiency motors on high cycle or long run time applications.

### FEATURES

- Meets IEEE-841 standard for severe duty motor applications
- Meets or exceeds NEMA Premium efficiencies
- Meets GM 7E-TA and exceed Ford EM1 specifications
- NEMA Premium models are in compliance with EISA 2007
- Bearing current protection (BCP), as noted
- 100% cast iron construction for rigidity and reduced vibration
- Provisions to add stub shaft for an encoder (182T-449T, TEFC only)
- Inpro/Seal<sup>®</sup> VBX<sup>®</sup> bearing isolators on drive end shaft extension
- TENV and on both ends of TEFC
- Internal and external epoxy paint
- MAX GUARD<sup>®</sup> motor Class H insulation system
- Constant torque speed range is listed in CT speed range column
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Bearing caps (182T and larger)
- Precision balanced to .08"/sec
- Extended grease tubes, regreasable in service



### Models through 40 HP are capable of modification as follows (contact factory to confirm):

- 1.25 service factor (sinewave only)
- 50Hz at same HP, 1.0 service factor (sinewave only)
- Any nameplate changes are subject to modification charges (see MOD central section)
- Contact your sales representative for optional nameplate markings on 50 HP and larger

### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
1	900	460	182T	<b>W504A</b>	182THFCD19101	√	10:1	75.5	2.0	81	15.20	75	A182B
	1200	460	182T	<b>W509A</b>	182THTCD9076		10:1	87.5	2.3	111	12.82	75, N	A182B
1 1/2	1200	460	182T	<b>W509A-P</b>	182THTCD9077		10:1	87.5	2.3	111	12.82	75, N, P	A182B
	900	460	184T	<b>W510A</b>	184THFCD9101		10:1	78.5	2.5	97	16.20	75	A182B
2	1200	460	184T	<b>W515A</b>	184THTCD9076	¶	10:1	88.5	3.0	124	13.82	75, N	A182B
	1200	460	184T	<b>W515A-P</b>	184THTCD9077		10:1	88.5	3.0	125	13.82	75, N, P	A182B
	900	460	213T	<b>W516A</b>	213THFCD9101		10:1	84.0	3.2	150	18.53	75	A183B
3	3600	460	182T	<b>W517A</b>	182THTCD9001	¶	2:1	89.5	3.5	100	13.82	75, N	A182B
	3600	460	182T	<b>W517A-P</b>	182THTCD9002	¶	2:1	89.5	3.5	105	13.82	75, N, P	A182B
	1800	460	182T	<b>W519A</b>	182THTCD9026	√	10:1	89.5	3.9	109	13.82	75, N	A182B
	1800	460	182T	<b>W519A-P</b>	182THTCD9037	¶	10:1	89.5	3.9	144	13.82	75, N, P	A182B
	1800	575	182T	<b>W520A</b>	182THTCD19033	√	10:1	89.5	3.1	110	13.82	75, N	A182B
	1200	460	213T	<b>W521B</b>	213THFCD9076	¶	10:1	89.5	4.3	184	18.53	75	A183B
	1200	460	213T	<b>W521B-P</b>	213THFCD9077		10:1	89.5	4.3	206	18.53	75, P	A183B
	900	460	215T	<b>W522B</b>	215THFCD9101	√	10:1	85.5	4.6	167	20.03	75	A183B
	3600	460	184T	<b>W523A</b>	184THFCD9001	√	2:1	88.5	6.0	101	16.20	75	A182B
5	3600	460	184T	<b>W523A-P</b>	184THFCD9002		2:1	88.5	6.0	126	16.20	75, P	A182B
	3600	575	184T	<b>W524A</b>	184THFCD19006		2:1	88.5	4.8	102	16.20	75	A182B
	1800	460	184T	<b>W525A</b>	184THFCD9026	√	10:1	89.5	6.5	109	16.20	75	A182B
	1800	460	184T	<b>W525A-P</b>	184THFCD9037	¶	10:1	89.5	6.5	116	16.20	75, P	A182B
	1800	575	184T	<b>W526A</b>	184THFCD9030	¶	10:1	89.5	5.2	118	16.20	75	A182B
	1200	460	215T	<b>W527B</b>	215THFCD9076	¶	10:1	89.5	6.8	178	20.03	75	A183B
	1200	460	215T	<b>W527B-P</b>	215THFCD9077		10:1	89.5	6.8	178	20.03	75, P	A183B
	1200	575	215T	<b>W528B</b>	215THFCD19077		10:1	89.5	5.5	215	20.03	75	A183B
	900	460	254T	<b>W529A</b>	254THFCD9101	√	10:1	86.5	7.1	370	24.15	75	A184A
7 1/2	3600	460	213T	<b>W530B</b>	213THTCD9001	√	2:1	91.7	8.6	204	17.47	75, N	A183B
	3600	460	213T	<b>W530B-P</b>	213THTCD9002		2:1	91.7	8.6	191	17.47	75, N, P	A183B
	3600	575	213T	<b>W531A</b>	213THTCD19005		2:1	91.7	6.9	191	17.47	75, N	A183B

√: Available ¶: Stocked components, Ready To Build Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

Continued on next page.

\*See back cover page for attribution.

# XRI-841 / AUTOMOTIVE DUTY MOTORS

## NEMA PREMIUM<sup>®\*</sup>, XRI<sup>®</sup>, THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
7 1/2	1800	460	213T	<b>W532B</b>	213THFCD9026	√	10:1	91.7	9.5	215	18.53	75	A183B
	1800	460	213T	<b>W532B-P</b>	213THFCD9037	√	10:1	91.7	9.5	213	18.53	75, P	A183B
	1800	575	213T	<b>W533B</b>	213THFCD9030	¶	10:1	91.7	7.6	207	18.53	75	A183B
	1200	460	254T	<b>W534A</b>	254THFCD9076		10:1	91.0	9.9	299	24.15	75	A184A
	1200	460	254T	<b>W534A-P</b>	254THFCD9077		10:1	91.0	9.9	260	24.15	75, P	A184A
	900	460	256T	<b>W536A</b>	256THFCD9101		10:1	86.5	10.5	340	25.89	75	A184A
10	3600	460	215T	<b>W537B</b>	215THFCD9001	√	2:1	90.2	11.8	176	20.03	75	A183B
	3600	460	215T	<b>W537B-P</b>	215THFCD9002		2:1	90.2	11.8	176	20.03	75, P	A183B
	1800	460	215T	<b>W539B</b>	215THFCD9026	√	10:1	91.7	12.5	216	20.03	75	A183B
	1800	460	215T	<b>W539B-P</b>	215THFCD9037	√	10:1	91.7	12.5	174	20.03	75, P	A183B
	1800	575	215T	<b>W540B</b>	215THFCD19033		10:1	91.7	10.0	216	20.03	75	A183B
	1200	460	256T	<b>W541A</b>	256THFCD9076		10:1	91.0	12.9	319	25.89	75	A184A
	1200	460	256T	<b>W541A-P</b>	256THFCD9077	√	10:1	91.0	12.9	383	25.89	75, P	A184A
	1200	575	256T	<b>W542A</b>	256THFCD19081	√	10:1	91.0	10.3	317	25.89	75	A184A
	900	460	284T	<b>W543A</b>	284THFCD19102	√	10:1	89.5	13.8	524	26.64		A186A
15	3600	460	254T	<b>W544A</b>	254THFCD9001	√	2:1	91.0	17.8	296	24.15	75	A184A
	3600	460	254T	<b>W544A-P</b>	254THFCD9002		2:1	91.0	17.8	310	24.15	75, P	A184A
	3600	575	254T	<b>W545A</b>	254THFCD9005	√	2:1	91.0	14.3	296	24.15	75	A184A
	1800	460	254T	<b>W546A</b>	254THFCD9026	√	10:1	92.4	18.8	293	24.15	75	A184A
	1800	460	254T	<b>W546A-P</b>	254THFCD19065	¶	10:1	92.4	18.8	310	24.15	75, P	A184A
	1800	575	254T	<b>W547A</b>	254THFCD9030		10:1	92.4	15.1	310	24.15	75	A184A
	1200	460	284T	<b>W548A</b>	284THFCD9076	√	10:1	91.7	20.0	427	26.64	75	A186A
	1200	460	284T	<b>W548A-P</b>	284THFCD9077	¶	10:1	91.7	20.0	438	26.64	75, P	A186A
	900	460	286T	<b>W550A</b>	286THFCD19101		2:1	89.5	20.0	479	28.14		A186A
	20	3600	460	256T	<b>W551A</b>	256THFCD9001	√	2:1	91.0	23.7	338	25.89	75
3600		460	256T	<b>W551A-P</b>	256THFCD9002		2:1	91.0	23.7	338	25.89	75, P	A184A
3600		575	256T	<b>W552A</b>	256THFCD9005		2:1	91.0	19.0	338	25.89	75	A184A
1800		460	256T	<b>W553A</b>	256THFCD9026	√	10:1	93.0	24.2	322	25.89	75	A184A
1800		460	256T	<b>W553A-P</b>	256THFCD19056	√	10:1	93.0	24.2	344	25.89	75, P	A184A
1800		575	256T	<b>W554A</b>	256THFCD19033		10:1	93.0	19.4	320	25.89	75	A184A
1200		460	286T	<b>W555A</b>	286THFCD9076	√	10:1	91.7	26.0	489	28.14		A186A
1200		460	286T	<b>W555A-P</b>	286THFCD9077		10:1	91.7	26.0	489	28.14	P	A186A
1200		575	286T	<b>W556A</b>	286THFCD19077	¶	10:1	91.7	20.8	432	28.14		A186A
900		460	324T	<b>W557A</b>	324THFCD9101	√	2:1	90.2	27.0	605	29.85		A187A
25	3600	460	284TS	<b>W558A</b>	284TSHFCD9001	√	2:1	91.7	30.0	370	25.27		A186A
	3600	460	284TS	<b>W558A-P</b>	284TSHFCD9002		2:1	91.7	30.0	445	25.27	P	A186A
	3600	575	284TS	<b>W559A</b>	284TSHFCD9005		2:1	91.7	24.0	386	25.27		A186A
	1800	460	284T	<b>W560A</b>	284THFCD9026	√	10:1	93.6	30.0	494	26.64		A186A
	1800	460	284T	<b>W560A-P</b>	284THFCD19048	√	10:1	93.6	30.0	493	26.64	P	A186A
	1800	575	284T	<b>W561A</b>	284THFCD19033	¶	10:1	93.6	24.0	441	26.64		A186A
	1200	460	324T	<b>W562A</b>	324THFCD9076	√	2:1	93.0	32.0	600	29.85		A187A
	1200	460	324T	<b>W562A-P</b>	324THFCD9077	¶	2:1	93.0	32.0	625	29.85	P	A187A
	1200	575	324T	<b>W563A</b>	324THFCD9080	√	2:1	93.0	24.0	601	29.85		A187A
	900	460	326T	<b>W564A</b>	326THFCD9101	√	2:1	90.2	33.5	680	31.35		A187A
30	3600	460	286TS	<b>W565A</b>	286TSHFCD9001	√	2:1	91.7	35.5	397	26.77		A186A
	3600	460	286TS	<b>W565A-P</b>	286TSHFCD9002		2:1	91.7	35.5	467	26.77	P	A186A
	3600	575	286TS	<b>W566A</b>	286TSHFCD9005		2:1	91.7	28.5	467	26.77		A186A
	1800	460	286T	<b>W567A</b>	286THFCD9026	√	10:1	93.6	35.5	469	28.14		A186A
	1800	460	286T	<b>W567A-P</b>	286THFCD19066	√	10:1	93.6	35.5	531	28.14	P	A186A
	1800	460	286T	<b>W567-P</b>	286THFNA19066	¶	10:1	94.1	36.5	490	28.13		A186
	1800	575	286T	<b>W568A</b>	286THFCD19033	√	10:1	93.6	28.4	467	28.14		A186A
	1200	460	326T	<b>W569A</b>	326THFCD9076	√	2:1	93.0	38.0	693	31.35		A187A
	1200	460	326T	<b>W569A-P</b>	326THFCD9077	√	2:1	93.0	38.0	685	31.35	P	A187A
	1200	575	326T	<b>W643A</b>	326THFCD19078		2:1	93.0	30.5	645	31.35		A187A
900	460	364T	<b>W570A</b>	364THFCD9101	√	2:1	91.7	39.0	730	33.40		A188A	

Continued on next page.

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# XRI®-841 / AUTOMOTIVE DUTY MOTORS

## NEMA PREMIUM®\*, XRI®, THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
40	3600	460	324TS	<b>W571A</b>	324TSHFCD9001	¶	2:1	92.4	46.0	595	28.35		A187A
	3600	460	324TS	<b>W571A-P</b>	324TSHFCD9002		2:1	92.4	46.0	595	28.35	P	A187A
	3600	575	324TS	<b>W572A</b>	324TSHFCD9005	√	2:1	92.4	37.0	595	28.35		A187A
	1800	460	324T	<b>W573A</b>	324THFCD9026	√	2:1	94.1	47.5	687	29.85		A187A
	1800	460	324T	<b>W573A-P</b>	324THFCD19058	√	2:1	94.1	47.5	657	29.85	P	A187A
	1800	575	324T	<b>W574A</b>	324THFCD19033		2:1	94.1	38.0	657	29.85		A187A
	1200	460	364T	<b>W575B</b>	364THFCD19087	√	2:1	94.1	48.0	887	33.40		A188A
	1200	460	364T	<b>W575B-P</b>	364THFCD9077	√	2:1	94.1	48.0	918	33.40	P	A188A
	1200	575	364T	<b>W639A</b>	364THFCD19077	√	2:1	94.1	38.5	797	33.40		A188A
50	900	460	365T	<b>W576A</b>	365THFCD19101		2:1	91.7	51.5	750	34.40		A188A
	3600	460	326TS	<b>W577A</b>	326TSHFCD9001	¶	2:1	94.1	56.5	702	29.85		A187A
	3600	460	326TS	<b>W577A-P</b>	326TSHFCD9002		2:1	94.1	56.5	702	29.85	P	A187A
	3600	575	326TS	<b>W578A</b>	326TSHFCD9005	¶	2:1	94.1	45.0	690	29.85		A187A
	1800	460	326T	<b>W580A</b>	326THFCD9026	√	2:1	94.5	58.5	675	31.35		A187A
	1800	460	326T	<b>W580A-P</b>	326THFCD19071	√	2:1	94.5	58.5	730	31.35	P	A187A
	1800	460	326TS	<b>W579A</b>	326TSHFCD9036	√	2:1	94.5	58.5	728	29.85		A187A
	1800	575	326T	<b>W581A</b>	326THFCD19033		2:1	94.5	47.0	730	31.35		A187A
	1200	460	365T	<b>W582B</b>	365THFCD19086	√	2:1	94.1	60.5	1001	34.40		A188A
60	1200	460	365T	<b>W582B-P</b>	365THFCD9077	√	2:1	94.1	60.5	1001	34.40	P	A188A
	1200	575	365T	<b>W640A</b>	365THFCD19077	¶	2:1	94.1	48.5	983	34.40		A188A
	900	460	404T	<b>W583A</b>	404THFCD9101	¶	2:1	92.4	62.0	1264	38.88		A190A
	3600	460	364TS	<b>W584</b>	364TSHFSD9001		2:1	94.5	67.0	960	29.60		A189
	3600	460	364TS	<b>W584A</b>	364TSHFCD9001	√	20:1	93.6	67.5	833	33.27		A188A
	3600	460	364TS	<b>W584A-P</b>	364TSHFCD9002		2:1	93.6	67.5	833	33.27	P	A188A
	3600	575	364TS	<b>W585A</b>	364TSHFCD9005	√	2:1	93.6	54.0	833	33.27		A188A
	1800	460	364T	<b>W587A</b>	364THFCD9036	√	2:1	95.0	68.0	878	33.40		A188A
	1800	460	364T	<b>W587A-P</b>	364THFCD19061	√	2:1	95.0	68.0	944	33.40	P	A188A
75	1800	575	364T	<b>W588A</b>	364THFCD19033		2:1	95.0	54.5	944	33.40		A188A
	1200	460	404T	<b>W589A</b>	404THFCD9086	¶	2:1	94.5	71.5	1292	38.88		A190A
	1200	460	404T	<b>W589A-P</b>	404THFCD9077	√	2:1	94.5	71.5	1195	38.88	P	A190A
	900	460	405T	<b>W590A</b>	405THFCD19101	√	2:1	92.4	74.5	1328	38.88		A190A
	3600	460	365TS	<b>W591A</b>	365TSHFCD9001	¶	2:1	94.5	84.0	900	34.27		A188A
	3600	460	365TS	<b>W591A-P</b>	365TSHFCD9002		2:1	94.5	84.0	1047	34.27		A188A
	3600	575	365TS	<b>W592A</b>	365TSHFCD19002	√	2:1	94.5	67.0	1047	34.27		A188A
	1800	460	365T	<b>W594A</b>	365THFCD9036	√	2:1	95.5	85.0	988	34.40		A188A
	1800	460	365T	<b>W594A-P</b>	365THFCD19065	√	2:1	95.5	85.0	1063	34.40	P	A188A
100	1800	460	365TS	<b>W593B</b>	365TSHFCD19034	¶	2:1	95.5	85.0	981	34.27		A188A
	1800	575	365T	<b>W595A</b>	365THFCD9044		2:1	95.5	68.0	1063	34.40		A188A
	1200	460	405T	<b>W596A</b>	405THFCD9086	¶	2:1	94.5	89.0	1292	38.88		A190A
	1200	460	405T	<b>W596A-P</b>	405THFCD9077	√	2:1	94.5	89.0	1338	38.88	P	A190A
	1200	575	405T	<b>W686</b>	405THFS19081		2:1	94.5	72.0	1297.0	37.14		A190
	900	460	444T	<b>W597A</b>	444THFCD9101		2:1	93.6	92.0	1734	46.83		A194A
	3600	460	405TS	<b>W598A</b>	405TSHFCD9001	¶	2:1	94.5	111	1125	35.88		A191A
	3600	460	405TS	<b>W598A-P</b>	405TSHFCD9002		2:1	94.5	111	1212	35.88	P	A191A
	1800	460	405T	<b>W600A</b>	405THFCD9036	√	2:1	95.4	113	1283	38.88		A190A
125	1800	460	405T	<b>W600A-P</b>	405THFCD19327	√	2:1	95.4	113	1349	38.88	P	A190A
	1800	460	405TS	<b>W599A</b>	405TSHFCD9026	√	2:1	95.4	113	1257	35.88		A190A
	1800	575	405T	<b>W601A</b>	405THFCD9040	¶	2:1	95.4	90.5	1295	38.88		A190A
	1200	460	444T	<b>W636A</b>	444THFCD19081	√	2:1	95.0	115	1932	46.83		A194A
	1200	460	444T	<b>W636A-P</b>	444THFCD9077	√	2:1	95.0	115	1932	46.83	P	A194A
	900	460	445T	<b>W603A</b>	445THFCD9106		2:1	93.6	123	2048	46.83		A194A
	3600	460	444TS	<b>W604B</b>	444TSHFCD19002	√	2:1	95.0	138	1649	43.08		A195A
	3600	460	444TS	<b>W604B-P</b>	444TSHFCD9002	√	2:1	95.0	138	1761	43.08	P	A195A
	1800	460	444T	<b>W606A</b>	444THFCD9036	√	2:1	95.4	140	1676	46.83		A194A
1800	460	444T	<b>W606A-P</b>	444THFCD19044	√	2:1	95.4	140	1707	46.83	P	A194A	
1800	575	444T	<b>W607A</b>	444THFCD9040	¶	2:1	95.4	112	1707	46.83		A194A	
1200	460	445T	<b>W608A</b>	445THFCD9086	¶	2:1	95.0	143	1932	46.83		A194A	
1200	460	445T	<b>W608A-P</b>	445THFCD9077		2:1	95.0	143	2043	46.83	P	A194A	
900	460	445T	<b>W609A</b>	445THFCD9102		2:1	94.1	162	2432	51.20		A194A	

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

Continued on next page.

# XRI®-841 / AUTOMOTIVE DUTY MOTORS

## NEMA PREMIUM®\*, XRI®, THREE PHASE, TOTALLY ENCLOSED

### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES	C-FACE KITS
150	3600	460	445TS	<b>W610A</b>	445TSHFCD9001	¶	2:1	95.0	161	1870	43.08		A195A
	3600	460	445TS	<b>W610A-P</b>	445TSHFCD9002		2:1	95.0	161	1950	43.08	P	A195A
	1800	460	445T	<b>W612</b>	445THFN9036		10:1	95.8	172	2144	43.35		A194
	1800	460	445T	<b>W612A</b>	445THFCD9036	¶	2:1	95.8	169	1857	46.83		A194A
	1800	460	445T	<b>W612A-P</b>	445THFCD19071	√	2:1	95.8	169	1900	46.83	P	A194A
	1800	460	445TS	<b>W611A</b>	445TSHFCD9026	√	2:1	95.8	169	1835	43.08		A194A
	1800	575	445T	<b>W613A</b>	445THFCD9037		2:1	95.8	135	1900	46.83		A194A
	1800	575	445T	<b>W641A</b>	445THFCD19033	√	2:1	95.8	135	2300	46.83	RB	A194A
	1200	460	445T	<b>W614A</b>	445THFCD9087		2:1	95.8	171	2404	51.20	RB	A194A
	1200	460	445T	<b>W614A-P</b>	445THFCD9078		2:1	95.8	171	2475	51.20	P	A194A
200	900	460	449T	<b>W615A</b>	449THFCD9101		2:1	94.1	192	3009	55.33		A194A
	3600	460	445TS	<b>W616A</b>	445TSHFCD9005	√	2:1	95.4	217	2303	47.45	SL	A195A
	3600	460	445TS	<b>W616A-P</b>	445TSHFCD9003		2:1	95.4	217	2276	47.45	P	A195A
	1800	460	445T	<b>W618A</b>	445THFCD9038	√	2:1	96.5	219	2276	51.20	RB	A194A
	1800	460	445T	<b>W618A-P</b>	445THFCD19070		2:1	96.5	219	2276	51.20	RB, P	A194A
	1800	460	449T	<b>W619A</b>	449THFCD9030	¶	2:1	96.5	219	2309	55.33		A194A
	1800	460	449T	<b>W619A-P</b>	449THFCD9037		2:1	96.5	219	2399	55.33	P	A194A
	1800	575	445T	<b>W642A</b>	445THFCD19034	¶	2:1	96.5	175	2355	51.20		A194A
	1200	460	449T	<b>W621A</b>	449THFCD19092	√	2:1	95.8	230	2568	55.33		A194A
	1200	460	449T	<b>W621A-P</b>	449THFCD9077		2:1	95.8	230	2930	55.33	P	A194A
250	1200	460	449T	<b>W622A</b>	449THFCD9088	¶	2:1	95.8	230	2570	55.33	RB	A194A
	1200	460	449T	<b>W622A-P</b>	449THFCD9807		2:1	95.8	230	2930	55.33	P	A194A
	1200	575	449T	<b>W630A</b>	449THFCD19079		2:1	95.8	184	2570	55.33	RB	A194A
	3600	460	449TS	<b>W624A</b>	449TSHFCD9003		2:1	95.8	266	2471	55.51		A195A
	3600	460	449TS	<b>W624A-P</b>	449TSHFCD9004		2:1	95.8	266	2635	55.51	P	A195A
	1800	460	449T	<b>W626A</b>	449THFCD9028	¶	2:1	96.2	272	2612	55.33		A194A
	1800	460	449T	<b>W626A-P</b>	449THFCD19342	√	2:1	96.2	272	2612	55.33	P	A194A
	1200	460	449T	<b>W629A</b>	449THFCD19091		2:1	95.8	285	2710	55.33	RB	A194A
	3600	460	449TS	<b>W631A</b>	449TSHFCD9002		2:1	95.8	320	2888	55.51		A195A
	3600	460	449TS	<b>W631A-P</b>	449TSHFCD9018		2:1	95.8	320	3216	55.51	P	A195A
300	1800	460	449T	<b>W632A</b>	449THFCD9027	√	2:1	96.2	332	2780	55.33		A194A
	1800	460	449T	<b>W632A-P</b>	449THFCD9070		2:1	96.2	332	3039	55.33		A194A
	1200	460	449T	<b>W657</b>	449THFCD9078	√	2:1	95.8	342	3200	59.27		A194A
	3600	460	449TS	<b>W634A</b>	449TSHFCD9001		2:1	95.8	373	2635	55.51		A195A
350	3600	460	449TS	<b>W634A-P</b>	449TSHFCD9021		2:1	95.8	373	2888	55.51	P	A195A
	1800	460	449T	<b>W635A</b>	449THFCD9036	√	2:1	96.2	390	2834	55.33	RB	A194A
	1800	460	449T	<b>W635A-P</b>	449THFCD9071		2:1	96.2	390	3082	55.33	P	A194A
	3600	460	449TS	<b>W659</b>	449TSHFCD9000		2:1	95.8	327	3230	55.51		A195A
400	3600	460	449TS	<b>W659A-P</b>	449TSHFCD9023		2:1	95.8	327	3210	55.51	P	A195A
	1800	460	449T	<b>W660</b>	449THFCD9026		2:1	96.2	440	3325	59.27		A194A
	1800	460	449T	<b>W660A-P</b>	449THFCD9061		2:1	96.2	442	3340	59.27	P	A194A

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# XRI®-841 / AUTOMOTIVE DUTY MOTORS

NEMA PREMIUM®, XRI®, THREE PHASE, TOTALLY ENCLOSED

C-FACE FOOTED (RIGID BASE), VERTICAL SHAFT DOWN, BCP

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	460	182TCV	<b>W017-P</b>	182THTCD9010	√	2:1	89.5	3.5	105	14.56	P
	1800	460	182TCV	<b>W019-P</b>	182THFCD9040		10:1	89.5	4.0	112	16.95	P
5	1800	460	184TCV	<b>W025-P</b>	184THFCD9040	√	10:1	89.5	6.5	120	16.95	P
7 1/2	3600	460	213TCV	<b>W030-P</b>	213THTCD9010	√	2:1	91.7	8.6	204	18.22	P
	1800	460	213TCV	<b>W032-P</b>	213THFCD9040		10:1	91.7	9.5	200	19.28	P
10	3600	460	215TCV	<b>W037-P</b>	215THFCD9010	√	2:1	90.2	11.8	200	20.78	P
10	1800	460	215TCV	<b>W039-P</b>	215THFCD9040		10:1	91.7	12.5	210	20.78	P
15	3600	460	254TCV	<b>W044-P</b>	254THFCD9010	√	2:1	91.0	17.8	1297	24.65	P
15	1800	460	254TCV	<b>W046-P</b>	254THFCD9040		10:1	92.4	18.8	361	24.65	P
20	1800	460	256TCV	<b>W053-P</b>	256THFCD9040		10:1	93.0	24.2	455	26.39	P
25	1800	460	284TCV	<b>W060-P</b>	284THFCD9040		10:1	93.6	30.0	575	28.14	P
30	1800	460	286TCV	<b>W067-P</b>	286THFCD9040		10:1	93.6	35.5	600	28.14	P
40	1800	460	324TCV	<b>W073-P</b>	324THFCD9040	√	2:1	94.1	47.5	650	31.35	P
50	1800	460	326TCV	<b>W080-P</b>	326THFCD9040	¶	2:1	94.5	58.5	775	31.35	P
60	1800	460	364TCV	<b>W087-P</b>	364THFCD9040	√	2:1	95.0	68.0	910	33.40	P
75	1800	460	365TCV	<b>W094-P</b>	365THFCD9040	√	2:1	95.5	85.0	1050	34.40	P
100	1800	460	405TCV	<b>W100-P</b>	405THFCD9042	√	2:1	95.4	113	1363	38.88	P
125	1800	460	444TCV	<b>W106-P</b>	444THFCD9042	√	2:1	95.4	140	2210	44.83	P
150	1800	460	445TCV	<b>W112-P</b>	445THFCD9040	√	2:1	95.8	169	2215	46.83	P
200	1800	460	445TSCV	<b>W117-P</b>	445TSHFCD9042		2:1	96.5	219	2225	43.08	P
200	1800	460	445TCV	<b>W118-P</b>	445THFCD9042		2:1	96.5	219	2230	46.83	P

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
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 Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# HAZARDOUS DUTY® DIVISION 1 EXPLOSION PROOF MOTORS

marathon®

HIGH PERFORMANCE & HIGH EFFICIENCY

## Features

- Single and three phase motors
- Premium efficient models
- IP54 Ingress Protection
- Severe Duty 182T to 449T Frames
- Double shielded ball bearings
- Class F thermostats
- NEMA®\* 1.0 or 1.15 service factor
- UL®\* listed file no. E12044, CSA®\* certified under file LR21839

## Applications

- Used in severe duty environments that you may find in foundries, pulp, paper mills, waste management facilities, above ground mines, refineries or other applications that demand corrosion protection for long motor life and dependability
- Please check and verify national and local codes. Always consult a NFPA local authority and electrician for installing / before installing and connecting motors



\*See back cover page for attribution.



# HAZARDOUS DUTY® DIVISION 1 EXPLOSION PROOF MOTORS

CLASS I AND II, GROUPS C & D, F & G

XRI®-SEVERE DUTY, NEMA PREMIUM®\* EFFICIENCY, THREE PHASE

## FEATURES

- Meets temperature code T3C (except as noted)
- Meets NEMA Premium efficiencies
- 10:1 variable torque, see CT Speed Range column for constant torque
- MAX GUARD® Class F insulation
- 100% cast iron construction for rigidity and reduced vibration
- External surface treated with epoxy paint
- 1.15 service factor on sinewave, (except as noted) or 1.0 service factor on IBGT power
- Normally closed thermostats (must be connected to control circuit)
- Nameplated 60/50 Hz, 190/380 volts, at next lower HP, as noted
- UL®\* Listed file no. E12044
- CSA®\* certified file no. LR47504
- Three year warranty



## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182TC	<b>C372</b>	182TTGCD6505		10:1	86.5	8.0/4.0	115	16.62	13, 68
	1800	230/460	182TC	<b>C364B</b>	182TTGCD6569	√	10:1	89.5	8.0/4.0	145	16.62	13,17, 68
	1800	575	182TC	<b>C368B</b>	182TTGCD6536	√	10:1	89.5	3.2	151	16.62	17
5	3600	230/460	184TC	<b>C373</b>	184TTGCD6505		10:1	88.5	12.0/6.0	135	18.62	13, 68
	1800	230/460	184TC	<b>C365B</b>	184TTGCD6575	√	10:1	89.5	12.0/6.0	168	16.62	13,17, 68
	1800	575	184TC	<b>C369B</b>	184TTGCD6537	¶	10:1	89.5	5.2	181	18.62	17
7 1/2	3600	230/460	213TC	<b>C374</b>	213TTGCD6505	√	10:1	89.5	18.4/9.2	146	20.45	13,17, 68
	1800	230/460	213TC	<b>C366C</b>	213TTGCD6528	√	10:1	91.7	19.0/9.5	249	20.45	13, 68
	1800	575	213TC	<b>C370C</b>	213TTGCD6536		10:1	91.7	7.6	250	20.45	13
10	3600	230/460	215TC	<b>C377</b>	215TTGCD6505		10:1	90.2	23.6/11.8	190	23.45	13,17, 68
	1800	230/460	215TC	<b>C367C</b>	215TTGCD6528	√	10:1	91.7	25.0/12.5	230	23.45	13,17, 68
	1800	575	215TC	<b>C371B</b>	215TTGCD16534		10:1	91.7	10.0	280	23.45	17
15	3600	230/460	254TC	<b>C378</b>	254TTGCD6505		10:1	91.0	35.5/17.8	435	23.93	13,17, 68
	1800	230/460	254TC	<b>C379</b>	254TTGCD6528		10:1	92.4	37.5/18.8	435	23.93	13,17, 68
20	3600	230/460	256TC	<b>C500</b>	256TTGCD6505		10:1	91.0	47.5/23.7	435	25.68	13,17, 68
	1800	230/460	256TC	<b>C501</b>	256TTGCD6528	¶	10:1	93.0	48.5/24.2	455	25.68	13,17, 68
25	3600	230/460	284TSC	<b>C502</b>	284TSTGCD6505		10:1	91.7	58.5/29.2	460	26.33	13,17, 68
	1800	230/460	284TC	<b>C503</b>	284TTGCD6528		10:1	93.6	60.0/30.0	575	26.33	13,17, 68
30	1800	230/460	286TC	<b>C504</b>	286TTGCD6528		10:1	93.6	71.0/35.5	600	27.84	13,17, 68

## C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182TC	<b>C303C</b>	182TTGCD16003	√	10:1	86.5	8.0/4.0	165	18.62	13,17, 68
	1800	230/460	182TC	<b>C323B</b>	182TTGCD4068	√	10:1	89.5	8.0/4.0	151	18.62	13,17, 68
5	3600	230/460	184TC	<b>C304C</b>	184TTGCD16004	√	10:1	88.5	12.0/6.0	155	18.62	13,17, 68
	1800	230/460	184TC	<b>C324C</b>	184TTGCD16027	√	10:1	89.5	13.0/6.5	165	18.62	13,17, 68
7 1/2	3600	230/460	213TC	<b>C305C</b>	213TTGCD16001	√	10:1	89.5	18.4/9.2	245	23.45	13,17, 68
	1800	230/460	213TC	<b>C325D</b>	213TTGCD16027		10:1	91.7	19.0/9.5	245	23.45	13, 68
10	3600	230/460	215TC	<b>C306C</b>	215TTGCD16006		10:1	90.2	23.6/11.8	260	23.45	13,17, 68
	1800	230/460	215TC	<b>C326C</b>	215TTGCD16029	¶	10:1	91.7	25.0/12.5	280	23.45	13,17, 68
15	3600	230/460	254TC	<b>C307C</b>	254TTGCD16524		10:1	91.0	35.5/17.8	376	25.77	13,17, 68
	1800	230/460	254TC	<b>C327C</b>	254TTGCD16034	√	10:1	92.4	37.5/18.8	424	25.77	13,17, 68
20	3600	230/460	256TC	<b>C308C</b>	256TTGCD16004	√	10:1	91.0	47.5/23.7	436	25.77	13,17, 68
	1800	230/460	256TC	<b>C328C</b>	256TTGCD16034		10:1	93.0	48.5/24.2	424	25.77	13,17, 68

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for information

# HAZARDOUS DUTY® DIVISION 1 EXPLOSION PROOF MOTORS

CLASS I AND II, GROUPS C & D, F & G

XRI®-SEVERE DUTY, NEMA PREMIUM®\* EFFICIENCY, THREE PHASE

## FEATURES

- Meets temperature code T3C (except as noted)
- Meets NEMA Premium efficiencies
- 10:1 variable torque, see CT Speed Range column for constant torque
- MAX GUARD® Class F insulation
- 100% cast iron construction for rigidity and reduced vibration
- Internal and external surfaces treated with epoxy paint
- 1.15 service factor on sinewave, (except as noted) or 1.0 service factor on IBGT power
- Precision balanced to .08"/sec.
- Extended grease tubes
- Normally closed thermostats (must be connected to control circuit)
- Nameplated 60/50 Hz, 190/380 volts, at next lower HP, as noted
- Ball bearings (except as noted)
- UL®\* Listed file no. E12044
- CSA®\* certified file no. LR47504
- Three year warranty

## SEE MOD CENTRAL FOR:

- C-Face kit modifications
- Ball bearings (except as noted)



## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182T	<b>U040B</b>	182TTGCD6576	√	10:1	87.5	4.6/2.3	158	15.87	13,17, 68
2	1200	230/460	184T	<b>U041B</b>	184TTGCD6576		10:1	88.5	6.0/3.0	250	17.87	13, 68
3	3600	230/460	182T	<b>U060B</b>	182TTGCD6501	√	10:1	86.5	8.0/4.0	126	15.87	13,17, 68
	1800	230/460	182T	<b>U004B</b>	182TTGCD6526	√	10:1	89.5	8.0/4.0	147	15.87	13,17, 68
	1800	230/460	182T	<b>U004B-P</b>	182TTGCD6541	√	10:1	89.5	8.0/4.0	148	15.87	13,17, 68, P
	1800	575	182T	<b>U023B</b>	182TTGCD6530	¶	10:1	89.5	3.2	141	15.87	13,17
	1200	230/460	213T	<b>U042B</b>	213TTGCD6576	√	10:1	<b>89.5</b>	8.6/4.3	240	22.63	13,17, 68
5	3600	230/460	184T	<b>U061B</b>	184TTGCD6501	√	10:1	88.5	12.0/6.0	140	17.87	13,17, 68
	1800	230/460	184T	<b>U005B</b>	184TTGCD6526	√	10:1	89.5	13.0/6.5	158	17.87	13,17, 68
	1800	230/460	184T	<b>U005B-P</b>	184TTGCD6544	√	10:1	89.5	13.0/6.5	156	17.87	13,17, 68, P
	1800	575	184T	<b>U024B</b>	184TTGCD6530	¶	10:1	89.5	5.2	173	17.87	13,17
	1200	230/460	215T	<b>U043C</b>	215TTGCD6576		10:1	89.5	13.6/6.8	225	22.63	13,17, 68
7 1/2	3600	230/460	213T	<b>U062C</b>	213TTGCD6501	√	10:1	89.5	18.4/9.2	216	19.63	13,17, 68
	1800	230/460	213T	<b>U006C</b>	213TTGCD6526	√	10:1	91.7	19.0/9.5	228	19.63	13, 68
	1800	230/460	213T	<b>U006C-P</b>	213TTGCD16548	¶	10:1	91.7	19.0/9.5	258	19.63	13, 68, P
	1800	230/460	213T	<b>U991C</b>	213TTGCD6540	√	10:1	91.7	19.0/9.5	230	19.63	13, 68
	1800	575	213T	<b>U025C</b>	213TTGCD16537	¶	10:1	91.7	7.6	241	19.63	13
	1200	230/460	254T	<b>E500A</b>	254TTGCD6576		10:1	91.0	19.8/9.9	345	23.52	13, 68
10	3600	230/460	215T	<b>U063C</b>	215TTGCD6501	√	10:1	90.2	23.6/11.8	240	19.63	13,17, 68
	1800	230/460	215T	<b>U007C</b>	215TTGCD6526	√	10:1	91.7	25.0/12.5	258	22.63	13,17, 68
	1800	230/460	215T	<b>U007C-P</b>	215TTGCD16539		10:1	91.7	25.0/12.5	210	22.63	13,17, 68, P
	1800	230/460	215T	<b>U992C</b>	215TTGCD6539		10:1	91.7	25.0/12.5	245	22.63	13, 68
	1800	575	215T	<b>U026C</b>	215TTGCD16532	√	10:1	91.7	10.0	258	22.63	13,17
	1200	230/460	256T	<b>E501A</b>	256TTGCD6576	¶	10:1	91.0	25.8/12.9	369	25.27	13, 68
15	3600	230/460	254T	<b>E502A</b>	254TTGCD6507	√	10:1	91.0	35.5/17.8	359	23.52	13,17, 68
	1800	230/460	254T	<b>E503A</b>	254TTGCD6531	√	10:1	92.4	37.5/18.8	385	23.52	13,17, 68
	1800	230/460	254T	<b>E503A-P</b>	254TTGCD16549	√	10:1	92.4	37.5/18.8	385	23.52	13,17, 68, P
	1800	575	254T	<b>U027B</b>	254TTGCD16541	¶	10:1	92.4	15.1	359	23.52	13,17
	1200	230/460	284T	<b>E504A</b>	284TTGCD6576	√	10:1	91.7	40.0/20.0	513	26.34	13,17, 68
20	3600	230/460	256T	<b>E505A</b>	256TTGCD6501	√	10:1	91.0	47.5/23.7	369	25.27	13,17, 68
	1800	230/460	256T	<b>E506A</b>	256TTGCD6526	√	10:1	93.0	48.5/24.2	369	25.27	13,17, 68
	1800	230/460	256T	<b>E506A-P</b>	256TTGCD16552	√	10:1	93.0	48.5/24.2	369	25.27	13,17, 68, P
	1800	575	256T	<b>U028B</b>	256TTGCD16540	¶	10:1	93.0	19.4	369	25.27	13,17
	1200	230/460	286T	<b>E507A</b>	286TTGCD16577	√	10:1	91.7	51.0/25.5	593	27.69	13

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
 Blue shaded areas are cast iron frames.

Continued on next page.

\*See back cover page for attribution.

# HAZARDOUS DUTY® DIVISION 1 EXPLOSION PROOF MOTORS

CLASS I AND II, GROUPS C & D, F & G

XRI®-SEVERE DUTY, NEMA PREMIUM®\* EFFICIENCY, THREE PHASE

## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
25	3600	230/460	284TS	<b>E546A</b>	284TSTGCD6503		2:1	91.7	60.0/30.0	460	24.97	13,68
	1800	230/460	284T	<b>E547A</b>	284TTGCD6533	√	10:1	93.6	60.0/30.0	561	26.34	13,17, 68
	1800	230/460	284T	<b>E547A-P</b>	284TTGCD16550	√	10:1	93.6	60.0/30.0	561	26.34	13,17, 68, P
	1800	230/460	284TS	<b>U076B</b>	284TSTGCD16531	√	10:1	93.6	60.0/30.0	559	24.97	13,17, 68
	1800	575	284T	<b>U029B</b>	284TTGCD16539		10:1	93.6	24.0	642	26.34	13,17
	1200	230/460	324T	<b>U048A</b>	324TTGS16577	¶	10:1	93.0	65.0/32.5	737	28.87	13,68,T3B
30	3600	230/460	286TS	<b>E563A</b>	286TSTGCD6501		2:1	91.7	68.5/34.0	487	26.47	13,17, 68
	1800	230/460	286T	<b>E564A</b>	286TTGCD6526		10:1	93.6	71.0/35.5	656	27.84	13,17, 68
	1800	230/460	286T	<b>E564A-P</b>	286TTGCD16546	√	10:1	93.6	71.0/35.5	656	27.84	13,17, 68, P
	1800	230/460	286TS	<b>U077B</b>	286TSTGCD16531		10:1	93.6	71.0/35.5	631	26.47	13,17, 68
	1800	575	286T	<b>U030B</b>	286TTGCD16533	√	10:1	93.6	28.4	658	27.84	13,17
	1200	230/460	326T	<b>E565</b>	326TTGS6578	¶	10:1	93.0	77.0/38.5	900	30.37	13,17, 68,T3B
40	3600	230/460	324TS	<b>E566</b>	324TSTGS6501	√	10:1	93.6	94.0/47.0	734	28.87	13,17, 68,T3B
	1800	230/460	324T	<b>E567</b>	324TTGS6529	√	10:1	94.1	95.0/47.5	759	30.37	13,17, 68,T3B
	1800	230/460	324T	<b>E567-P</b>	324TTGS16541	√	10:1	94.1	95.0/47.5	775	30.37	13,17, 68, P,T3B
	1800	230/460	324TS	<b>U078A</b>	324TSTGS16531	¶	10:1	94.1	95.0/47.5	770	28.87	13,17, 68,T3B
	1800	575	324T	<b>U031A</b>	324TTGS16535	¶	10:1	94.1	38.0	768	30.37	13,17,T3B
	1200	230/460	364T	<b>E568A</b>	364TTGS16577	¶	10:1	94.1	100/50.0	1042	31.50	13,17, 68,T3B
50	3600	230/460	326TS	<b>E569</b>	326TSTGS6501	√	10:1	94.5	118/59.0	831	30.37	13,17, 68,T3B
	1800	230/460	326T	<b>E570</b>	326TTGS6532	√	2:1	94.5	123/61.5	791	30.37	13,17, 68,T3B
	1800	230/460	326T	<b>E570-P</b>	326TTGS16546	√	2:1	94.5	123/61.5	810	30.37	13,17, 68, P,T3B
	1800	230/460	326TS	<b>U079A</b>	326TSTGS16532	¶	2:1	94.5	120/60.0	797	28.87	13,17, 68,T3B
	1800	575	326T	<b>U032A</b>	326TTGS16539	¶	2:1	94.5	49.0	800	30.37	13,17,T3B
	1200	230/460	365T	<b>E571</b>	365TTGS16577	√	2:1	94.5	123/61.5	1099	32.50	13,17,T3B
60	3600	230/460	364TS	<b>E572</b>	364TSTGS6506	¶	2:1	94.5	134/67.0	1033	29.38	13,17,T3B
	1800	230/460	364T	<b>E573A</b>	364TTGS16536	√	10:1	95.0	138/69.0	1076	31.50	13,17, 68,T3B
	1800	230/460	364TS	<b>U080A</b>	364TSTGS16531		2:1	95.0	138/69.0	1145	29.38	13,17, 68,T3B
	1800	575	364T	<b>U033A</b>	364TTGS16537	¶	2:1	95.0	56.0	1110	31.50	13,17,T3B
	1200	230/460	404T	<b>E574</b>	404TTGS6588	√	10:1	94.5	144/72.0	1295	35.62	13,17,T3B
	75	3600	230/460	365TS	<b>E575</b>	365TSTGS16503	¶	10:1	94.1	169/84.5	1097	30.38
1800		230/460	365T	<b>E576A</b>	365TTGS16540	√	2:1	95.4	174/87.0	1150	32.50	13,17, 68,T3B
1800		230/460	365TS	<b>U081A</b>	365TSTGS16532		2:1	95.4	174/87.0	1180	30.38	13,68,T3B
1800		575	365T	<b>U034A</b>	365TTGS16542	¶	2:1	95.4	69.5	1184	32.50	13,17,T3B
1200		230/460	405T	<b>E577</b>	405TTGS6589	¶	2:1	94.5	180/90.0	1388	37.12	13,T3B
3600		230/460	405TS	<b>E578</b>	405TSTGS6503	¶	10:1	94.5	216/108	1349	34.12	13,T3B
100	1800	230/460	405T	<b>E594</b>	405TTGS6548	√	2:1	95.4	226/113	1479	37.12	13,68,T3B
	1800	230/460	405TS	<b>U082A</b>	405TSTGS16531	¶	2:1	95.4	226/113	1410	34.12	13,68,T3B
	1800	575	405T	<b>U035A</b>	405TTGS16539	¶	2:1	95.4	90.5	1408	37.12	13,T3B
	1200	230/460	444T	<b>E580A</b>	444TTGN16580	¶	2:1	95.0	248/124	2020	41.35	13,68,T3B
	3600	460	444TS	<b>U073A</b>	444TSTGN16502		10:1	95.4	139	2088	36.70	13,68,T3B
	1800	460	444T	<b>E582A</b>	444TTGN16532	¶	10:1	95.8	143	2122	41.35	13,68,T3B
125	1800	460	444TS	<b>U083A</b>	444TSTGN16531	¶	10:1	95.8	143	2064	37.60	13,68,T3B
	1800	575	444T	<b>U036A</b>	444TTGN16533	¶	10:1	95.8	114	2113	41.35	13,T3B
	1200	460	445T	<b>E583</b>	445TTGN6597	¶	2:1	95.0	155	2200	43.25	13, RB,T3B
	3600	460	445TS	<b>E584</b>	445TSTGN16505	¶	10:1	95.8	168	2264	39.60	13,T3B
	1800	460	445T	<b>E585</b>	445TTGN6542	¶	10:1	95.8	172	2173	43.35	13,68,T3B
	1800	460	445TS	<b>U084A</b>	445TSTGN16531	¶	10:1	95.8	172	2200	39.60	13,68,T3B
150	1800	575	445T	<b>U037A</b>	445TTGN16544	¶	2:1	95.8	138	2152	43.35	13,T3B
	1200	460	445T	<b>U090A</b>	445TTGN16588	¶	10:1	95.8	181	2526	43.35	13,68, RB,T3B
	3600	460	445TS	<b>U075A</b>	445TSTGN16506		2:1	95.4	224	2360	39.59	13,68,T3B
	1800	460	445T	<b>E588</b>	445TTGN6538	¶	2:1	96.2	224	2500	43.19	13,68,T3B
	1800	575	445T	<b>U038A</b>	445TTGN16543	¶	2:1	96.2	179	2485	43.35	13,T3B
	1200	460	449T	<b>U091A</b>	449TTGS16585	¶	10:1	95.8	240	3066	51.85	13,68, RB,T3B
250	3600	460	449TS	<b>E595A</b>	449TSTGS16506		10:1	95.8	270	2750	48.19	13,17, 68,T3B
	1800	460	449T	<b>E591</b>	449TTGS16537	¶	10:1	96.5	285	3012	51.85	13, RB,T3B
300	1800	460	449T	<b>E596</b>	449TTGS16554	¶	2:1	96.5	339	3240	51.85	13,17, 68, RB,T3B
350	1800	460	449T	<b>H504A</b>	449TTGS16557	√	2:1	96.2	395	3300	51.85	13,17, RB,T3B

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# INVERTER DUTY MOTORS

LONG, DEPENDABLE MOTOR LIFE

marathon®

## Features

- Ideally suited for IGBT inverters
- Inverter duty insulation system
- Over temperature protection
- BlueMax® 2000 models - 2000:1 speed range
- Provisions for encoder mounting
- MicroMax® models include a 1024 a PPR encoder
- Drip-proof and totally enclosed models available
- Precision balanced rotor assemblies

## Applications

- Constant torque conveyors and machine tools or variable torque (pumps and fans) applications within the stated speed range of the motor



# INVERTER (VECTOR) DUTY: MICROMAX MOTORS

20:1 CONSTANT TORQUE

TOTALLY ENCLOSED, THREE PHASE

## APPLICATIONS

Designed for direct replacement of PMDC or any other variable speed application where up to 1000:1 constant torque speed range is required. Typical uses include: machine tools, conveyers, packaging machines, batching machines, and printing equipment.

## FEATURES

- Designed to replace PMDC motors (when used with VFD)
- Class H insulation with CR<sup>200</sup> corona resistant magnet wire
- Removable rigid base, as noted
- Continuous duty at 40°C ambient
- Top mounted conduit boxes as found on PMDC motors
- Eliminates brush and commutator maintenance
- UL®\* recognized and CSA®\* certified
- Three year warranty



### C-FACE FOOTED ( RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLASURE	BASE SPEED	FOOT NOTES
3	1800	230/460	182TC	Y1999	182THFW7729	√	87.5	8.4/4.2	64	13.97	TEFC	2.0	6
5	1800	230/460	184TC	Y1372	184THFW7726	√	87.5	13.0/6.5	92	13.97	TEFC	2.0	6
7 1/2	1800	230/460	213TC	Y994A	213THFBD7726	√	90.6	19.0/9.5	180	20.97	TEFC	2.0	
	1800	575	213TC	Y995A	213THFBD7736		90.6	7.6	175	20.97	TEFC	2.0	
10	1800	230/460	215TC	Y996A	215THFBD7726	√	91.0	26.6/13.3	190	20.97	TEFC	2.0	
	1800	575	215TC	Y997A	215THFBD7736		91.0	10.7	200	20.97	TEFC	2.0	

# INVERTER (VECTOR) DUTY: MICROMAX PLUS MOTORS

1000:1 CONSTANT TORQUE, TOTALLY ENCLOSED, THREE PHASE, WITH ENCODER

## APPLICATIONS

The MICROMAX® PLUS incorporates low rotor inertia for fast starts, stops, and reversals. Coupled with an encoder makes this useful in applications traditionally served encoder on by servo systems.

## ADDITIONAL FEATURES

- Integrated Dynapar®\* HS20 1024 ppr encoder
- Class F insulation with CR<sup>200</sup> corona resistant magnet wire
- Constant torque operation from 0 to base speed on vector drive
- Continuous duty at 40°C ambient
- Optimized for operation on IGBT inverter
- UL recognized, CSA certified, and CE®\* mark
- Three year warranty



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLASURE	BASE SPEED	FOOT NOTES
3	1800	230/460	182TC	Y286A	182THTY17041	√	87.5	9.6/4.8	80	16.19	TENV	2.0	6, AL
5	1800	230/460	184TC	Y287A	184THTY17038	√	89.5	13.4/6.7	93	17.69	TENV	2.0	6, AL

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# INVERTER (VECTOR) DUTY: BLACK MAX® MOTORS

## 1000:1 CONSTANT TORQUE, TENV, THREE PHASE

**APPLICATIONS:** Designed for inverter or vector applications where up to a 1000:1 constant torque speed range is required. Typical uses include: material handling, machine tools, conveyors, crane and hoist, metal processing, test stands, pumps compressors, textile processing, and other industrial machinery installed in dusty or dirty environments.

### FEATURES

- MAX GUARD® Class F insulation system
- Constant torque operation from 0 to base speed on vector drive
- Continuous duty at 40°C ambient
- Optimized for operation with IGBT inverter (NEMA® Design A)
- Normally closed thermostats (one per phase, Class F)
- Ball bearings
- Field reversible to F2 (except as noted)
- Encoder and brake provisions included on opposite drive end, (maximum 10 lb-ft brake, see modifications and/or accessory kits sections)
- UL® recognized, CSA® certified, and CE® mark
- Three year warranty



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLASURE	BASE SPEED	FOOT NOTES
2	1200	230/460	184TC	Y540A	184THTHD7776	√	85.5	6.6/3.3	88	16.82	TENV	2.0	AL
	1800	230/460	182TC	Y541B	182THTHD7726		89.5	8.0/4.0	95	15.82	TENV	2.0	AL
3	1800	575	182TC	Y558B	182THTHD7736	√	89.5	3.2	95	15.82	TENV	2.0	AL
	1200	230/460	213TC	Y542A	213THTHD7776	√	88.5	9.6/4.8	105	18.95	TENV	2.0	AL
5	1800	230/460	184TC	Y543B	184THTHD7726	¶	89.5	13.0/6.5	110	16.82	TENV	2.0	AL
	1800	575	184TC	Y559B	184THTHD7736	¶	89.5	5.2	110	16.82	TENV	2.0	AL
	1200	230/460	215TC	Y544A	215THTHD7776		88.0	15.0/7.5	146	18.95	TENV	2.0	AL
7 1/2	1800	230/460	213TC	Y545A	213THTHD7726	√	90.6	20.0/10.0	144	18.95	TENV	2.0	AL
	1800	575	213TC	Y560A	213THTHD7736	√	90.6	8.0	144	18.95	TENV	2.0	AL
	1200	230/460	254TC	Y546A	254THTHD5776	√	89.5	20.8/10.4	223	23.58	TENV	2.0	AL
10	1800	230/460	215TC	Y547A	215THTHD7726		91.7	25.0/12.5	219	20.45	TENV	2.0	AL
	1800	575	215TC	Y561A	215THTHD7736	√	91.7	10.0	218	20.45	TENV	2.0	AL
	1200	230/460	256TC	Y548A	256THTHD5776	√	89.5	26.8/13.4	229	25.31	TENV	2.0	AL
15	1800	230/460	254TC	Y549A	254THTHD5726	√	92.9	35.0/17.5	260	23.58	TENV	2.0	AL
	1800	575	254TC	Y562A	254THTHD5736	√	92.9	14.0	260	23.58	TENV	2.0	AL
20	1800	230/460	256TC	Y552A	256THTCD7026	√	93.6	49.0/24.5	340	25.31	TENV	2.0	
	1800	575	256TC	Y563A	256THTCD7036	√	93.6	19.6	340	25.31	TENV	2.0	
25	1800	230/460	284TC	Y553A	284THTCD7026		93.6	59.0/29.5	445	27.00	TENV	2.0	
	1800	575	284TC	Y567A	284THTCD7036		93.6	23.6	430	27.00	TENV	2.0	
30	1800	230/460	286TC	Y393A	286THTCD7026		93.8	74.0/37.0	475	28.50	TENV	2.0	
	1800	575	286TC	Y394A	286THTCD7036		93.8	29.6	475	28.50	TENV	2.0	

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

# INVERTER (VECTOR) DUTY: BLUE MAX® 2000 MOTORS

2000:1 CONSTANT TORQUE, TOTALLY ENCLOSED, THREE PHASE

## APPLICATIONS:

Designed for inverter or vector applications where up to a 2000:1 constant torque speed range is required. Typical uses include: material handling, machine tools, conveyors, crane and hoist, metal processing, test stands, pumps compressors, textile processing, and other industrial machinery installed in dusty or dirty environments where cast iron construction is required.

## FEATURES

- MAX GUARD® Class F insulation system
- Constant torque operation from 0 to base speed on vector drive, including TEFC (On volts/hertz drives, TEFC motors are limited to 20:1 constant torque)
- Optimized for operation with IGBT inverter
- Bearing current protection (BCP), mounted internally
- C-Face foot mount through 100 HP, as noted
- Normally closed thermostats (one per phase, Class F)
- Continuous duty at 40° C ambient
- 1.0 service factor ("B" rise on TEFC motors)



- Blue Chip Series® quality, cast iron frame and brackets
- Ball bearings (roller bearing available 360 frame & larger)
- Field reversible to F2
- Encoder provisions included on opposite drive end (see modification and/or accessory kits sections)
- UL®\* Recognized, CSA®\* Certified, and CE®\* Mark
- Three year warranty

## RIGID BASE AND C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLSURE	BASE SPEED	FOOT NOTES
3	1800	230/460	182TC	Y527A	182THTCD8028	√	89.5	8.0/4.0	127	33.43	TENV	2.0	
5	1800	230/460	184TC	Y564A	184THTCD8028	√	89.5	13.0/6.5	133	33.43	TENV	2.0	
7 1/2	1800	230/460	213TC	Y565A	213THTCD8038	√	90.6	20.0/10.0	310	33.43	TENV	2.0	
	1800	230/460	213TC	Y595A	213THFCD8028		90.6	19.0/9.5	180	33.43	TEFC	2.0	
10	1800	230/460	215TC	Y566A	215THTCD8038	√	91.7	25.0/12.5	325	33.43	TENV	2.0	
	1800	230/460	215TC	Y596A	215THFCD8029	√	90.6	24.0/12.0	190	33.43	TEFC	1.5	
15	1800	230/460	254TC	Y509A	254THTCD8058	¶	92.9	35.0/17.5	280	33.43	TENV	2.0	
	1800	230/460	254TC	Y597A	254THFCD8038		91.5	35.0/17.5	300	33.43	TEFC	1.5	
	1200	230/460	284TC	Y395A	284THFCD8086		91.0	39.0/19.5	375	33.77	TEBC-AXIAL	1.5	BP
20	1800	230/460	256TC	Y510A	256THTCD8038	√	93.6	49.0/24.5	340	33.43	TENV	2.0	
	1800	230/460	256TC	Y598A	256THFCD8038		92.0	46.0/23.0	335	33.43	TEFC	1.5	
	1200	230/460	286TC	Y582A	286THFCD8086		91.4	51.0/25.5	435	33.43	TEBC-AXIAL	1.5	BP
25	1800	230/460	284T	Y569A	284THFCD8028	√	92.7	57.0/28.5	390	33.43	TEFC	1.5	
	1800	230/460	284TC	Y511A	284THFCD8038	√	92.7	57.0/28.5	417	33.43	TEBC-AXIAL	1.5	BP
	1200	230/460	324TC	Y583A	324THFCD8086	√	92.4	61.0/30.5	575	33.43	TEBC-AXIAL	1.5	BP
30	1800	230/460	286T	Y570A	286THFCD8028	√	93.6	70.5/35.5	450	33.43	TEFC	2.0	
	1800	230/460	286TC	Y512A	286THFCD8038	√	93.6	70.5/35.5	451	33.43	TEBC-AXIAL	1.5	BP
	1200	230/460	326TC	Y584A	326THFCD8086	¶	92.4	72.0/36.0	630	33.43	TEBC-AXIAL	1.5	BP
40	1800	230/460	324T	Y571A	324THFCD8028		92.4	89.0/44.5	610	32.04	TEFC	1.5	
	1800	230/460	324TC	Y513A	324THFCD8038	√	92.4	89.0/44.5	610	36.45	TEBC-AXIAL	1.5	BP
	1200	230/460	364TC	Y585A	364THFCD8391	¶	93.3	91.0/45.5	900	39.71	TEBC-AXIAL	1.5	BP
50	1800	230/460	326T	Y572A	326THFCD8028	√	93.0	111/55.5	616	33.54	TEFC	1.5	
	1800	230/460	326TC	Y514A	326THFCD8038	√	93.0	111/55.5	625	37.95	TEBC-AXIAL	1.5	BP
	1200	230/460	365TC	Y586A	365THFCD8380	√	93.3	114/57.0	920	40.71	TEBC-AXIAL	1.5	BP
60	1800	230/460	364T	Y573A	364THFCD8036	√	95.0	135/67.5	850	35.61	TEFC	2.0	
	1800	230/460	364TC	Y515A	364THFCD8046	√	95.0	135/67.5	875	39.71	TEBC-AXIAL	1.5	BP
	1200	230/460	404TC	Y587A	404THFCD8092	¶	94.1	143/71.5	1190	46.13	TEBC-AXIAL	1.5	BP
75	1800	230/460	365T	Y574A	365THFCD8036	√	95.5	170/85.0	980	36.59	TEFC	2.0	
	1800	230/460	365TC	Y516A	365THFCD8046	√	95.5	170/85.0	970	40.71	TEBC-AXIAL	2.0	BP
	1200	230/460	405TC	Y588A	405THFCD8378	√	94.1	174/87.0	1280	46.13	TEBC-AXIAL	1.5	BP
100	1800	230/460	405T	Y575A	405THFCD8036	√	95.4	224/112	1275	41.06	TEFC	1.5	
	1800	230/460	405TC	Y517A	405THFCD8046	√	95.4	224/112	1265	46.13	TEBC-AXIAL	1.5	BP
	1200	230/460	444TC	Y589A	444THFCD8384		95.0	228/114	1730	53.80	TEBC-AXIAL	1.5	BP
125	1800	460	444T	Y518A	444THFCD8046	√	95.0	135	1595	53.80	TEBC-AXIAL	1.5	BP
	1800	460	444T	Y576A	444THFCD8036	√	95.0	135	1650	49.01	TEFC	1.5	
150	1800	460	445T	Y519A	445THFCD8046	√	95.4	161	1820	53.80	TEBC-AXIAL	1.5	BP
	1800	460	445T	Y577A	445THFCD8036	√	95.4	161	1887	49.01	TEFC	1.5	
200	1800	460	445T	Y520A	445THFCD8050		95.4	214	2120	58.17	TEBC-AXIAL	1.5	BP
	1800	460	445T	Y578A	445THFCD8040	√	95.4	214	2204	53.38	TEFC	1.5	
250	1800	460	449T	Y531A	449THFCD8046	√	95.8	265	2523	62.30	TEBC-AXIAL	1.5	BP
	1800	460	449T	Y579A	449THFCD8036	¶	95.8	265	2593	57.52	TEFC	1.5	
300	1800	460	449T	Y532A	449THFCD8047	√	95.8	318	2766	62.30	TEBC-AXIAL	1.5	BP
	1800	460	449T	Y580A	449THFCD8037	√	95.8	318	2800	57.52	TEFC	1.5	
350	1800	460	449T	Y533A	449THFCD8048	√	95.8	370	2898	66.30	TEBC-AXIAL	1.5	BP

√: Available ¶: Stocked components, Ready To Build Blue shaded areas are cast iron frames.

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# INVERTER (VECTOR) DUTY: BLUE MAX® 2000 HAZARDOUS DUTY® EXPLOSION PROOF MOTORS

2000:1 CONSTANT TORQUE, EXPLOSION PROOF, THREE PHASE, WITH ENCODER CLASS I AND II, GROUPS C & D, F & G

**APPLICATIONS:** Designed for industrial applications with vector drives where up to a 2000:1 constant torque speed range and/or precise speed or torque regulation is required, including positioning equipment. Used in dirty, dusty or caustic environments where cast iron construction is required, and installed in hazardous environments as defined by the motor's explosion proof class and group rating. Consult the National Electrical Code and your local regulations for the proper selection of motors in hazardous locations.



## FEATURES

- Meets temperature code T3B
- BEI®\* H38 explosion proof encoder 1024 ppr, Class I Groups C & D, Class II Groups E, F, G included
- MAX GUARD® Class F insulation system
- Constant torque operation from 0 to base speed on vector drive
- Continuous duty at 40°C ambient
- Optimized for operation with IGBT inverter (NEMA®\* design A)
- Normally closed thermostats (one per phase, Class F)
- Ball bearings
- Cast iron frame and brackets
- F1 standard, NOT field reversible to F2
- UL®\* Listed file no. E12044
- CSA®\* certified file no. LR47504
- Three year warranty



## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLASURE	BASE SPEED	FOOT NOTES
3	1800	230/460	182TC	Y980A	182THECD8048		89.5	8.0/4.0	117	24.82	EPNV	2.0	
5	1800	230/460	213TC	Y981A	213THECD8053	√	89.5	13.0/6.5	240	26.17	EPNV	1.5	
7 1/2	1800	230/460	254TC	Y982A	254THECD8058	√	91.7	19.0/9.5	344	30.20	EPNV	2.0	
10	1800	230/460	254TC	Y983A	254THECD8059	√	91.7	25.0/12.5	376	30.20	EPNV	2.0	
15	1800	230/460	256TC	Y984A	256THECD8059	√	92.9	35.0/17.5	435	31.95	EPNV	2.0	
20	1800	230/460	284TC	Y985A	284THECD8032	√	93.0	47.0/23.5	555	33.16	EPNV	1.5	

√: Available 1- Stocked components, Ready To Built  
Blue shaded areas are cast iron frames.

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# INVERTER (VECTOR) DUTY: BLUE MAX® 2000 BRAKE MOTORS

## 2000:1 CONSTANT TORQUE, TENV, THREE PHASE

**APPLICATIONS:** Designed for vector applications where up to a 2000:1 constant torque speed range is required. For use on conveyors, machine tools, cranes, hoists, and other industrial machinery requiring quick stop and/or holding torque.



### FEATURES

- MAX GUARD® Class F insulation system
- Constant torque operation from 0 to base speed on vector drive
- Optimized for operation with IGBT inverter (NEMA®\* design A)
- Normally closed thermostats (one per phase, Class F)
- Ball bearings
- Will accept encoder through Mod Central
- Stearns® brakes, 56 series through 15 Lb-Ft, 87 series, 25 Lb-Ft and larger
- Includes 140% rated spring-set self-adjusting NEMA 2 disk brake (Brake coil voltage matches motor)
- Universal mounting up to 15 Lb-Ft, (see comment below and Mod Central for vertical mounting)
- Horizontal mounting (see comment below and Mod Central for vertical mounting)
- UL®\* recognized, CSA®\* certified, and CE®\* mark
- Three year warranty (brake disks are exempt)



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	ENCLASURE	BASE SPEED	TORQUE RATING (LB/FT)
3	1800	230/460	182TC	Y988A	182THTCD8048		89.5	8.0/4.0	195	18.85	TENV	2.0	15
5	1800	230/460	184TC	Y989A	184THTCD8056	√	89.5	13.0/6.5	120	23.15	TENV	2.0	25
7 1/2	1800	230/460	213TC	Y990A	213THTCD8071		90.6	20.0/10.0	185	24.42	TENV	2.0	35
10	1800	230/460	215TC	Y991B	215THTCD8071	√	91.7	25.0/12.5	211	26.92	TENV	2.0	50
	1800	230/460	254TC	Y992A	254THTCD8071	√	92.9	35.0/17.5	290	30.55	TENV	2.0	75
20	1800	230/460	256TC	Y993A	256THTCD8071		93.4	49.0/24.5	355	32.28	TENV	2.0	105

### 1024 PPR ENCODERS THROUGH MOD CENTRAL

BRAND	MODEL	CAT. NO.	KIT NUMBER	STOCK	"BRAKE FITS MOTOR CAT. NO."	WT.
Avtron*	AV56	A749	KIT AV561024BRK-182	√	Y988A	4
		A750	KIT AV851024BRK-184	√	Y989A	5
	AV85	A751	KIT AV851024BRK-210	√	Y990A, Y991B	8
		A752	KIT AV851024BRK-250	√	Y992A, Y993A	8
Northstar*	ST56	A789	KIT ST561024-182NV	√	Y988A	4
		A790	KIT ST851024-184NV	√	Y989A	8
	ST85	A791	KIT ST851024-210NV	√	Y990A, Y991B	8
		A792	KIT ST851024-250NV	√	Y992A, Y993A	8

### VERTICAL MODIFICATION KIT (STEARNS® 87,000 SERIES)

TORQUE RATING (LB/FT)	CAT. NO.	KIT NUMBER	STOCK	MOUNTING - SHAFT		WT.
				UP	DOWN	
25, 35	A157	KIT VRT87BRK	√	Not required	Required	3
50, 75, 105						

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

marathon®

# GLOBETROTTER® MOTOR



For Reliable Performance in  
Heavy-Duty Industrial Applications,  
**NOTHING BEATS  
THE GLOBETROTTER MOTOR.**

# MARATHON® PERMANENT MAGNET

marathon®

## AC MOTOR

THE NEXT STEP IN ELECTRIC MOTOR EFFICIENCY

### Why choose a Permanent Magnet Motor over Induction Motors?

- In an induction motor, the current is induced into the rotor from the field (stator) through the air gap and conducted through aluminum bars, typically die cast into the rotor lamination slots
- By the use of permanent magnets embedded within the rotor, 180-280 frame PMAC motors provide increased efficiency

### Delivering high efficiency levels of up to IE4

The motor's efficiency profile remains flatter than the profile of an equivalent induction motor as the speed and load decline, allowing the user to capture even greater energy savings when the motor is operated at the application's ideal speed

### Applications

- Constant torque conveyors and machine tools or variable torque (pumps and fans)
- Data centers
- Blowers
- Compressors
- Elevator applications
- General industrial applications



# MARATHON® PERMANENT MAGNET AC MOTORS

## TENV AND TEFC THREE PHASE INDUSTRIAL, CAST IRON FRAME (NEMA 182-286T FRAME MODELS)

### FEATURES

- Permanent magnet AC motors requires an AC inverter for operation
- We have our LEESON® Platinum e™ Plus PMAC Drive Available for PMAC Motors
- IP54 as standard with IP55 and IP56 as optional
- Bearing Current Protection BCP (SGR) inside stock motors
- Ultra Efficient™ Premium-Plus exceeds NEMA Premium®\* (IE4)
- Class H MAX GUARD® insulation system
- Available in Cast Iron & Rolled Steel construction
- Severe Duty, TEFC, TENV and TEBC are available
- Provisions for encoder mounting
- Precision balanced rotor assemblies
- Normally closed thermostats (One per phase, Class F)
- High power density, low weight design
- Optional terminal block, Consult Factory
- UL®\*, CSA®\* and CE®\*
- Five year warranty



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	NEMA FRAME	TORQUE (LB-FT)	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230/460	182TC	8.8	<b>SY006A</b>	182TPNSB10237	√	92.9	6.8/3.4	137	17.50	N
	1800	230/460	182TC	8.8	<b>SY066</b>	182TPFRB10194	√	91.4	6.6/3.3	110	16.42	
	1200	230/460	182TC	13.1	<b>SY036</b>	182TPFRB10181	√	93.0	7.0/3.5	116	16.42	
5	1800	230/460	184TC	14.6	<b>SY007A</b>	184TPNSB10236	√	94.9	11.6/5.8	140	17.50	
	1800	230/460	184TC	14.6	<b>SY067</b>	184TPFRB10214	√	93.9	11.7/5.8	130	16.42	
7 1/2	1800	230/460	213TC	21.9	<b>SY008A</b>	213TPNSB10234	√	94.3	18.6/9.3	190	20.41	N
	1800	230/460	213TC	21.9	<b>SY068</b>	213TPFRB10230	√	94.1	16.6/8.3	125	19.47	
10	1800	230/460	215TC	29.2	<b>SY009A</b>	215TPNSB10235	√	93.9	24.6/12.3	208	20.41	N
	1800	230/460	215TC	29.2	<b>SY069</b>	215TPFRB10219	√	94.5	24.7/12.4	139	20.97	
15	1800	460	254TC	43.8	<b>SY010</b>	254TPFSA10088	√	94.0	18.0	392	25.68	
20	1800	460	256TC	58.4	<b>SY011</b>	256TPFSA10087	√	94.5	24.0	386	25.68	
25	1800	460	284TC	72.9	<b>SY012</b>	284TPFSA10112	√	94.5	30.0	408	26.21	
30	1800	460	286TC	87.5	<b>SY013</b>	286TPFSA10090	√	95.4	35.5	456	27.71	

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.  
Blue shaded areas are cast iron frames.

\*See back cover page for attribution.

**PERFORMANCE MATCH SOLUTIONS™**  
**WE HAVE THE DRIVE YOU NEED.**



# DC PERMANENT MAGNET MOTORS

SCR RATED, TOTALLY ENCLOSED C-FACE FOOTED (REMOVABLE)

## FEATURES

- Class H insulation
- Oversized brushes for extra long life
- Permanently lubricated sealed ball bearings
- Linear speed/torque characteristics over entire speed range
- High starting torque, high peak current capability
- Usable on PWM type DC adjustable speed drives at higher HP rating
- Easy brush access with unique brush holder design
- UL®\* recognized and CSA®\* certified



HP	RPM	DC ARM VOLTS	FRAME	ENCL.	CAT. NO.	MODEL / ITEM NO.	STOCK	C.T. SPEED RANGE	F.L. AMPS DC	CONTROL VOLTS AC INPUT	WT.	"C" DIM.
3	1750	180	182/145TC	TEFC	-	108502.00	√	20:1	14.0	230.0	88	21.75

## METRIC (IEC®\*) FRAME - SCR RATED - IP54 B34 FLANGE FOOTED

## FEATURES

- Cast aluminum conduit box
- Removable base
- B5 flange kit is available
- Terminal board provided for connections
- All metric fasteners
- Easy brush access for field service
- Oversize brushes for extended life
- High strength rolled steel frame
- Die cast aluminum endshields with steel bearing inserts
- Permanently lubricated sealed ball bearings
- Reversible rotation
- Simple 2 lead connection
- Convenient wiring access

KW/ HP	RPM	DC ARM VOLTS	FRAME	ENCL.	CAT. NO.	MODEL / ITEM NO.	STOCK	CONTROL VOLTS AC INPUT	F.L. AMPS @ 180 VDC	CONTROL VOLTS AC INPUT	WT.	"C" DIM.
2.2/3	1800	180	112M	TEFC	-	118014.00	√	230	14	90	21.79	S

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# DC PERMANENT MAGNET MOTORS

## EXPLOSION PROOF - SCR RATED TOTALLY ENCLOSED, C-FACE FOOTED

### FEATURES

- Rugged mechanical construction
- Class I and II, Groups C, D, F & G
- Class H insulation
- Meets all safety requirements
- Leads exit thru 3/4"-14 NPT pipe nipple at top of frame opposite shaft end
- C-Face Footed with removable base
- Optional conduit box available - use 175026.00
- Pilot duty thermostats - (connect to SCR control)
- Thermostats rated for continuous duty with full wave SCR (thyristor) controls
- Double shielded, pre-lubricated ball bearings
- Easy brush access for field service
- UL®\* recognized and CSA®\* certified



HP	RPM	DC ARM VOLTS	FRAME	ENCL.	CAT. NO.	MODEL / ITEM NO.	STOCK	FL. AMPS DC	CONTROL VOLTS AC INPUT	WT.	"C" DIM.	FOOT NOTES
1/3	1800	90	S56C	EPFC	-	118015.00	√	115	115	27	13.41	S
1/2	1800	90	S56C	EPFC	-	118016.00	√	115	115	30	14.41	S
	1800	180	S56C	EPFC	-	118017.00	√	230	230	32	14.41	S
3/4	1800	90	S56C	EPFC	-	118018.00	√	115	115	40	16.41	S
	1800	180	S56C	EPFC	-	118019.00	√	230	230	36	16.41	S

## LOW VOLTAGE DC EXPLOSION PROOF MOTORS

### FEATURES

- Division 1 and 2, Class I & II Groups C, D, F, and G) and Class III
- C-Face footed with removable base
- Class H insulation
- Optional conduit box available - use kit 175026.00



HP	RPM	DC ARM VOLTS	FRAME	ENCL.	CAT. NO.	MODEL / ITEM NO.	STOCK	FL. AMPS DC	CONTROL VOLTS AC INPUT	WT.	"C" DIM.	FOOT NOTES
1/3	1800	12	56C	TENV	-	118054.00	√	12	12	19	10.38	S
	1800	24	56C	TENV	-	118055.00	√	24	12	24	10.38	S
3/4	1800	24	56C	TENV	-	118056.00	√	24	27	33	13.38	S

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# TERRAMAX® IEC MOTORS

marathon®

IEC®\* GLOBAL STANDARD MOTORS  
DELIVERING A WORLD OF OPPORTUNITY

## Features

- IP55 Enclosure Protection
- Dual Frame Mounting Holes
- F1 To F2 Mounting Capability
- 1 to 100 hp
- Meets IE3 European and NEMA Premium®\* efficiencies
- Cast Iron frame construction
- Wye Start-Delta Run on 160 Frame and larger
- Bearing caps on 160 Frame and larger
- 10:1 variable torque, constant torque speed range as noted
- 1.15 Service Factor on 60 Hz sine wave, 1.0 SF or VFD
- Top Mounted/Oversized gasketed terminal box
- UL®\* Listed, UL Certified for Canada and CE®\* mark

## Applications

- Fans
- Pumps
- Compressors
- Conveyors
- Other equipment requiring IEC®\* dimensions and electrical standards



\*See back cover page for attribution.



# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED

### APPLICATIONS

For use on fans, pumps, compressors, conveyors, and other equipment requiring IEC dimensions and electrical standards. The TerraMAX® motor is not only designed to International standards, but meets NEMA®\* performance and efficiency standards making it suitable for requirements worldwide.

### FEATURES

- Meets IE3 European and NEMA Premium®\* efficiencies
- Cast Iron frame construction
- Nameplated 60/50 Hz at next lower HP
- IP55 weatherproof enclosure
- Wye Start-Delta Run on 160 frame and larger, as noted
- Bearing caps on 160 frame and larger
- 10:1 variable torque, constant torque speed range
- 1.15 service factor on 60 Hz sine wave, 1.0 SF or VFD
- Top mounted/oversized gasketed terminal box
- Meets IEEE45, IEC60092 & USCG CFR46 Marine Duty
- IEC design "N" with NEMA "B" torques
- Terminal blocks, stud type, zero creepage
- B5 and B14 flange mounting kits



- Meets IEC 34 electrical standards
- Meets IEC 72 dimensions and tolerances
- UL®\* Listed, UL Certified for Canada, & CE®\* Mark
- Three Year Warranty

### B3 RIGID BASE

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES	B5/FF FLANGE
1-.75	3600/3000	230/460	200/400	80M	<b>R312B</b>	TCAP751AE211GAA009	√	2:1	77.0	3/1.5	41	281		A571A
	3600/3000	575	480	80M	<b>R412B</b>	TCAP751AP211GAA009	√	2:1	77.0	1.2	41	281		A571A
	1800/1500	230/460	200/400	80M	<b>R313B</b>	TCAP752AE211GAA009	√	2:1	83.5	3/1.5	44	281		A571A
	1800/1500	575	480	80M	<b>R413B</b>	TCAP752AP211GAA009	√	2:1	83.5	1.2	44	281		A571A
	1200/1000	230/460	200/400	90S	<b>R314B</b>	TCAP753AE211GAA009	√	2:1	82.5	3.4/1.7	49	307		A572A
	1200/1000	575	480	90S	<b>R414</b>	TCAP753AP211GAA009	√	2:1	82.5	1.3	49	307		A572A
1 1/2-1.1	3600/3000	230/460	200/400	80M	<b>R315A</b>	TCA1P11AE211GAA009	√	2:1	84.0	4.0/2.0	40	281		A571A
	3600/3000	575	480	80M	<b>R415A</b>	TCA1P11AP211GAA009	√	2:1	84.0	1.6	40	281		A571A
	1800/1500	230/460	200/400	90S	<b>R316B</b>	TCA1P12AE211GAA009	√	2:1	84.1	4.3/2.1	50	281		A572A
	1800/1500	575	480	90S	<b>R416B</b>	TCA1P12AP211GAA009	√	2:1	84.1	1.7	50	281		A572A
	1200/1000	230/460	200/400	100L	<b>R317A</b>	TCA1P13AE211GAA009	√	2:1	87.5	4.4/2.2	39	398		A554B
	1200/1000	575	480	100L	<b>R417</b>	TCA1P13AP211GAA009	√	2:1	87.5	1.7	39	398		A554B
2-1.5	3600/3000	230/460	200/400	90S	<b>R318B</b>	TCA1P51AE211GAA009	√	2:1	85.5	5.4/2.7	47	281		A572A
	3600/3000	575	480	90S	<b>R418B</b>	TCA1P51AP211GAA009	√	2:1	85.5	2.1	47	281		A572A
	1800/1500	230/460	200/400	90L	<b>R319B</b>	TCA1P52AE211GAA009	√	2:1	86.5	5.45/2.7	54	332		A572A
	1800/1500	575	480	90L	<b>R419B</b>	TCA1P52AP211GAA009	√	2:1	86.5	2.2	54	332		A572A
	1200/1000	230/460	200/400	100L	<b>R320B</b>	TCA1P53AE211GAA009	√	2:1	88.5	6.0/3.0	94	398		A554B
	1200/1000	575	480	100L	<b>R420B</b>	TCA1P53AP211GAA009	√	2:1	88.5	2.4	43	398		A554B
3-2.2	3600/3000	230/460	200/400	90L	<b>R321B</b>	TCA2P21AE211GAA009	√	2:1	86.5	7.2/3.6	56	332		A572A
	3600/3000	575	480	90L	<b>R421B</b>	TCA2P21AP211GAA009	√	2:1	86.5	2.9	56	332		A572A
	1800/1500	230/460	200/400	100L	<b>R322B</b>	TCA2P22AE211GAA009	√	2:1	89.5	7.8/3.9	97	398		A554B
	1800/1500	575	480	100L	<b>R422B</b>	TCA2P22AP211GAA009	√	2:1	89.5	3.1	44	398		A554B
	1200/1000	230/460	200/400	112M	<b>R323B</b>	TCA2P23AE211GAA009	√	2:1	89.5	8.8/4.4	127	399		A555C
	1200/1000	575	480	112M	<b>R423</b>	TCA2P23AP211GAA009	√	2:1	89.5	3.3	127	399		A555C
4-3	3600/3000	230/460	200/400	100L	<b>R351B</b>	TCA0031AE211GAA009	√	2:1	88.5	9.7/4.8	91	398		A554B
	3600/3000	575	480	100L	<b>R451B</b>	TCA0031AP211GAA009	√	2:1	88.5	3.9	41	398		A554B
	1800/1500	230/460	200/400	100L	<b>R352B</b>	TCA0032AE211GAA009	√	2:1	89.5	10.4/5.2	104	398		A554B
	1800/1500	575	480	100L	<b>R452B</b>	TCA0032AP211GAA009	√	2:1	89.5	4.2	47	398		A554B
	1200/1000	230/460	200/400	132S	<b>R353B</b>	TCA0033AE211GAA009	√	2:1	89.5	11.6/5.8	76	465		A550A
	1200/1000	575	480	132S	<b>R453</b>	TCA0033AP211GAA009	√	2:1	89.5	4.9	76	465		A550A

Continued on next page.

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Blue shaded areas are cast iron frames.

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED

### B3 RIGID BASE

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ F.L. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES	B5/FF FLANGE
5 1/2-4.1	3600/3000	230/460	200/400	112M	<b>R324B</b>	TCA0041AE211GAA009	√	2:1	89.5	12.4/6.2	116	399		A555C
	3600/3000	575	480	112M	<b>R424B</b>	TCA0041AP211GAA009	√	2:1	89.5	5.0	53	399		A555C
	1800/1500	230/460	200/400	112M	<b>R325B</b>	TCA0042AE211GAA009	√	2:1	91.7	13.8/6.9	122	399		A555C
	1800/1500	575	480	112M	<b>R425B</b>	TCA0042AP211GAA009	√	2:1	91.7	5.5	57	399		A555C
	1200/1000	230/460	200/400	132M	<b>R326B</b>	TCA0043AE211GAA009	√	2:1	91.0	16.2/8.1	86	503		A550A
	1200/1000	575	480	132M	<b>R426</b>	TCA0043AP211GAA009	√	2:1	91.0	5.7	86	503		A550A
7 1/2-5.5	3600/3000	230/460	200/400	132S	<b>R327B</b>	TCA5P51AE211GAA009	√	2:1	89.5	17.6/8.8	167	465		A550A
	3600/3000	575	480	132S	<b>R427B</b>	TCA5P51AP211GAA009	√	2:1	89.5	7.1	76	465		A550A
	1800/1500	230/460	200/400	132S	<b>R328B</b>	TCA5P52AE211GAA009	√	2:1	91.7	19.6/9.8	179	465		A550A
	1800/1500	575	480	132S	<b>R428B</b>	TCA5P52AP211GAA009	√	2:1	91.7	7.9	92	465		A550A
	1200/1000	230/460	200/400	132M	<b>R329B</b>	TCA5P53AE211GAA009	√	2:1	91.0	20.8/10.4	220	503		A550A
	1200/1000	575	480	132M	<b>R429</b>	TCA5P53AP211GAA009	√	2:1	91.0	8.2	220	503		A550A
10-7.5	3600/3000	230/460	200/400	132S	<b>R330B</b>	TCA7P51AE211GAA009	√	2:1	90.2	23.8/11.9	187	465		A550A
	3600/3000	575	480	132S	<b>R430B</b>	TCA7P51AP211GAA009	√	2:1	90.2	9.5	85	465		A550A
	1800/1500	230/460	200/400	132M	<b>R331B</b>	TCA7P52AE211GAA009	√	2:1	91.7	25.4/12.7	217	503		A550A
	1800/1500	460	400	132M	<b>R1331</b>	TCA7P52AD211GAA009		2:1	91.7	12.7	217	503		A550A
	1800/1500	575	480	132M	<b>R431B</b>	TCA7P52AP211GAA009	√	2:1	91.7	10.2	98	503		A550A
	1200/1000	230/460	200/400	160M	<b>R332B</b>	TCA7P53AE211GAA009	√	2:1	91.0	26.4/13.2	143	622	YD	A551A
	1200/1000	575	480	160M	<b>R432</b>	TCA7P53AP211GAA009	√	2:1	91.0	11.3	143	622		A551A
15-11	3600/3000	230/460	200/400	160M	<b>R333B</b>	TCA0111AE211GAA009	√	2:1	91.0	34.0/16.9	310	622	YD	A551A
	3600/3000	575	480	160M	<b>R433</b>	TCA0111AP211GAA009	√	2:1	91.0	13.5	141	622		A551A
	1800/1500	230/460	200/400	160M	<b>R334B</b>	TCA0112AE211GAA009	√	2:1	92.4	37.5/18.7	326	622	YD	A551A
	1800/1500	460	400	160M	<b>R1334</b>	TCA0112AD211GAA009		2:1	92.4	18.7	326	622	YD	A551A
	1800/1500	575	480	160M	<b>R434</b>	TCA0112AP211GAA009	√	2:1	92.4	15.0	148	622		A551A
	1200/1000	230/460	200/400	160L	<b>R335B</b>	TCA0113AE211GAA009	√	2:1	91.7	38.0/19.1	172	666	YD	A551A
	1200/1000	575	480	160L	<b>R435</b>	TCA0113AP211GAA009	√	2:1	91.7	15.3	415	666		A551A
20-15	3600/3000	230/460	200/400	160M	<b>R336B</b>	TCA0151AE211GAA009	√	2:1	91.0	45.5/22.8	146	622	YD	A551A
	3600/3000	575	480	160M	<b>R436</b>	TCA0151AP211GAA009	√	2:1	91.0	18.3	146	622		A551A
	1800/1500	230/460	200/400	160L	<b>R337B</b>	TCA0152AE211GAA009	√	2:1	93.0	50.0/25.0	163	666	YD	A551A
	1800/1500	460	400	160L	<b>R1337</b>	TCA0152AD211GAA009		2:1	93.0	25.0	163	666		A551A
	1800/1500	575	480	160L	<b>R437</b>	TCA0152AP211GAA009	√	2:1	93.0	20.1	163	666		A551A
	1200/1000	230/460	200/400	180L	<b>R338B</b>	TCA0153AE211GAA009	√	2:1	91.7	53.5/26.7	216	750	YD	A552A
	1200/1000	575	480	180L	<b>R438</b>	TCA0153AP211GAA009	√	2:1	91.7	21.4	415	750		A552A
25-18.5	3600/3000	230/460	200/400	160L	<b>R339B</b>	TCA18P1AE211GAA009	√	2:1	91.7	56.0/28.0	166	666	YD	A551A
	3600/3000	575	480	160L	<b>R439</b>	TCA18P1AP211GAA009	√	2:1	91.7	22.5	166	666		A551A
	1800/1500	230/460	200/400	180M	<b>R340B</b>	TCA18P2AE211GAA009	√	2:1	93.6	62.0/31.0	509	712	YD	A552A
	1800/1500	460	400	180M	<b>R1340</b>	TCA18P2AD211GAA009		2:1	93.6	31.0	509	712		A552A
	1800/1500	575	480	180M	<b>R440</b>	TCA18P2AP211GAA009	√	2:1	93.6	24.8	231	712		A552A
	1200/1000	230/460	200/400	200L	<b>R341B</b>	TCA18P3AE211GAA009	√	2:1	93.0	64.0/32.0	628	769	YD	A553A
	1200/1000	575	480	200L	<b>R441</b>	TCA18P3AP211GAA009	√	2:1	93.0	25.6	415	769		A553A
30-22	3600/3000	230/460	200/400	180M	<b>R342B</b>	TCA0221AE211GAA009	√	2:1	91.7	68.0/34.0	199	712	YD	A552A
	3600/3000	575	480	180M	<b>R442</b>	TCA0221AP211GAA009	√	2:1	91.7	27.2	199	712		A552A
	1800/1500	230/460	200/400	180L	<b>R343B</b>	TCA0222AE211GAA009	√	2:1	93.6	72.0/36.0	250	750	YD	A552A
	1800/1500	460	400	180L	<b>R1343</b>	TCA0222AD211GAA009		2:1	93.6	36.0	250	750		A552A
	1800/1500	575	480	180L	<b>R443</b>	TCA0222AP211GAA009	√	2:1	93.6	28.8	250	750		A552A
	1200/1000	230/460	200/400	200L	<b>R344B</b>	TCA0223AE211GAA009	√	2:1	93.0	76.0/38.0	661	769	YD	A553A
	1200/1000	575	480	200L	<b>R444</b>	TCA0223AP211GAA009	√	2:1	93.0	30.5	415	769		A553A
40-30	3600/3000	230/460	200/400	200L	<b>R345B</b>	TCA0301AE211GAA009	√	2:1	92.4	92.0/46.0	269	769	YD	A553A
	3600/3000	575	480	200L	<b>R445</b>	TCA0301AP211GAA009	√	2:1	92.4	37.0	572	769		A553A
	1800/1500	230/460	200/400	200L	<b>R346B</b>	TCA0302AE211GAA009	√	2:1	94.1	94.0/47.0	300	769	YD	A553A
	1800/1500	460	400	200L	<b>R1346</b>	TCA0302AD211GAA009		2:1	94.1	47.0	300	769		A553A
	1800/1500	575	480	200L	<b>R446</b>	TCA0302AP211GAA009	√	2:1	94.1	37.5	300	769		A553A
	1200/1000	230/460	200/400	225M	<b>R347B</b>	TCA0303AE211GAA009	√	2:1	94.1	100/50.0	424	862	YD	A580A
	1200/1000	575	480	225M	<b>R447</b>	TCA0303AP211GAA009	√	2:1	94.1	40.0	415	862		A580A

√: Available 1- Stocked components, Ready To Build Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Continued on next page.

\*See back cover page for attribution.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED

### B3 RIGID BASE

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES	B5/FF FLANGE
50-37	3600/3000	230/460	200/400	200L	<b>R348B</b>	TCA0371AE211GAA009	√	2:1	93.0	112/56.0	296	769	YD	A553A
	3600/3000	575	480	200L	<b>R448</b>	TCA0371AP211GAA009	√	2:1	93.0	45.0	296	769		A553A
	1800/1500	230/460	200/400	225S	<b>R349B</b>	TCA0372AE211GAA009	√	2:1	94.5	118/59.0	415	837	YD	A580A
	1800/1500	460	400	225S	<b>R1349</b>	TCA0372AD211GAA009		2:1	94.5	59.0	415	837		A580A
50-37	1800/1500	575	480	225S	<b>R449</b>	TCA0372AP211GAA009	√	2:1	94.5	47.0	415	837		A580A
	1200/1000	230/460	200/400	250M	<b>R350B</b>	TCA0373AE211GAA009	√	2:1	94.1	124/62.0	1144	941	YD	A594A
	1200/1000	575	480	250M	<b>R450</b>	TCA0373AP211GAA009	√	2:1	94.1	49.5	415	941		A594A
60-45	3600/3000	230/460	200/400	225M	<b>R500A</b>	TCA0451AE211GAA009	√	2:1	93.6	138/69.0	406	832	YD	A580A
	1800/1500	230/460	200/400	225M	<b>R501A</b>	TCA0452AE211GAA009	√	2:1	95.0	142/71.0	455	862	YD	A580A
	1200/1000	230/460	200/400	280S	<b>R502A</b>	TCA0453AE211GAA009	√	2:1	94.5	146/73.0	638	1060	YD	A596A
75-55	3600/3000	230/460	200/400	250M	<b>R503A</b>	TCA0551AE211GAA009	√	2:1	93.6	166/83.0	515	941	YD	A594A
	1800/1500	230/460	200/400	250M	<b>R504A</b>	TCA0552AE211GAA009	√	2:1	95.4	174/87.0	590	941	YD	A594A
	1200/1000	230/460	200/400	280M	<b>R505A</b>	TCA0553AE211GAA009	√	2:1	94.5	174/87.0	679	1111	YD	A596A
100-75	3600/3000	230/460	200/400	280S	<b>R506A</b>	TCA0751AE211GAA009	√	2:1	94.1	222/111	737	1060	YD	A595
	1800/1500	230/460	200/400	280S	<b>R507A</b>	TCA0752AE211GAA009	√	2:1	95.4	230/115	757	1060	YD	A596A
	1200/1000	230/460	200/400	315S	<b>R508A</b>	TCA0753AE211GAA009	√	2:1	95.0	246/123	821	1206	YD	A598A

### B5 "FF" (D-FLANGE) - FOOTLESS

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
1-7.5	3600	230/460	200/400	80M	<b>R212</b>	TCAP751AE221GAA009	√	2:1	77.0	3.0/1.5	42	281	
	1800	230/460	200/400	80M	<b>R213</b>	TCAP752AE221GAA009	√	2:1	83.5	3.0/1.5	50	281	
	1200	230/460	200/400	90S	<b>R214</b>	TCAP753AE221GAA009	√	2:1	82.5	3.4/1.7	60	307	
1 1/2-1.1	3600	230/460	200/400	80M	<b>R215</b>	TCA1P11AE221GAA009	√	2:1	84.0	4.0/2.0	44	281	
	1800	230/460	200/400	90S	<b>R216</b>	TCA1P12AE221GAA009	√	2:1	84.1	4.3/2.1	55	281	
	1200	230/460	200/400	100L	<b>R217</b>	TCA1P13AE221GAA009	√	2:1	87.5	4.4/2.2	85	398	
2-1.5	3600	230/460	200/400	90S	<b>R218</b>	TCA1P51AE221GAA009	√	2:1	85.5	5.4/2.7	55	307	
	1800	230/460	200/400	90L	<b>R219</b>	TCA1P52AE221GAA009	√	2:1	86.5	5.45/2.7	61	332	
	1200	230/460	200/400	100L	<b>R220</b>	TCA1P53AE221GAA009	√	2:1	88.5	6.0/3.0	99	398	
3-2.2	3600	230/460	200/400	90L	<b>R221</b>	TCA2P21AE221GAA009	√	2:1	86.5	7.2/3.6	85	332	
	1800	230/460	200/400	100L	<b>R222</b>	TCA2P22AE221GAA009	√	2:1	89.5	7.8/3.9	97	398	
	1200	230/460	200/400	100L	<b>R223</b>	TCA2P23AE221GAA009	√	2:1	89.5	8.8/4.4	127	399	
4-3	3600	230/460	200/400	100L	<b>R251</b>	TCA0031AE221GAA009	√	2:1	88.5	9.7/4.8	41	398	
	1800	230/460	200/400	100L	<b>R252</b>	TCA0032AE221GAA009	√	2:1	89.5	10.4/5.2	103	398	
	1200	230/460	200/400	132S	<b>R253</b>	TCA0033AE221GAA009	√	2:1	89.5	11.6/5.8	76	465	
5 1/2-4.1	3600	230/460	200/400	112M	<b>R224</b>	TCA0041AE221GAA009	√	2:1	89.5	12.4/6.2	116	399	
	1800	230/460	200/400	112M	<b>R225</b>	TCA0042AE221GAA009	√	2:1	91.7	13.8/6.9	126	399	
	1200	230/460	200/400	132M	<b>R226</b>	TCA0043AE221GAA009	√	2:1	91.0	16.2/8.1	189	503	
7 1/2-5.5	3600	230/460	200/400	132S	<b>R227</b>	TCA5P51AE221GAA009	√	2:1	89.5	17.6/8.8	76	465	
	1800	230/460	200/400	132S	<b>R228</b>	TCA5P52AE221GAA009	√	2:1	91.7	19.6/9.8	202	465	
	1200	230/460	200/400	132M	<b>R229</b>	TCA5P53AE221GAA009	√	2:1	91.0	20.8/10.4	100	503	
10-7.5	3600	230/460	200/400	132S	<b>R230</b>	TCA7P51AE221GAA009	√	2:1	90.2	23.8/11.9	85	465	
	1800	230/460	200/400	132M	<b>R231</b>	TCA7P52AE221GAA009	√	2:1	91.7	25.4/12.7	216	503	
	1200	230/460	200/400	160M	<b>R232</b>	TCA7P53AE221GAA009	√	2:1	91.0	26.4/13.2	143	622	YD
15-11	3600	230/460	200/400	160M	<b>R233</b>	TCA0111AE221GAA009	√	2:1	91.0	34.0/16.9	141	622	YD
	1800	230/460	200/400	160M	<b>R234</b>	TCA0112AE221GAA009	√	2:1	92.4	37.5/18.7	148	622	YD
	1200	230/460	200/400	160L	<b>R235</b>	TCA0113AE221GAA009	√	2:1	91.7	38.0/19.1	172	666	YD

Continued on next page.

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED, B14 MOUNTING

### B5 "FF" (D-FLANGE) - FOOTLESS

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ F.L. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
20-15	3600	230/460	200/400	160M	<b>R236</b>	TCA0151AE221GAA009	√	2:1	91.0	45.5/22.8	324	622	YD
	1800	230/460	200/400	160L	<b>R237</b>	TCA0152AE221GAA009	√	2:1	93.0	50.0/25.0	359	666	YD
	1200	230/460	200/400	180L	<b>R238</b>	TCA0153AE221GAA009	√	2:1	91.7	53.5/26.7	216	750	YD
25-18.5	3600	230/460	200/400	160L	<b>R239</b>	TCA18P1AE221GAA009	√	2:1	91.7	56.0/28.0	365	666	YD
	1800	230/460	200/400	180M	<b>R240</b>	TCA18P2AE221GAA009	√	2:1	93.6	62.0/31.0	231	712	YD
30-22	3600	230/460	200/400	180M	<b>R242</b>	TCA0221AE221GAA009	√	2:1	91.7	68.0/34.0	199	712	YD
	1800	230/460	200/400	180L	<b>R243</b>	TCA0222AE221GAA009	√	2:1	93.6	72.0/36.0	250	750	YD

### B14 "FT" (C-FACE) - FOOTLESS

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ F.L. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
1-7.5	3600	230/460	200/400	80M	<b>R612</b>	TCAP751AE271GAA009	√	2:1	77.0	3.0/1.5	41	281	
	1800	230/460	200/400	80M	<b>R613</b>	TCAP752AE271GAA009	√	2:1	83.5	3.0/1.5	49	281	
	1200	230/460	200/400	90S	<b>R614</b>	TCAP753AE271GAA009	√	2:1	82.5	3.4/1.7	59	332	
1 1/2-1.1	3600	230/460	200/400	80M	<b>R615</b>	TCA1P11AE271GAA009	√	2:1	84.0	4.0/2.0	44	281	
	1800	230/460	200/400	90S	<b>R616</b>	TCA1P12AE271GAA009	√	2:1	84.1	4.3/2.1	55	307	
	1200	230/460	200/400	100L	<b>R617</b>	TCA1P13AE271GAA009	√	2:1	87.5	4.4/2.2	39	398	
2-1.5	3600	230/460	200/400	90S	<b>R618</b>	TCA1P51AE271GAA009	√	2:1	85.5	5.4/2.7	57	307	
	1800	230/460	200/400	90L	<b>R619</b>	TCA1P52AE271GAA009	√	2:1	86.5	5.45/2.7	61	332	
	1200	230/460	200/400	100L	<b>R620</b>	TCA1P53AE271GAA009	√	2:1	88.5	6.0/3.0	43	398	
3-2.2	3600	230/460	200/400	90L	<b>R621</b>	TCA2P21AE271GAA009	√	2:1	86.5	7.2/3.6	85	307	
	1800	230/460	200/400	100L	<b>R622</b>	TCA2P22AE271GAA009	√	2:1	89.5	7.8/3.9	97	398	
	1200	230/460	200/400	112L	<b>R623</b>	TCA2P23AE271GAA009	√	2:1	89.5	8.8/4.4	128	399	
4-3	3600	230/460	200/400	100L	<b>R651</b>	TCA0031AE271GAA009	√	2:1	88.5	9.7/4.8	41	398	
	1800	230/460	200/400	100L	<b>R652</b>	TCA0032AE271GAA009	√	2:1	89.5	10.4/5.2	47	398	
	1200	230/460	200/400	132S	<b>R653</b>	TCA0033AE271GAA009	√	2:1	89.5	11.6/5.8	76	465	
5 1/2-4.1	3600	230/460	200/400	112M	<b>R624</b>	TCA0041AE271GAA009	√	2:1	89.5	12.4/6.2	53	399	
	1800	230/460	200/400	112M	<b>R625</b>	TCA0042AE271GAA009	√	2:1	91.7	13.8/6.9	57	399	
	1200	230/460	200/400	132M	<b>R626</b>	TCA0043AE271GAA009	√	2:1	91.0	16.2/8.1	190	503	
7 1/2-5.5	3600	230/460	200/400	132S	<b>R627</b>	TCA5P51AE271GAA009	√	2:1	89.5	17.6/8.8	76	465	
	1800	230/460	200/400	132S	<b>R628</b>	TCA5P52AE271GAA009	√	2:1	91.7	19.6/9.8	92	465	
	1200	230/460	200/400	132M	<b>R629</b>	TCA5P53AE271GAA009	√	2:1	91.0	20.8/10.4	100	503	
10-7.5	3600	230/460	200/400	132S	<b>R630</b>	TCA7P51AE271GAA009	√	2:1	90.2	23.8/11.9	85	465	
	1800	230/460	200/400	132M	<b>R631</b>	TCA7P52AE271GAA009	√	2:1	91.7	25.4/12.7	98	503	
	1200	230/460	200/400	160M	<b>R632</b>	TCA7P53AE271GAA009	√	2:1	91.0	26.4/13.2	143	622	YD
15-11	3600	230/460	200/400	160M	<b>R633</b>	TCA0111AE271GAA009	√	2:1	91.0	34.0/16.9	141	622	YD
	1800	230/460	200/400	160M	<b>R634</b>	TCA0112AE271GAA009	√	2:1	92.4	37.5/18.7	326	622	YD
	1200	230/460	200/400	160L	<b>R635</b>	TCA0113AE271GAA009	√	2:1	91.7	38.0/19.1	172	666	YD
20-15	3600	230/460	200/400	160M	<b>R636</b>	TCA0151AE271GAA009	√	2:1	91.0	45.5/22.8	146	622	YD
	1800	230/460	200/400	160L	<b>R637</b>	TCA0152AE271GAA009	√	2:1	93.0	50.0/25.0	163	666	YD
25-18.5	3600	230/460	200/400	160L	<b>R639</b>	TCA18P1AE271GAA009	√	2:1	91.7	56.0/28.0	166	666	YD

√: Available    √: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED, B35 MOUNTING

### B35 "FF" (D-FLANGE) - FOOTED

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
1-7.5	3600	230/460	200/400	80M	<b>R812</b>	TCA751AE231GAA009	√	2:1	77.0	3.0/1.5	42	281	
	1800	230/460	200/400	80M	<b>R813</b>	TCA752AE231GAA009	√	2:1	83.5	3.0/1.5	51	281	
	1200	230/460	200/400	90S	<b>R814</b>	TCA753AE231GAA009	√	2:1	82.5	3.4/1.7	44	307	
1 1/2-1.1	3600	230/460	200/400	80M	<b>R815</b>	TCA1P11AE231GAA009	√	2:1	84.0	3.4/1.7	44	281	
	1800	230/460	200/400	90S	<b>R816</b>	TCA1P12AE231GAA009	√	2:1	84.1	4.3/2.1	55	307	
	1200	230/460	200/400	100L	<b>R817</b>	TCA1P13AE231GAA009	√	2:1	84.1	4.3/2.1	90	398	
2-1.5	3600	230/460	200/400	90S	<b>R818</b>	TCA1P51AE231GAA009	√	2:1	85.5	4.4/2.2	57	307	
	1800	230/460	200/400	90L	<b>R819</b>	TCA1P52AE231GAA009	√	2:1	86.5	5.4/2.7	78	322	
	1200	230/460	200/400	100L	<b>R820</b>	TCA1P53AE231GAA009	√	2:1	86.5	5.45/2.7	99	398	
3-2.2	3600	230/460	200/400	90L	<b>R821</b>	TCA2P21AE231GAA009	√	2:1	86.5	6.0/3.0	70	322	
	1800	230/460	200/400	100L	<b>R822</b>	TCA2P22AE231GAA009	√	2:1	86.5	7.2/3.6	101	398	
	1200	230/460	200/400	100L	<b>R823</b>	TCA2P23AE231GAA009	√	2:1	89.5	8.8/4.4	132	399	
4-3	3600	230/460	200/400	100L	<b>R851</b>	TCA0031AE231GAA009	√	2:1	88.5	9.7/4.8	95	398	
	1800	230/460	200/400	100L	<b>R852</b>	TCA0032AE231GAA009	√	2:1	89.5	10.4/5.2	108	398	
	1200	230/460	200/400	132S	<b>R853</b>	TCA0033AE231GAA009	√	2:1	89.5	11.6/5.8	174	465	
5 1/2-4.1	3600	230/460	200/400	112M	<b>R824</b>	TCA0041AE231GAA009	√	2:1	89.5	12.4/6.2	121	399	
	1800	230/460	200/400	112M	<b>R825</b>	TCA0042AE231GAA009	√	2:1	91.7	13.8/6.9	130	399	
	1200	230/460	200/400	132M	<b>R826</b>	TCA0043AE231GAA009	√	2:1	91.0	16.2/8.1	196	503	
7 1/2-5.5	3600	230/460	200/400	132S	<b>R827</b>	TCA5P51AE231GAA009	√	2:1	89.5	17.6/8.8	174	465	
	1800	230/460	200/400	132S	<b>R828</b>	TCA5P52AE231GAA009	√	2:1	91.7	19.6/9.8	209	465	
	1200	230/460	200/400	132M	<b>R829</b>	TCA5P53AE231GAA009	√	2:1	91.0	20.8/10.4	227	503	
10-7.5	3600	230/460	200/400	132S	<b>R830</b>	TCA7P51AE231GAA009	√	2:1	90.2	23.8/11.9	194	465	
	1800	230/460	200/400	132M	<b>R831</b>	TCA7P52AE231GAA009	√	2:1	91.7	25.4/12.7	223	503	
	1200	230/460	200/400	160M	<b>R832</b>	TCA7P53AE231GAA009	√	2:1	91.0	26.4/13.2	331	622	YD
15-11	3600	230/460	200/400	160M	<b>R833</b>	TCA0111AE231GAA009	√	2:1	91.0	34.0/16.9	326	622	YD
	1800	230/460	200/400	160M	<b>R834</b>	TCA0112AE231GAA009	√	2:1	92.4	37.5/18.7	342	622	YD
	1200	230/460	200/400	160L	<b>R835</b>	TCA0113AE231GAA009	√	2:1	91.7	38.0/19.1	395	666	YD
20-15	3600	230/460	200/400	160M	<b>R836</b>	TCA0151AE231GAA009	√	2:1	91.0	45.5/22.8	337	622	YD
	1800	230/460	200/400	160L	<b>R837</b>	TCA0152AE231GAA009	√	2:1	93.0	50.0/25.0	375	666	YD
	1200	230/460	200/400	180L	<b>R838</b>	TCA0153AE231GAA009	√	2:1	91.7	53.5/26.7	498	750	YD
25-18.5	3600	230/460	200/400	160L	<b>R839</b>	TCA18P1AE231GAA009	√	2:1	91.7	56.0/28.0	381	666	YD
	1800	230/460	200/400	180M	<b>R840</b>	TCA18P2AE231GAA009	√	2:1	93.6	62.0/31.0	531	712	YD
	1200	230/460	200/400	200L	<b>R841</b>	TCA18P3AE231GAA009	√	2:1	93.0	64.0/32.0	297	769	YD
30-22	3600	230/460	200/400	180M	<b>R842</b>	TCA0221AE231GAA009	√	2:1	91.7	68.0/34.0	209	712	YD
	1800	230/460	200/400	180L	<b>R843</b>	TCA0222AE231GAA009	√	2:1	93.6	72.0/36.0	573	750	YD
	1200	230/460	200/400	200L	<b>R844</b>	TCA0223AE231GAA009	√	2:1	93.0	76.0/38.0	688	769	YD
40-30	3600	230/460	200/400	200L	<b>R845</b>	TCA0301AE231GAA009	√	2:1	92.4	92.0/46.0	620	769	YD
	1800	230/460	200/400	200L	<b>R846</b>	TCA0302AE231GAA009	√	2:1	94.1	94.0/47.0	312	769	YD
	1200	230/460	200/400	225M	<b>R847</b>	TCA0303AE231GAA009	√	2:1	94.1	100/50.0	964	862	YD
50-37	3600	230/460	200/400	200L	<b>R848</b>	TCA0371AE231GAA009	√	2:1	93.0	112/56.0	679	769	YD
	1800	230/460	200/400	225S	<b>R849</b>	TCA0372AE231GAA009	√	2:1	94.5	118/59.0	944	837	YD
	1200	230/460	200/400	250M	<b>R850</b>	TCA0373AE231GAA009	√	2:1	94.1	124/62.0	1180	941	YD
60-45	3600	230/460	200/400	225M	<b>R854</b>	TCA0451AE231GAA009	√	2:1	93.6	138/69.0	924	832	YD
	1800	230/460	200/400	225M	<b>R855</b>	TCA0452AE231GAA009	√	2:1	95.0	142/71.0	1032	862	YD
	1200	230/460	200/400	280S	<b>R856</b>	TCA0453AE231GAA009	√	2:1	94.5	146/73.0	1451	1060	YD

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√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED, B34 MOUNTING

### B35 "FF" (D-FLANGE) - FOOTED

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
75-55	3600	230/460	200/400	250M	<b>R857</b>	TCA0551AE231GAA009	√	2:1	93.6	166/83.0	1171	941	YD
	1800	230/460	200/400	250M	<b>R858</b>	TCA0552AE231GAA009	√	2:1	95.4	174/87.0	1336	941	YD
	1200	230/460	200/400	280M	<b>R859</b>	TCA0553AE231GAA009	√	2:1	94.5	174/87.0	699	1111	YD
100-75	3600	230/460	200/400	280S	<b>R860</b>	TCA0751AE231GAA009	√	2:1	94.1	222/111	757	1060	YD
	1800	230/460	200/400	280S	<b>R861</b>	TCA0752AE231GAA009	√	2:1	95.4	230/115	777	1060	YD
	1200	230/460	200/400	315S	<b>R862</b>	TCA0753AE231GAA009	√	2:1	95.0	246/123	785	1206	YD

### B34 "FT" (C-FACE) - FOOTED

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	ITEM NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES
1-.75	3600	230/460	200/400	80M	<b>R912</b>	TCAP751AE251GAA009	√	2:1	77.0	3.0/1.5	42	281	
	1800	230/460	200/400	80M	<b>R913</b>	TCAP752AE251GAA009	√	2:1	83.5	3.0/1.5	51	281	
	1200	230/460	200/400	90S	<b>R914</b>	TCAP753AE251GAA009	√	2:1	82.5	3.4/1.7	44	307	
1 1/2-1.1	3600	230/460	200/400	80M	<b>R915</b>	TCA1P11AE251GAA009	√	2:1	84.0	3.4/1.7	44	281	
	1800	230/460	200/400	90S	<b>R916</b>	TCA1P12AE251GAA009	√	2:1	84.1	4.3/2.1	55	307	
	1200	230/460	200/400	100L	<b>R917</b>	TCA1P13AE251GAA009	√	2:1	84.1	4.3/2.1	90	398	
2-1.5	3600	230/460	200/400	90S	<b>R918</b>	TCA1P51AE251GAA009	√	2:1	85.5	4.4/2.2	57	307	
	1800	230/460	200/400	90L	<b>R919</b>	TCA1P52AE251GAA009	√	2:1	86.5	5.4/2.7	78	322	
	1200	230/460	200/400	100L	<b>R920</b>	TCA1P53AE251GAA009	√	2:1	86.5	5.4/2.7	99	398	
3-2.2	3600	230/460	200/400	90L	<b>R921</b>	TCA2P21AE251GAA009	√	2:1	86.5	6.0/3.0	70	322	
	1800	230/460	200/400	100L	<b>R922</b>	TCA2P22AE251GAA009	√	2:1	86.5	7.2/3.6	101	398	
	1200	230/460	200/400	100L	<b>R923</b>	TCA2P23AE251GAA009	√	2:1	89.5	8.8/4.4	132	399	
4-3	3600	230/460	200/400	100L	<b>R951</b>	TCA0031AE251GAA009	√	2:1	88.5	9.7/4.8	92	398	
	1800	230/460	200/400	100L	<b>R952</b>	TCA0032AE251GAA009	√	2:1	89.5	10.4/5.2	48	398	
	1200	230/460	200/400	132S	<b>R953</b>	TCA0033AE251GAA009	√	2:1	89.5	11.6/5.8	77	465	
5 1/2-4.1	3600	230/460	200/400	112M	<b>R924</b>	TCA0041AE251GAA009	√	2:1	89.5	12.4/6.2	54	399	
	1800	230/460	200/400	112M	<b>R925</b>	TCA0042AE251GAA009	√	2:1	91.7	13.8/6.9	58	399	
	1200	230/460	200/400	132M	<b>R926</b>	TCA0043AE251GAA009	√	2:1	91.0	16.2/8.1	87	503	
7 1/2-5.5	3600	230/460	200/400	132S	<b>R927</b>	TCA5P51AE251GAA009	√	2:1	89.5	17.6/8.8	77	465	
	1800	230/460	200/400	132S	<b>R928</b>	TCA5P52AE251GAA009	√	2:1	91.7	19.6/9.8	93	465	
	1200	230/460	200/400	132M	<b>R929</b>	TCA5P53AE251GAA009	√	2:1	91.0	20.8/10.4	101	503	
10-7.5	3600	230/460	200/400	132S	<b>R930</b>	TCA7P51AE251GAA009	√	2:1	90.2	23.8/11.9	189	465	
	1800	230/460	200/400	132M	<b>R931</b>	TCA7P52AE251GAA009	√	2:1	91.7	25.4/12.7	99	503	
	1200	230/460	200/400	160M	<b>R932</b>	TCA7P53AE251GAA009	√	2:1	91.0	26.4/13.2	146	622	YD
15-11	3600	230/460	200/400	160M	<b>R933</b>	TCA0111AE251GAA009	√	2:1	91.0	34.0/16.9	144	622	YD
	1800	230/460	200/400	160M	<b>R934</b>	TCA0112AE251GAA009	√	2:1	92.4	37.5/18.7	151	622	YD
	1200	230/460	200/400	160L	<b>R935</b>	TCA0113AE251GAA009	√	2:1	91.7	38.0/19.1	175	666	YD
20-15	3600	230/460	200/400	160M	<b>R936</b>	TCA0151AE251GAA009	√	2:1	91.0	45.5/22.8	149	622	YD
	1800	230/460	200/400	160L	<b>R937</b>	TCA0152AE251GAA009	√	2:1	93.0	50.0/25.0	166	666	YD
25-18.5	3600	230/460	200/400	160L	<b>R939</b>	TCA18P1AE251GAA009	√	2:1	91.7	56.0/28.0	169	666	YD

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# TERRAMAX® IEC®\* (METRIC) FRAME MOTORS

## TOTALLY ENCLOSED, BRAKE MOTOR

### APPLICATIONS

These motors meet North American performance standards, premium energy efficiency mandates and have a 1.15 service factor. Typically used for replacement on machine tools, textile tools, textile machinery and other equipment with metric dimensions but requires the high torque and performance of motors designed for use in North America.

### FEATURES

- Meets IE3 European and NEMA Premium®\* efficiencies
- Cast Iron frame construction
- 60/50 Hz interchangeability
- 230 volt brake coil
- IP55 enclosure protection
- B3 mounting
- B5 & B14 flange kits available
- UL®\* Listed, UL Certified for Canada, & CE®\* Mark
- Three Year Warranty



**IP55**



### B3 RIGID BASE

HP - kW	RPM 60/50HZ	VOLTS 60HZ	VOLTS 50HZ	IEC FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	60HZ FL. AMPS	WT.	IEC "L" DIM (mm)	FOOT NOTES	B5/FF FLANGE
1-.75	1800	230/460	6	80M	-	194222.00		2:1	83.5	3.0/1.5	52	281		A571A
	1800	230/460	6	80M	<b>R1013</b>	080T17FC6627	√	2:1	83.5	3/1.5	52	281		A571A
1 1/2-1.1	1800	230/460	12	90S	-	194223.00		2:1	86.5	4.3/2.1	81	307		A571A
	1800	230/460	12	90S	<b>R1016</b>	090T17FC6626	√	2:1	86.5	4.3/2.1	81	307		A571A
2-1.5	1800	230/460	12	90L	-	194224.00		2:1	86.5	5.4/2.7	81	332		A572A
	1800	230/460	12	90L	<b>R1019</b>	090T17FC6628	√	2:1	86.5	5.4/2.7	81	332		A572A
3-2.2	1800	230/460	24	100L	-	194225.00		2:1	89.5	7.2/3.6	110	398		A571A
	1800	230/460	24	100L	<b>R1022</b>	100LTFC6626	√	2:1	89.5	7.2/3.6	110	398		A571A
4-3	1800	230/460	44	100L	-	194226.00		2:1	89.5	10.4/5.2	130	398		A572A
	1800	230/460	44	100L	<b>R1052</b>	112MTFC6630	√	2:1	89.5	10.4/5.2	130	398		A572A
5 1/2-4.1	1800	230/460	74	112M	-	194227.00		2:1	89.5	13.8/6.9	136	399		A554B
	1800	230/460	74	112M	<b>R1025</b>	112MTFC6636	√	2:1	89.5	13.8/6.9	58	399		A554B

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
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\*See back cover page for attribution.

# HVAC - FAN MOTORS

## SINGLE AND THREE PHASE

### Features

- Various voltages and mounting types available
- Single and three phase fan duty motors
- Rigid base, resilient base, pedestal base, belly band mount and extended thru-bolt mount types
- Drip-proof, TEFC, TEAO and DPAO designs
- General purpose duty
- Agricultural duty
- UL®\* recognized and CSA®\* certified



### Multi-speed Features

- Two-Speed, single and dual winding (1-WDG & 2-WDG) designs
- ODP & TEFC Designs
- Ball bearing designs
- Single voltage designs

### Applications

- Ideally suited for a variety of fan applications requiring the motor to either be mounted in or out of the air stream for proper ventilation. Some motors have an epoxy finish for harsh applications and other motors have a baked on enamel finish
- Industrial, commercial and agricultural fan motors available. Dripproof motors are intended for use in environments that are relatively clean and dry

One-winding designs versus the two-winding designs has a significant cost shown in price books, this will always be the case. The one-winding design will have an optimized design on the high speed only. It will generally stay on the same diameter of that of a single speed motor.

- I.e.: 1-wdg, 4/8 pole, 2/4 pole, 6/12 pole
- I.e.: 2-wdg, 4/8 pole, 2/4 pole, 6/12 pole
- I.e.: 2-wdg, 2/8 pole, 4/6 pole, 6/8 pole

**Example 1:** High Speed – 10HP and 1800RPM or 4 Poles. Remember the number of poles is calculated  $(120 \times 60) / 1800 = 4$  Poles)

Next, you can calculate the Low Speed based on knowing what the speed the customer wants, say 900RPM or 8 Poles. Now you can take  $(4/8)^2$  for VTQ to determine the Low HP or  $(4/8)$  for CTQ to determine the Low HP.

Your answers should be for VTQ.

Low HP - 10HP  $(4/8)^2 = 2.5$ HP, CTQ Low

HP - 10HP  $(4/8) = 5$ HP.

- Variable torque (VTQ) motors are typically used on applications such as fans, blowers and centrifugal pumps
- Constant torque (CTQ) motors are typically used on mixers, compressors, conveyors, extractors, feeders and laundry machinery
- Constant horsepower (CHP) motors are typically used on machine tools such as drills, lathes, punch presses and milling machines

# HVAC - FAN MOTORS

## MULTI-SPEED / 2-SPEED

### THREE PHASE - VARIABLE AND CONSTANT TORQUE



#### FEATURES

- Two-Speed, single winding (1-WDG & 2-WDG) designs
- DP & TEFC Designs
- Ball bearing designs
- Single voltage designs
- Single voltage designs, note 200-230V means same electrical connection not 200 through a range to 230V
- Dripproof motors are intended for use in environments that are relatively clean and dry

#### 1-WINDING, VARIABLE TORQUE, DP, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	Service Factor	"C" DIM.	FOOT NOTES
5/1.25	1800/900	460	184T	Y1487	184TTDW7209		85.5	6.9	80	1.15	14.72	13
7.5/1.88	1800/900	200-230	213T	Y488	213TTDW7202	¶	86.5	21.6-19.8	110	1.15	17.30	
10/2.5	1800/900	460	215T	Y491	215TTDW7201	¶	86.5	12.5	106	1.15	17.30	
15/3.75	1800/900	460	256T	Y492	256TTDX7207	¶	87.5	18.4	217	1.15	22.32	

#### ADDITIONAL FEATURES

- Economical two-winding design

#### 2-WINDING, VARIABLE TORQUE, DP, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	Service Factor	"C" DIM.	FOOT NOTES
5/2.22	1800/1200	460	215T	Y415	215TTDW7203	¶	85.5	6.5	106	17.30	106	
7.5/1.9	1800/900	460	254T	Y470	254TTDX7201	¶	85.5	10.5	135	20.57	135	
7.5/3.3	1800/1200	200-230	254T	Y456	254TTDX7278	√	87.5	20.8-18.4	175	22.32	175	
	1800/1200	460	254T	Y418	254TTDX7208	¶	84.0	10.0	154	20.57	154	
10/2.5	1800/900	460	256T	Y471	256TTDX7253	¶	86.5	12.9	145	22.32	145	
10/4.4	1800/1200	200-230	256T	Y457	256TTDX7263	¶	88.5	28-26	214	22.32	214	
	1800/1200	460	256T	Y458	256TTDX7264	¶	87.5	12.0	214	22.32	214	
15/3.8	1800/900	460	284T	Y472	284TTDP7205	¶	88.5	18.0	300	23.49	300	

# HVAC - FAN MOTORS

## MULTI-SPEED / 2-SPEED

#### 1-WINDING, CONSTANT TORQUE, TEFC, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	Service Factor	"C" DIM.	FOOT NOTES
2 / 1	1800/900	460	184T	-	131471.00		80.0	2.9 - 2.9	72	1.0	13.96	

#### 1-WINDING, CONSTANT TORQUE, TEFC, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	Service Factor	"C" DIM.	FOOT NOTES
2 / 1	1800/900	208 - 230	184T	-	131473.00		80.0	5.8 - 5.7	72	1.0	13.96	

√: Available    ¶ - Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
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# BRAKE MOTORS

## THREE PHASE, DRIPPROOF

### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies.
- NEMA Premium models are in compliance with EISA 2007
- Stearns® brakes, 56,000 series through 25 Lb-Ft, 87,000 series above 35 Lb-Ft and larger
- Brake has manual wear adjustment up to 25 lb-ft. for longer pad life
- Brake leads are terminated at the brake
- Universal mounting up to 15 Lb-Ft, for larger brakes, see mod section
- CR<sup>200</sup> corona resistant magnet wire and motor can be operated 10:1 variable torque (2:1 constant torque as noted)
- 1.15 service factor



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
3	1800	230/460	182T	<b>K566</b>	182TTDBD6341		89.5	8.0/4.0	70	18.03	15	99
10	1800	208-230/460	215T	<b>K572</b>	215TTDBD6341		91.7	27.8-25.4/12.7	140	26.33	50	

### C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
3	1800	230/460	182TC	<b>K580</b>	182TTDBD6040	√	89.5	8.0/4.0	70	19.08	15	99
5	1800	230/460	184TC	<b>K582</b>	184TTDBD6040	√	89.5	12.6/6.3	85	20.08	25	99

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
3	1800	208-230/460	182TC	<b>C434</b>	182TTDBD6034		89.5	8.6-8.0/4.0	70	21.10	15	99
7 1/2	1800	208-230/460	213TC	<b>C438</b>	213TTDBD16038		91.0	21.2-19.8/9.9	135	26.57	35	99

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# BRAKE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies.
- NEMA Premium models are in compliance with EISA 2007
- Stearns® brakes, 56,000 series through 25 Lb-Ft, 87,000 series above 35 Lb-Ft and larger
- Brake has manual wear adjustment up to 25 lb-ft. for longer pad life
- Brake leads are terminated at the brake
- Universal mounting up to 15 Lb-Ft, for larger brakes, see mod section
- CR<sup>200</sup> corona resistant magnet wire and motor can be operated 10:1 variable torque (2:1 constant torque as noted)
- 1.15 service factor, 1.0 service factor where foot noted



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
2	1200	230/460	184T	<b>K444</b>	184TTFBD6378		88.5	6.2/3.1	106	21.35	15	99
3	1800	230/460	182T	<b>K445</b>	182TTFBD6341	√	89.5	8.3/4.15	93	20.35	15	99
	1200	230/460	213T	<b>K446</b>	213TTTBD6378		89.5	8.6/4.3	200	24.29	25	99
5	1800	230/460	184T	<b>K447</b>	184TTFBD6341	√	89.5	13.2/6.6	104	21.35	25	99
7 1/2	1800	230/460	213T	<b>K448</b>	213TTTBD6341		91.7	20.4-19.0/9.5	223	23.85	45	99
10	1800	208-230/460	215T	<b>K449</b>	215TTFBD6341		91.7	27.6-25.0/12.5	241	25.35	45	

### C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
3	1800	230/460	182TC	<b>K478</b>	182TTFBD6040	√	89.5	8.3/4.15	105	19.08	15	99
5	1800	230/460	184TC	<b>K480</b>	184TTFBD6040	√	89.5	13.2/6.6	104	20.08	25	99
7 1/2	1800	230/460	213TC	<b>K481</b>	213TTFBD6040		91.7	19.0/9.5	223	24.62	45	99
10	1800	208-230/460	215TC	<b>K482</b>	215TTFBD6040		91.7	25.0/12.5	241	26.12	45	99

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM	BRAKE RATING (LB/FT)	FOOT NOTES
3	1800	230/460	182TC	<b>C409</b>	182TTFBD6034	√	89.5	8.3/4.15	90	21.10	15	99
3	1800	230/460	182TC	<b>C405A</b>	182TTTHD16038		89.5	7.8/3.9	143	18.85	15	AL,N,99
5	1800	230/460	184TC	<b>C411</b>	184TTFBD6041	√	89.5	13.2/6.6	97	22.10	25	99
	1800	230/460	184TC	<b>C406A</b>	184TTTHD16038	√	89.5	12.4/6.2	145	19.85	25	AL,N,17,99
7 1/2	1800	230/460	213TC	<b>C412</b>	213TTFBD16038		91.7	19.0/9.5	216	24.62	45	99
	1800	230/460	213TC	<b>C407B</b>	213TTTHD16038		91.7	19.0/9.5	246	24.42	35	AL,N,17,99
10	1800	208-230/460	215TC	<b>C413</b>	215TTFBD16050		91.7	27.6-25.0/12.5	228	26.12	45	99
	1800	230/460	215TC	<b>C408B</b>	215TTTHD16038	√	91.7	25.0/12.5	257	26.92	50	AL,N,17,99

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# FARM DUTY / AGRICULTURE, HIGH TORQUE MOTORS

SINGLE PHASE, TEFC



## FEATURES

- Shaft end mechanically locked on C-face models
- Ball bearings
- 1.15 service factor (except as noted)
- Capacitor start design for high starting torque
- Capacitor start/capacitor run design for higher efficiency, as noted
- Low temperature manual reset thermal protector
- Totally enclosed and fully gasketed construction for dirty environments
- Condensate drains
- Shaft slinger
- UL<sup>®</sup>\* recognized and CSA<sup>®</sup>\* certified



## RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1800	115/208-230	182T	-	131541.00	√	72.0	24.8/13.0-12.4	65	14.46	
3	1800	230	184T	-	131542.00	√	75.5	19.0	86	16.46	
5	1800	230	184T	-	131543.00	√	82.5	20.5	98	17.46	
7 1/2	1800	230	215T	-	140707.00	√	85.5	32.0	157	20.21	
10	1800	230	215T	-	140706.00	√	86.5	40.0	155	20.71	



## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230	184TC	-	131994.00		75.5	19.0	107	16.47	
5	1800	230	184TC	-	131995.00	√	82.5	20.5	100	17.47	

# FARM RATED<sup>®</sup> MOTORS

EXTRA HIGH TORQUE, SINGLE PHASE, TEFC  
RIGID BASE & RIGID BASE WITH C-FACE

## FEATURES

- High starting torque
- 1.00 service factor (except as noted)
- Ball bearings
- Class B or F insulation, as noted
- Reversible
- Removable condensate drain plugs
- Manual reset thermal protector
- All parts are corrosion resistant
- UL recognized and CSA certified



## C-FACE FOOTED (ROUND BODY)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230	184TC	-	131603.00	√	75.5	19.0	107	16.44	F, 2, 13
5	1800	230	184TC	-	131602.00		82.5	20.5	107	17.44	F, 1, 13

√: Available    √- Stocked components, Ready To Built  
Blue shaded areas are cast iron frames.

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# FARM DUTY / AGRICULTURE, EXTRA-HIGH TORQUE CHORE MOTOR

## SINGLE PHASE, TEFC, RIGID BASE



### FEATURES

- Class F insulation
- 1.15 Service factor (except as noted)
- Ball bearings
- 300% and greater starting torque for hard-to-start applications
- Totally enclosed and fully gasketed for dirty environments
- 213/215TZ models have 1-1/8" shaft, 182TZ model has 7/8" shaft
- Manual reset thermal protector
- Condensate drains
- Shaft slinger
- UL®\* recognized and CSA®\* certified



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1800	115/208-230	182T	-	131541.00	√	72.0	24.8/13.0-12.4	65	14.46	
3	1800	230	184T	-	131542.00	√	75.5	19.0	86	16.46	
5	1800	230	184T	-	132543.00		82.5	20.5	98	17.46	
	1800	230	215T	-	141433.00		82.5	22.6	125	18.71	
	1800	230	215TZ	-	141432.00		82.5	22.6	153	18.71	
7 1/2	1800	230	215T	-	141434.00	√	85.5	30.5	152	21.09	
	1800	230	215TZ	-	141427.00	√	85.5	30.5	159	21.09	
10	1800	230	215T	-	140414.00	√	86.5	40.0	156	20.71	

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230	184TC	-	131994.00		75.5	19.0	105.0	16.47	
5	1800	230	184TC	-	131995.00	√	82.5	20.5	105.0	17.47	

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
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# CROP DRYER, SINGLE PHASE MOTORS

## DRIPPROOF/AIR OVER, RIGID BASE



### APPLICATIONS

Crop dryers with air over/fan on shaft designs.

### FEATURES

- Double sealed ball bearings
- Continuous duty
- Class F insulation system
- Thermostats for thermal overload protection (auto reset protector on Z304)
- 34" long leads for ease of installation
- Keyed shafts with 1/4"-20 UNC tapped hole in end
- Capacitors included, shipped loose on catalog Z307 and Z308, mounted on all other models
- Extra nameplate included, loose, for remote mounting



### SINGLE PHASE OPEN/AIR OVER RIGID BASE

HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
5-7	3600	230	182TZ	TSTAT	-	131847.00	√	81.0	26.8-35.27	94	16.44	
7 1/2-10	3600	230	182TZ	TSTAT	-	131848.00	√	82.5	31.0-42.0	98	16.44	
	3600	230	184TZ	TSTAT	-	132637.00		82.5	31.0-40.0	98	16.82	
10-15	3600	230	215TVZ	TSTAT	-	141084.00		84.0	40.0-59.0	159	20.08	
	3600	230	215TZ	TSTAT	-	140640.00	√	85.0	39.5-61.5	162	20.42	
	3600	230	215TZ	TSTAT	-	141385.00		84.5	40.4-57.5	162	20.85	
16	1800	230	256TZ	NONE	-	851034.00	√	91.0	70.0-61.0	308	28.65	



### SINGLE PHASE TEAO RIGID BASE

HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
5-7	3600	230	182TZ	TSTAT	-	132391.00		83.0	20.8-28.6	98	17.44	
7.5-10.5	3600	230	182TZ	TSTAT	-	132392.00		85.5	30.0-38.0	108	17.44	
10-15	3600	230	215TZ	TSTAT	-	141220.00		82.5	45.8-68.5	136	18.17	



### SINGLE PHASE TEFC RIGID BASE

HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
10	1800	230	215TZ	None	-	141311.00	√	86.5	40.0	192	21.72	
15	1800	208-230	256TZ	None	-	851150.00	√	89.0	64.5-58.0	308	28.91	

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Blue shaded areas are cast iron frames.  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# CROP DRYER, THREE PHASE MOTORS

## OPEN/AIR OVER, RIGID BASE



### APPLICATIONS

Crop dryers with air over/fan on shaft designs where three phase power is available.

### FEATURES

- Ball bearings
- Thermostats for thermal overload protection
- 34" long leads exit elbow connector in bracket
- Keyed shafts with 1/4"-20 UNC tapped hole in end
- Extra nameplate included, loose, for remote mounting
- Continuous duty
- Class F insulation



### THREE PHASE OPEN/AIR OVER / DPAO

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
5-7	3600	230/460	184TZ	<b>B131849</b>	182TTDBD6014		86.5	12.6/6.3	100	13.00	
7-10	3600	230/460	184TZ	<b>B131850</b>	184TTDBD6014	√	88.5	17.8/8.9	107	14.00	



### THREE PHASE TOTALLY ENCLOSED AIR OVER / TEAO RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	OVER LOAD	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
5-7	3600	208-230/460	184TZ	-	<b>132393.00</b>		TSTATS	89.5	13.1-16.5/8.3 18.3-16.5/8.25	100	13.00	
7-10	3600	208-230/460	184TZ	-	<b>132394.00</b>		TSTATS	85.5	19.7-24.8/12.4 28.1-24.8/12.4	107	14.00	

## CATFISH POND MOTORS

### APPLICATIONS

Designed for outdoor pond aeration applications

### FEATURES

- High torque designs
- Epoxy painted for corrosion protection
- Double sealed ball bearings
- Drain holes provided to purge condensation



### THREE PHASE TOTALLY ENCLOSED AIR OVER / TEAO RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	OVER LOAD	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
10	1800	230	215TC	-	<b>140833.00</b>		MANUAL	91.7	26.8/13.4	182	19.71	

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
Catalog numbers (Cat No.) and Model numbers highlighted in bold blue are premium efficient.

# CROP DRYER CENTRIFUGAL FAN

## SINGLE PHASE, DRIPPROOF, RIGID BASE



### FEATURES

- Capacitor start/capacitor run design for high starting torque and low amps
- Ball bearings, mechanically locked on shaft end
- Heavy gauge steel frame and base
- 1.15 service factor (unless otherwise noted)
- UL®\* recognized and CSA®\* certified
- Thermostats for thermal overload protection
- 84" leads, rodent screens
- Shaft 1" longer than NEMA®\* standard for extra clearance



### RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	F.L. AMPS	SERVICE FACTOR	WT.	"C" DIM.	FOOT NOTES
3	1800	208-230	182T		132640.00	√	14.4-13.4	1.15	81	14.96	
5	1800	208-230	184TZ	Z124	184TBDR7369		23.0-21.0	1.00	104	16.72	13
	1800	230	184TZ		132639.00		23.0	1.00	104	18.46	
7 1/2	1800	208-230	215TZ	Z125	215TBDR7361		35.2	1.00	135	19.19	
	1800	230	215TZ		141392.00		30.0	1.00	159	22.97	
10	3600	208-230	215T		141394.00		44.0-41.5	1.00	145	19.84	
	1800	230	215TZ	Z126	215BDW7362		44.0	1.00	158	18.70	
	1800	230	215TZ		141393.00	√	40.0	1.00	158	22.97	
15	1800	230	256TZ	Z127	256TDX7028		59.5	1.00	187	24.06	17

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# GRAIN DRYER / CENTRIFUGAL FAN MOTORS



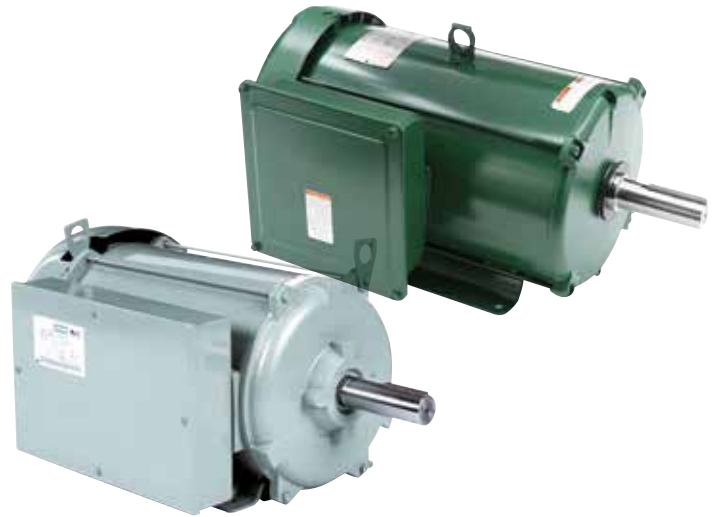
SINGLE AND THREE PHASE, RIGID BASE

## FEATURES

- NEMA Premium<sup>®</sup>\* and EPEfficiency
- Rodent screens (ODP only)
- Re-greasable bearings
- Cast Iron construction
- 1" longer shaft than NEMA standard
- Inverter duty insulation system
- UL<sup>®</sup>\* Recognized and CSA<sup>®</sup>\*certified

## ADDITIONAL FEATURES

- Shaft seals both ends
- Epoxy painted
- N/C T-stats



## SINGLE PHASE, (TEFC), RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
7 1/2	1800	230	215TZ	-	141437.00		85.5	30.5	172	22.47	
10	1800	230	215TZ	-	141311.00	√	86.5	40.0	192	21.72	
15	1800	208-230	256TZ		851150.00	√	89.0	64.5-58.0	308	28.65	

## THREE PHASE, DRIPPROOF, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
10	1800	230/460	215TZ	-	171861.60	√	91.7	25.6/12.8	220	17.90	
	1800	230/460	215TZ	<b>Y313</b>	215TTDBD6327	√	91.7	25.4/12.7	136	18.31	
15	1800	230/460	254TZ	-	171862.60	√	93.0	37.0/18.5	279	21.88	
	1800	230/460	254TZ	<b>Y315</b>	254TTDBD6327		93.0	37.5/18.8	320	23.31	
	1800	230/460	254TZ	<b>Y316</b>	254TTDCD6327		93.0	37.5/18.8	332	23.64	
20	1800	230/460	256TZ	-	171863.60	√	93.0	51.0/25.5	324	23.62	
	1800	230/460	256TZ	<b>Y317</b>	256TTDBD6327		93.0	48.5/24.3	325	24.88	
25	1800	230/460	284TZ	-	171864.60	√	93.6	59.5/29.7	404	24.92	
	1800	230/460	284TZ	<b>Y319</b>	284TTDBD6327		93.6	62.5/31.0	310	26.60	
30	1800	230/460	286TZ	-	171865.60	√	94.1	71.0/35.5	417	26.57	
	1800	230/460	286TZ	<b>Y321</b>	286TTDBD6327	√	94.1	73.0/36.5	416	27.98	

## THREE PHASE, TEFC, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230/460	182TZ	<b>Y007</b>	182TTFCD6327		89.5	8.0/4.0	100	16.20	
5	1800	230/460	184TZ	<b>Y009</b>	184TTFCD6327		89.5	13.0/6.5	107	17.20	
7 1/2	1800	230/460	213TZ	<b>Y011</b>	213TTFCD6327		91.7	19.0/9.5	120	19.53	
10	1800	230/460	215TZ	<b>Y013</b>	215TTFCD6327		91.7	25.0/12.5	320	21.03	
15	1800	230/460	254TZ	<b>Y015</b>	254TTFCD6327		92.4	37.5/18.8	325	25.15	
20	1800	230/460	256TZ	<b>Y017</b>	256TTFCD6327		93.0	48.5/24.2	310	26.89	
25	1800	230/460	284TZ	<b>Y019</b>	284TTFCD6327		93.6	60.0/30.0	412	27.64	
30	1800	230/460	286TZ	<b>Y021</b>	286TTFCD6327		93.6	71.0/35.5	495	29.14	

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Blue shaded areas are cast iron frames.

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# TOBACCO BARN MOTORS



## FEATURES

- Drip-proof airover designs
- Class H insulation for high ambient conditions
- 80° C ambient rated
- 120 inch leads
- Oversized double sealed bearings
- 1/4-20 tapped hole at end of shaft



## SINGLE PHASE - DPAO - RIGID BASE

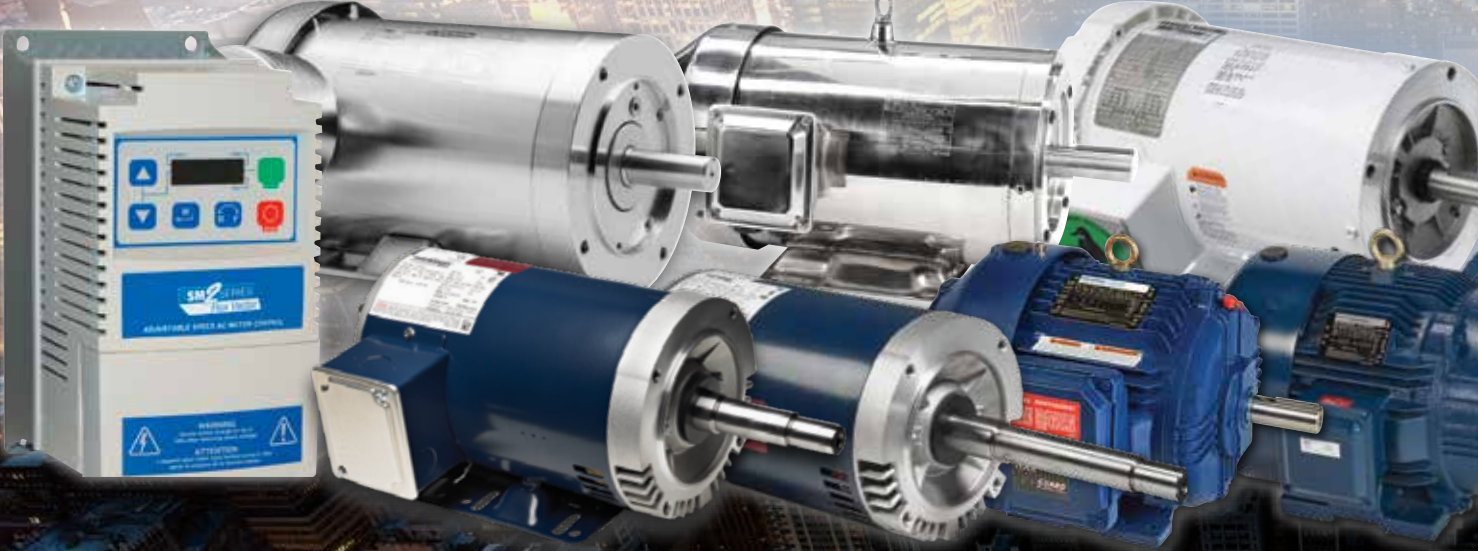
HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
7 1/2	1800	230	215TVZ	-	140830.00	√	84.0	34.5	125	18.04	
	1800	230	215TVZ	-	140816.00	√	82.5	44.0	150	20.65	

√: Available

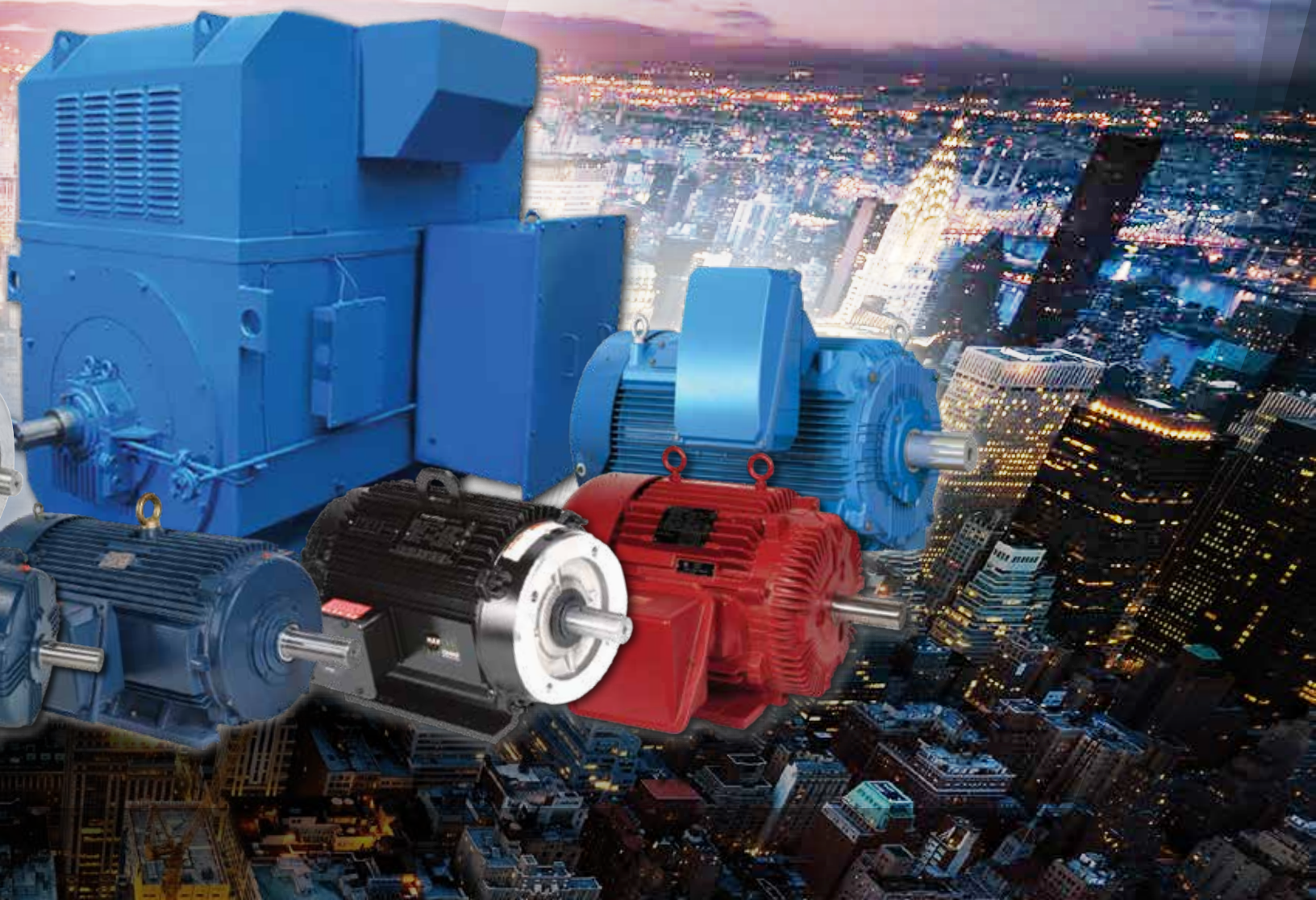
¶- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

marathon®



# MOTORS TO GET THE JOB DONE™





# WASHGUARD® MOTORS

NOTHING SHEDS WATER LIKE A DUCK

Designed to meet the demanding washdown conditions that you may find in food processing plants, chemical processing, pharmaceutical plants and the beverage and brewing industries.



## Features

- USDA-approved white epoxy finish
- Stainless steel motors
- Encapsulated stainless steel motors available
- NEMA®\* flange motors
- Single Phase & Three Phase and wash down duty motors
- Rigid base and C face mount types
- BISSC approved designs
- Double lip contact seals and v-ring seals used for shaft seals
- Extrem Duck® - Encapsulated and premium efficient models
- Washdown brakemotors and pump motors available
- LEESON's Inverter Rated Insulation System (IRIS)
- UL®\* recognized and CSA®\* certified



\*See back cover page for attribution.

# WASHGUARD® MOTORS

## BROAD PRODUCT RANGE



### WHITE DUCK

Enhanced performance in wet, humid areas

#### FEATURES

- Our original moisture-shedding “duck” motor
- Durable USDA-approved white epoxy finish
- Stainless steel shaft, conduit box cover, nameplate, fan guard
- Drains for all mounting orientations
- Meets IP55 enclosure protection



### SST DUCK

Stainless Steel exterior tough for demanding wash down applications

#### FEATURES

- All exterior components of 300-Series stainless steel, including motor frame, endshield and conduit box castings
- Moisture resistant sealant between frame and endbells
- Full-face nameplate is laser-etched on the motor frame
- Four locations for T-drains provided on each endshield
- Meets IP55 enclosure protection



### PREMIUM ALL STAINLESS DUCK

Maximum service in critically clean or corrosive environments

#### FEATURES

- All exterior components of 300-Series stainless steel
- Endshields o-ring sealed to frame
- Meets IP56 enclosure protection
- (SGRs) shaft grounding rings
- Laser etched full face nameplate

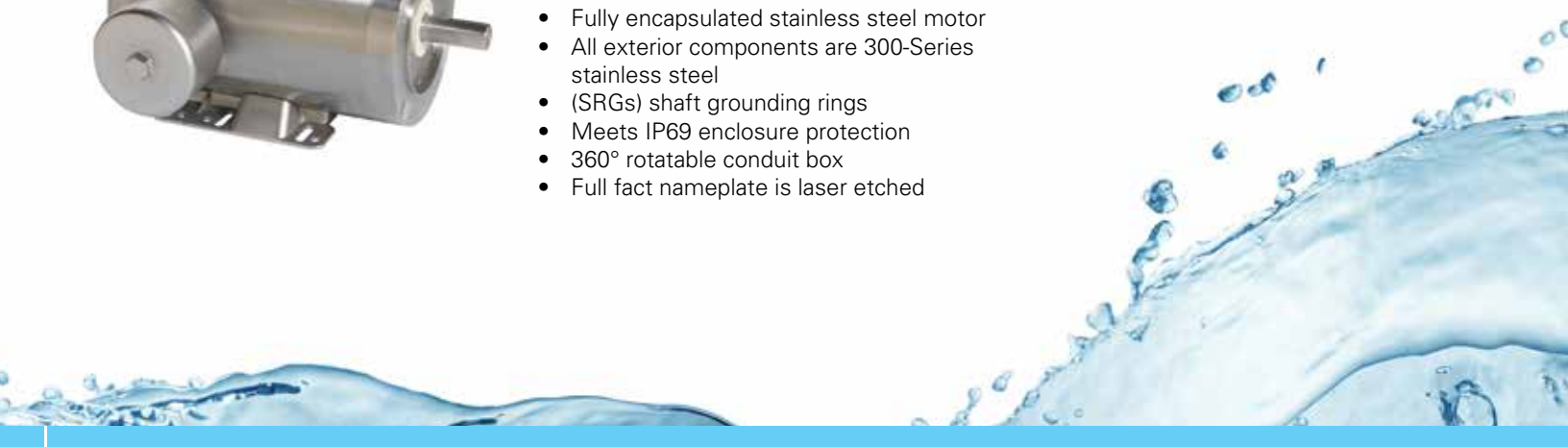


### EXTREME DUCK® ULTRA

Fully encapsulated motors designed for extreme washdown conditions

#### FEATURES

- Fully encapsulated stainless steel motor
- All exterior components are 300-Series stainless steel
- (SGRs) shaft grounding rings
- Meets IP69 enclosure protection
- 360° rotatable conduit box
- Full face nameplate is laser etched



# THE MOTORS THAT STAND UP TO WASHDOWN™



## LEESON® WASHGUARD® MOTORS FEATURES AT A GLANCE



FEATURE	WHITE DUCK	SST DUCK	PREMIUM ALL STAINLESS DUCK	EXTREME DUCK® ULTRA
<b>SEALING ADVANTAGES</b>				
Complete motor encapsulation				■
Interior corrosion protection	■	■	■	■
Motor breather plugs/drain plugs	■	■	■	Not needed for total encapsulation
Shaft seals on both ends of TEFC motors	■	■	■	■
Two-piece shaft seal				■
Viton®* seals between endbells and frame			■	■
O-ring sealed openings			■	■
Potted lead entrance				■
<b>INSTALLATION AND MAINTENANCE</b>				
Color-coded leads				■
Non-wicking lead wires				■
Sealed bearings	■	■	■	■
Internally locked shaft-end bearing	■	■	■	■
Screw-on conduit box cover			■ ①	■
360° rotatable conduit box				■
Q-Car™ rotor cartridge change-out			■	■
<b>CERTIFICATIONS</b>				
Nameplate permanently etched in frame		■	■	■
60Hz and 50Hz data on nameplate	■	■	■	■
CE®* mark on nameplate	■	■	■	■
Standard motors built with Inverter-rated insulation system and marked on nameplate (1 HP and higher)	■	■	■	■
IP Ratings	IP55	IP55	IP56	IP69
UL®*, CSA®* Listed	■	■	■	■
BISCC approved				■
<b>SPECIAL CONSIDERATIONS</b>				
Pump motor designs	■		■	
Brakemotor designs	■		■	
DC motors available	■		■	
Metric designs available			■	■
Local inventory support	■	■	■	■

○ 56/143/145T Frame Ratings

### EXTREME DUCK ULTRA HANDLES THE HARSHTEST WASHDOWN ENVIRONMENTS.

1. Poultry processing plants.
2. Cheese processing plants.
3. Water bottling plants.
4. Conveying for bottling industry for breweries.
5. Chemical processing plants.
6. Pharmaceutical plants.
7. Brewery equipment.
8. Seafood processing plants.

\*See back cover page for attribution.

# WASHGUARD® MOTORS ARE BUILT TO HANDLE HIGH-PRESSURE WASHDOWNS!\*



WASHGUARD WHITE EPOXY MODEL SHOWN

**Stainless-steel or white polypropylene fan guard** on all Washguard motor frames.

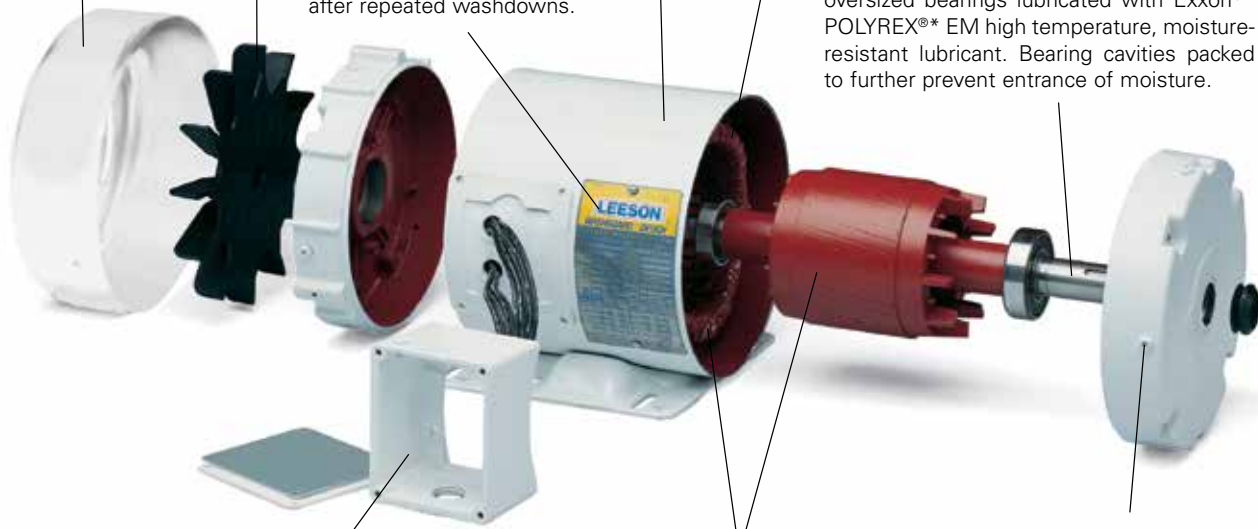
**USDA-approved, white epoxy finish** for superior protection and resistance to caustic cleaning solutions.

**Encapsulated starting switch** (single-phase Washguard motors) uses a patented, field-proven design that is immune to moisture, shock and vibration. No moving parts or exposed contacts to become corroded or inoperable.

**Composite fan** is chemically-inert and static-free. Fan is positively positioned on shaft on TEFC designs only.

**Stainless-steel, "full-fact" nameplate** includes information on motor efficiency and connections. Readable even after repeated washdowns.

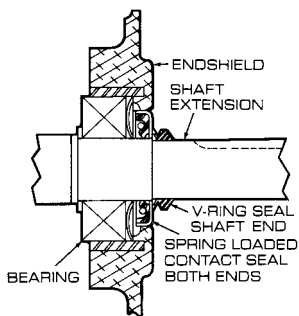
**Moisture-resistant shaft system** includes 303 stainless-steel shaft and lubricated, spring-loaded contact seals in each endshield. Patented V-ring Forsheda®\* seal on shaft end to deflect water (see inset). Double-sealed, oversized bearings lubricated with Exxon®\* POLYREX®\* EM high temperature, moisture-resistant lubricant. Bearing cavities packed to further prevent entrance of moisture.



**Cast, oversized conduit box** with tough, high-temperature nitrile gaskets and stainless-steel cover and hardware. Oversized design with threaded entrance. All machined fits are sealed and nylon gaskets are used under bolt heads.

**Interior coatings** protect against moisture and corrosion. Frame, base, endshields, rotor, and interior components are protected by enamel and polyester compounds of outstanding adhesion and resistance to moisture, acids, alkalis, and oils. High temperature, moisture resistant IRIS® insulation system assures long life on inverter service. Windings are immersed and cured in polyester insulating compound.

**Four condensate drains in each endshield** (at three, six, nine, and twelve o'clock) purge condensate and water which may enter the motor.



Contact seal and V-ring seal prevent water from high pressure washdown.

**Also excellent for applications requiring a motor that is "tropicalized"!**

\*See back cover page for attribution.

# WASHGUARD® MOTORS

## SINGLE PHASE, WHITE DUCK™ EPOXY PAINTED



### FEATURES

- Ingress Protection Code is IP55
- Encapsulated electronic starting switch is impervious to moisture
- Capacitor start induction run design for high starting torque unless otherwise noted
- Class F insulation
- 1.15 service factor
- Double sealed ball bearings
- 303 stainless steel shaft with spring loaded contact seals in each endshield
- Stainless steel conduit box cover, nameplate, fan guard (TEFC) and hardware
- Cast oversized conduit box with high temperature nitrile gaskets and threaded entrance
- Plugged drain holes in each endshield for all angle mounting
- Internal corrosion resistant coatings on frame, base, endshields, rotor and stator
- USDA-approved, white epoxy RUST-OLEUM®\* paint
- UL®\* recognized, CSA®\* certified and CE®\* mark



### SINGLE PHASE - TEFC - RIGID BASE - FEATURING ELECTRONIC SOLID STATE ENCAPSULATED SWITCH

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1800	115/208-230	182T		131571.00	√	71	25.2/12.6-2.6	63	13.46	

Specifications are subject to change without notice.

√: Available    1- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# WASHGUARD® MOTORS

## THREE PHASE, WHITE DUCK™ EPOXY PAINTED



### FEATURES

- Ingress Protection Code is IP55
- 10:1 variable torque, constant torque speed range as listed below
- IRIS® inverter duty class F insulation system
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Double sealed ball bearings
- 303 stainless steel shaft with spring loaded contact seals in each endshield (Drive end only on TENV motors)
- Stainless steel conduit box cover, nameplate, fan guard (TEFC only) and hardware
- Cast oversized conduit box with high temperature nitrile gaskets and threaded entrance
- Plugged drain holes in each endshield for all angle mounting
- Internal corrosion resistant coatings on frame, base, endshields, rotor and stator
- USDA-approved, white epoxy RUST-OLEUM®\* paint
- UL®\*\* recognized, CSA®\*\* certified and CE®\*\* mark
- Smaller ratings are available from Commercial Segment



### TEFC - RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE*	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182T	-	<b>132388.00</b>		10:1	86.5	7.6/3.8	69	13.96	
3	1800	230/460	182T	-	<b>132196.00</b>	√	10:1	89.5	7.8/3.9	78	14.46	
5	3600	230/460	184T	-	<b>132202.00</b>	√	10:1	88.5	12.0/6.0	89	14.46	
	1800	230/460	184T	-	<b>132197.00</b>	√	10:1	89.5	12.6/6.3	90	13.96	
7 1/2	3600	230/460	184T	-	<b>132306.00</b>	√	10:1	89.5	17.6/8.8	87	15.96	
	1800	230/460	213T	-	<b>140819.00</b>	√	10:1	91.7	21.6/10.8	161	18.71	
10	1800	230/460	215T	-	<b>140820.00</b>	√	10:1	91.7	26.8/13.4	181	19.71	

### TEFC C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE*	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230/460	182TC	-	<b>132439.00</b>	√	10:1	86.5	8.4-7.8/3.9	78	14.47	
5	3600	230/460	184TC	-	<b>132441.00</b>	√	10:1	88.5	12.0/6.0	58	14.97	
	1800	230/460	184TC	-	<b>132440.00</b>	√	10:1	89.5	12.6/6.3	67	15.47	
7 1/2	3600	230/460	213TC	-	<b>141267.00</b>	√	10:1	89.5	18.6/9.3	147	18.77	
	1800	230/460	213TC	-	<b>141266.00</b>	√	10:1	91.7	19.6/9.8	135	18.77	
10	3600	230/460	215TC	-	<b>141269.00</b>	√	10:1	90.2	23.6/11.8	170	20.27	
	1800	230/460	215TC	-	<b>141268.00</b>	√	10:1	91.7	26.4/13.2	180	20.27	
15	3600	230/460	215TC	-	<b>141357.00</b>	√	10:1	91.0	35.0/17.6	156	20.27	

### TEFC C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE*	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182TC	-	<b>132563.00</b>		10:1	87.5	6.0/3.0	89	15.96	
3	3600	230/460	182TC	-	<b>132199.00</b>	√	10:1	86.5	8.2-7.6/3.8	80	14.97	
	1800	230/460	182TC	-	<b>132198.00</b>	√	10:1	89.5	7.8/3.9	79	14.47	
5	3600	230/460	184TC	-	<b>132200.00</b>	√	10:1	88.5	12.0/6.0	90	14.97	
	3600	575	184TC	-	<b>132267.00</b>	¶	10:1	88.5	4.8	100		
	1800	230/460	184TC	-	<b>132201.00</b>	√	10:1	89.5	12.6/6.3	91	15.47	
	1800	575	182TC	-	<b>132265.00</b>		10:1	89.5	5.0	76		
7 1/2	3600	208-230/460	213TC	-	<b>141120.00</b>	√	10:1	90.2	17.8/8.9	140	15.97	
	3600	230/460	184TC	-	<b>132205.00</b>	√	10:1	89.5	17.6/8.8	101	20.57	
	1800	208-230/460	213TC	-	<b>140822.00</b>	√	10:1	91.7	22.4-21.6/10.8	157	18.71	
10	3600	230/460	215TC	-	<b>140823.00</b>	√	10:1	91.7	23.6/11.8	164	21.82	
	1800	230/460	215TC	-	<b>140821.00</b>	√	10:1	91.7	26.8/13.4	179	19.71	

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Model numbers highlighted in bold blue are premium efficient.

\* Requires nameplate modification.

\* See back cover page for attribution.

# WASHGUARD® MOTORS

## THREE PHASE, WHITE DUCK™ EPOXY PAINTED



### APPLICATION

- Designed for continuous duty service on close-coupled pumps using NEMA®\* JM mounting provisions.



### CLOSE COUPLED PUMP, JM, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE*	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	208-230/460	182JM	-	<b>132442.00</b>	√	10:1	89.5	8.4-7.8/3.9	90	16.13	
	3600	208-230/460	184JM	-	<b>132443.00</b>	√	10:1	88.5	13.2-12/6	82	16.63	
5	1800	208-230/460	184JM	-	<b>132444.00</b>	√	10:1	89.5	13.8-12.6/6.3	90	16.63	
	3600	208-230/460	184JM	-	<b>132446.00</b>	√	10:1	90.1	19.2-17.6/8.8	76	17.63	
7.5	1800	230/460	213JM	-	<b>141270.00</b>	√	10:1	91.7	19.6/9.8	101	21.40	
	3600	230/460	215JM	-	<b>141271.00</b>	√	10:1	90.2	23.6/11.8	140	21.40	
10	1800	230/460	215JM	-	<b>141272.00</b>	√	10:1	91.7	26.4/13.2	155	22.90	
	3600	230/460	215JM	-	<b>141358.00</b>	√	10:1	91.0	35.0/17.6	165	21.71	

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Model numbers highlighted in bold blue are premium efficient.  
 \* Requires nameplate modification.

\*See back cover page for attribution.

# WASHGUARD® MOTORS

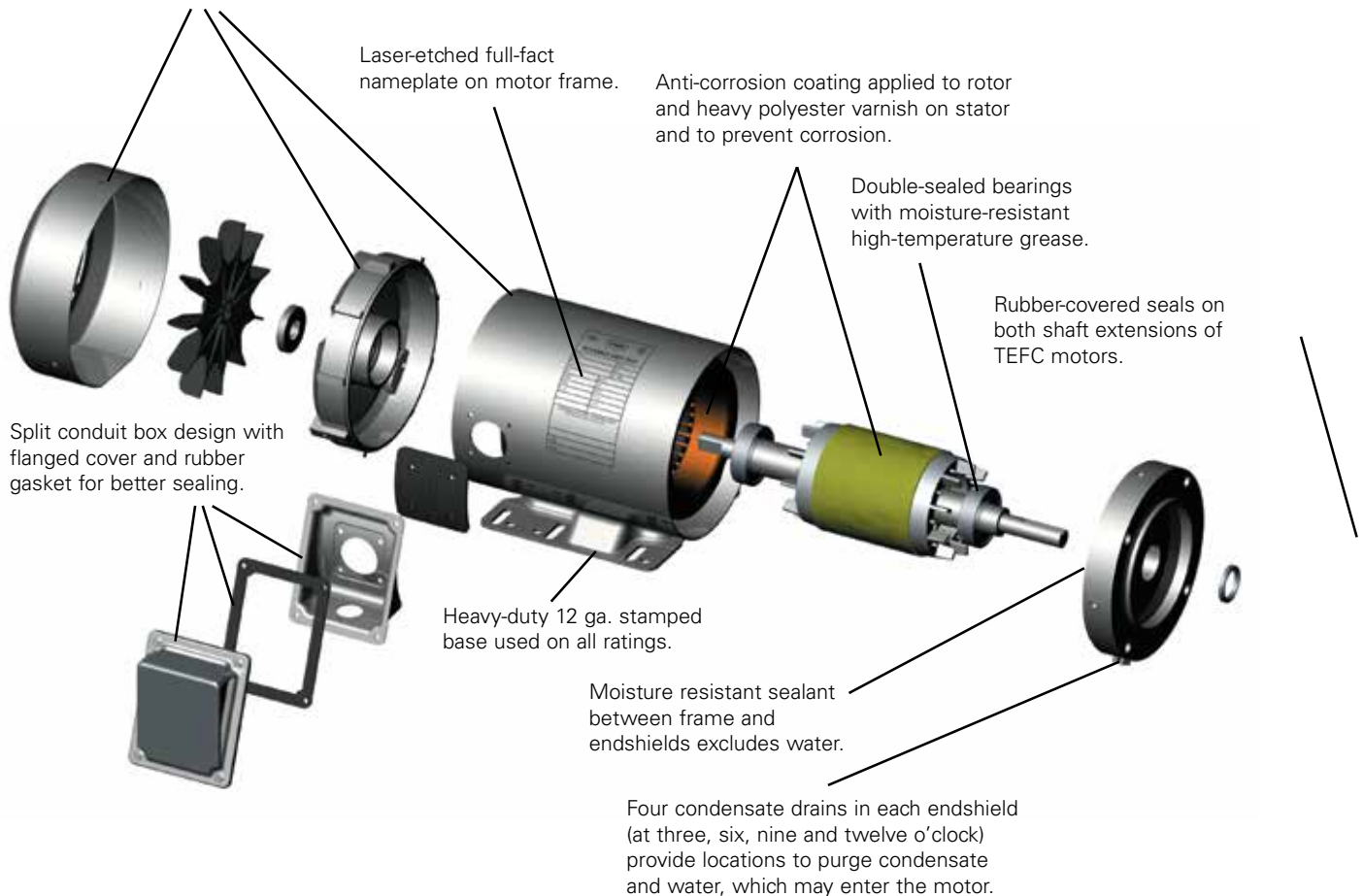
## SST - ALL STAINLESS MOTORS



This member of the LEESON® family of tough duck motors is designed for long life in demanding washdown applications. FHP Washguard SST All-Stainless motors are Stainless Steel Tough!

Built with all stainless steel external components to prevent corrosion and well sealed against moisture and condensation to protect internal components, the Washguard SST all-stainless steel motors are able to withstand the severe washdown environments found in the food processing, chemical processing, and beverage industries.

300-Series stainless steel exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.



# WASHGUARD® MOTORS

## THREE PHASE, SST DUCK™ - ALL STAINLESS



### FEATURES

- Inverter speed range as listed below
- IRIS® inverter duty class F insulation system
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Double sealed ball bearings
- 303 stainless steel shaft with spring loaded contact seals in each endshield (Drive end only on TENV motors)
- 100% stainless steel construction
- Laser etched nameplate
- Oversized conduit box with high temperature nitrile gaskets and threaded entrance
- Plugged drain holes in each endshield for all angle mounting
- Internal anti-corrosion coating applied
- UL®\* recognized, CSA®\* certified and CE®\* mark



### TEFC C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182TC	---	<b>194000.00</b>	√	10:1 VT	86.5	6.9/3.5	80	16.97	
	1800	230/460	182TC	---	<b>194001.00</b>	√	10:1 VT	89.5	7.2/3.6	117	16.97	
5	3600	230/460	184TC	---	<b>194002.00</b>	√	10:1 VT	88.5	11.0/5.5	120	16.97	
	1800	230/460	184TC	---	<b>194003.00</b>	√	10:1 VT	89.5	12.4/6.2	143	16.97	
7 1/2	3600	230/460	213TC	---	<b>194004.00</b>	√	10:1 VT	89.5	17.4/8.7	156	21.57	
	1800	230/460	213TC	---	<b>194005.00</b>	√	10:1 VT	91.7	19.4/9.7	185	21.57	
10	3600	230/460	215TC	---	<b>194006.00</b>	√	10:1 VT	90.2	22.8/11.4	176	21.57	
	1800	230/460	215TC	---	<b>194007.00</b>	√	10:1 VT	91.7	25.2/12.6	207	21.57	
15	3600	208-230/460	254TC	---	<b>194008.00</b>	√	4:1 CT	91.0	38-34.5/17.2	303	23.65	
	1800	208-230/460	254TC	---	<b>194009.00</b>	√	4:1 CT	92.4	38-35.5/17.8	307	23.65	
20	3600	208-230/460	256TC	---	<b>194010.00</b>	√	4:1 CT	91.0	50.5-45/22.5	375	25.00	
	1800	208-230/460	256TC	---	<b>194011.00</b>	√	4:1 CT	93.0	52.0-47.0/23.6	358	25.00	
25	3600	208-230/460	284TC	---	<b>194012.00</b>	√	2:1 CT	91.7	63.0-56.5/28.3	414	26.97	
	1800	208-230/460	284TC	---	<b>194013.00</b>	√	2:1 CT	93.6	65.0-57.5/28.8	425	26.97	
30	3600	208-230/460	286TC	---	<b>194014.00</b>	√	2:1 CT	91.7	76.0-68.0/34.0	425	27.95	
	1800	208-230/460	286TC	---	<b>194015.00</b>	√	2:1 CT	93.6	76.0-68.0/34.0	475	27.95	

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Model numbers highlighted in bold blue are premium efficient.

\* Requires nameplate modification.

\*See back cover page for attribution.

# WASHGUARD® MOTORS PREMIUM STAINLESSDUCK



PREMIUM - ALL STAINLESS  
THREE-PHASE



300-Series stainless steel exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.

Laser-etched full-fact nameplate on motor frame.

Interior coatings applied to rotor and stator protect against moisture and corrosion.

Double-sealed bearings with moisture-resistant high-temperature grease.

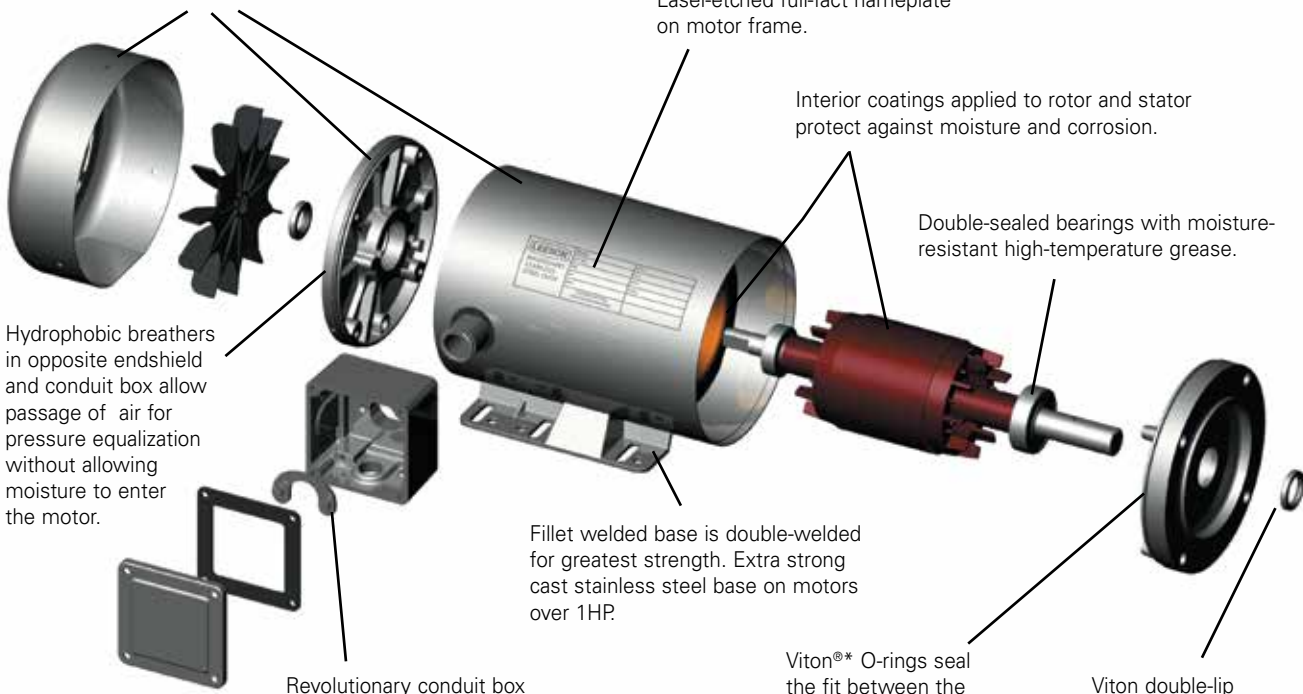
Hydrophobic breathers in opposite endshield and conduit box allow passage of air for pressure equalization without allowing moisture to enter the motor.

Fillet welded base is double-welded for greatest strength. Extra strong cast stainless steel base on motors over 1HP.

Viton®\* O-rings seal the fit between the frame and endshields to exclude moisture and resist harsh chemicals

Viton double-lip shaft seals on both ends of TEFC motors

Revolutionary conduit box mounting uses pressure clip to assure maximum sealing and allows easy repositioning for multiple conduit entry locations.



\*See back cover page for attribution.

# WASHGUARD® MOTORS

PREMIUM - ALL STAINLESS

THREE PHASE



**GENERAL SPECIFICATIONS:** Designed specifically to meet the demanding sanitation requirements of the pharmaceutical, food processing and beverage industries. These motors are also ideal in clean room and severe chemical-processing applications involving frequent washdown with nitric acid and caustic lye.

**MECHANICAL PROTECTION FEATURES:** All exterior components are 300-series stainless steel

- Nothing on the motor's exterior is painted or coated in any way
- All sealing components are Viton®\* for superior chemical resistance
- Full fact nameplate is laser etched on the motor frame – no separately attached nameplate to trap dirt or contaminants
- Endshields are O-ring sealed to the frame
- Double lip shaft seals on both ends of TEFC motors (shaft end only on TENV motors)
- Removable hydrophobic breathers in opposite shaft endbell and conduit box equalize pressure without allowing moisture to enter
- Exterior fastener use minimized reducing the number of entry points for moisture. There are no holes in the frame for attaching a nameplate. Bearing lock screws are located inside the motor and the conduit box mounted screws have been eliminated
- Double-sealed bearings are pre-lubricated with moisture-resistant high-temperature grease for long life
- Interior coatings applied to rotor and stator protect against corrosion
- New conduit box mounting system provides optimum sealing
- Ease to clean construction is BISSC Certified for bakery applications



**ELECTRICAL PERFORMANCE AND PROTECTION FEATURES:** Washguard motor efficiencies meet EPACT mandates for non-exempt motors when tested without shaft seals.

- Windings are immersed and cured in polyester insulating varnish for extra moisture-resistance
- LEESON® motors exclusive IRIS® Inverter-Rated Insulation System provides extra protection and long life, especially in inverter-driven applications

**STANDARDS AND APPROVALS:** Three phase motors are UL®\* component recognized – file number E57948, guide number PRGY2

- CSA®\* Energy Efficiency Verification Program, report number EEV 78720-1
- Construction is CSA Certified for safety report number LR33543 and listed under BISSC authorization number 769

\*See back cover page for attribution.

# WASHGUARD® MOTORS

## THREE PHASE - PREMIUM ALL STAINLESS DUCK™



### FEATURES

- Suitable for use on VFD 10:1 variable torque, 10:1 (TEFC) or 1000:1 (TENV) constant torque, 1.0 service factor
- MAX GUARD® Class F insulation system
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Double sealed ball bearings with moisture resistant, high temperature grease
- 300 series stainless steel external construction: frame, end- shields, shaft, conduit box, mounting base and hardware for superior corrosion resistance
- Internal corrosion resistant coatings on rotor and heavy polyester varnish on the stator
- 100% paint-free construction
- Viton®\* o-rings, shaft seals, and gaskets for superior sealing against chemicals
- Hydrophobic breather in OP endshield and conduit box equalize air pressure
- Nameplate information laser etched on frame
- BISSC certified for baking industry
- UL®\*\* recognized, CSA®\*\* certified and CE®\*\* mark



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1.5	1200	230/460	182TC	-	<b>132565.00</b>	√	10:1	87.5	6/3	91	14.77	
3	3600	230/460	182TC	-	<b>132203.00</b>	√	10:1	86.5	7.6/3.8	85	14.27	
	1800	230/460	182TC	-	<b>132206.00</b>	√	10:1	89.5	7.8/3.9	90	14.77	
5	3600	208-230/460	184TC	-	<b>132207.00</b>	√	10:1	88.5	12.0/6.0	103	15.27	
	3600	575	184TC	-	<b>132267.00</b>		10:1	88.5	4.8	100	15.27	
	1800	230/460	184TC	-	<b>132208.00</b>	√	10:1	89.5	12.6/6.3	101	15.77	
7 1/2	3600	208-230/460	184TC	-	<b>140825.00</b>	√	10:1	90.2	17.8/8.9	168	18.69	
	1800	230/460	184TC	-	<b>140826.00</b>	√	10:1	91.7	21.6/10.8	173	18.69	
10	3600	208-230/460	184TC	-	<b>140827.00</b>	√	10:1	91.7	23.6/11.8	182	18.69	
	1800	230/460	184TC	-	<b>140828.00</b>	√	10:1	91.7	26.8/13.4	203	18.69	

### C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230/460	182TC		<b>132447.00</b>	√	10:1	89.5	7.8/3.9	91	14.77	
5	3600	208-230/460	184TC		<b>132449.00</b>	√	10:1	88.5	13.2-12/6	75	15.77	
	1800	230/460	184TC		<b>132448.00</b>	√	10:1	89.5	12.6/6.3	80	15.77	

### C-FACE FOOTED (RIGID) JM PUMP

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1800	230/460	182JM		<b>132450.00</b>	1770	√	89.5	7.8/3.9	94	16.2	
1.5	1200	230/460	182T		<b>132565.00</b>	1170	√	87.5	6/3	91	14.77	
10	3600	230/460	215JM		<b>141275.00</b>	3525	√	90.2	23.6/11.8	182	19.81	
10	1800	230/460	215JM		<b>141276.00</b>	1760	√	91.7	29.6/14.8	170	19.81	
5	3600	230/460	184JM		<b>132451.00</b>	3495	√	88.5	12/6	100	16.77	
5	1800	230/460	184JM		<b>132452.00</b>	1760	√	89.5	12.6/6.3	100	17.27	
7.5	3600	230/460	213JM		<b>141274.00</b>	3525	√	89.5	18.6/9.3	156	19.81	
7.5	1800	230/460	213JM		<b>141273.00</b>	1765	√	91.7	22.8/11.4	82	19.81	

√: Available    1: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Model numbers highlighted in bold blue are premium efficient.

\* Requires nameplate modification.

\*See back cover page for attribution.

# WASHGUARD® MOTORS EXTREME DUCK® ULTRA WASHGUARD ALL-STAINLESS MOTORS

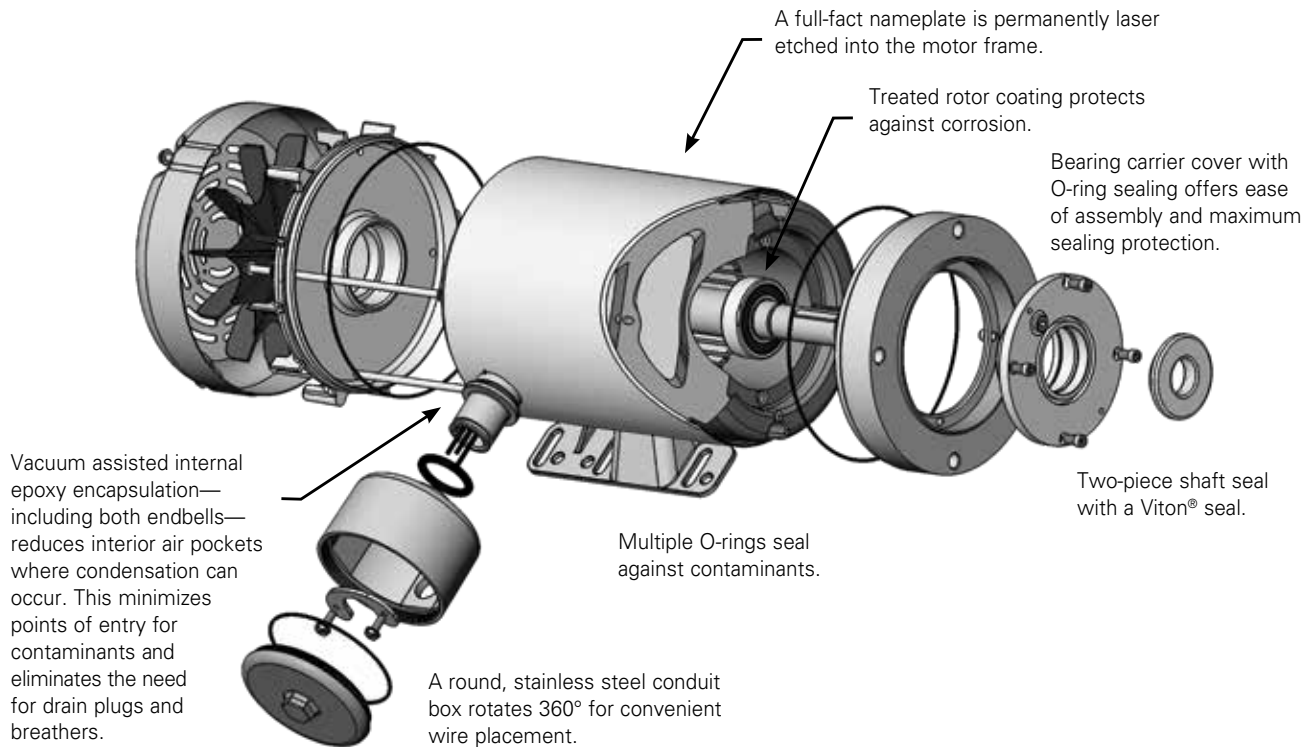


THREE PHASE, NEMA®\* PREMIUM  
TEFC MOTOR DESIGN SHOWN

## Extreme DUCK® ULTRA

### It's what's inside that keeps what's outside- out.

300 Series stainless steel components include the frame, base, conduit box cover, endshields and bearing carrier cover. It's the perfect motor design for extreme washdown conditions.



\*See back cover page for attribution.

# WASHGUARD® MOTORS

## EXTREME DUCK® ULTRA WASHGUARD

### ALL-STAINLESS

### THREE PHASE, NEMA PREMIUM®\* RATINGS



#### GENERAL SPECIFICATIONS

These revolutionary designed stainless steel motors are built using our “Voice of the customer” design criteria to withstand extreme washdown and sanitation requirements of the food processing, pharmaceutical, packaging and beverage industries. Our innovative hydro sealed system “HS2” protects from the “outside-in” by reducing entrance points of contaminants and eliminates the need for drain plugs and breathers. This proven process also minimizes exterior hardware, which may trap application elements. Our unique Q-Car™ rotor cartridge seal system, “Q-Car”; gives quick access to the interior of the motor should the need arise. 300-series stainless steel used on all exterior surfaces gives ideal protection against severe chemical-processing applications and frequent washdown processes using salt water, nitric acids and solvents.



#### MECHANICAL PROTECTION FEATURES

- Easily removed Q-Car rotor cartridge for easy bearing replacement. Disassembles by removing four bolts saving you time and money
- Full-face nameplate permanently laser etched into motor frame will never be separated from motor
- Double-sealed ball bearings with high temperature grease
- Two-piece shaft seal resists water for improved performance in vertical installations. Provides three points of protection on both ends of the motor
- Colored, non-wicking leads for easy connection and installation
- Chemical and abrasion resistant lead markers
- 360° rotatable round conduit box for convenient wire placement
- Conduit box lead hole location rotatable on TEFC designs
- NEMA Premium efficiency - 3 HP and above
- IP69 certified enclosure protection

#### ELECTRICAL PERFORMANCE AND PROTECTION FEATURES

- Fully encapsulated internal epoxy encapsulation—including both endbells— reduces air pockets where condensation can occur. Points of entry for contaminants are minimized, and drain plugs and breathers are eliminated.
- Our exclusive IRIS® inverter rated insulation system provides extra protection and long life, especially when used in applications driven by an inverter
- 10:1 constant torque operation

#### STANDARDS AND APPROVALS

- Motors are UL®\* component recognized – file number E57948, guide number PRGY2
- CSA®\* Energy Efficiency Verification Program, report number EEV 78720-1
- Construction is CSA Certified for safety, report number LR33543 and listed under BISSC authorization number 7690,0625
- IP69 Certified IEC60529
- IP69K tested per DIN 40050-9

\*See back cover page for attribution.

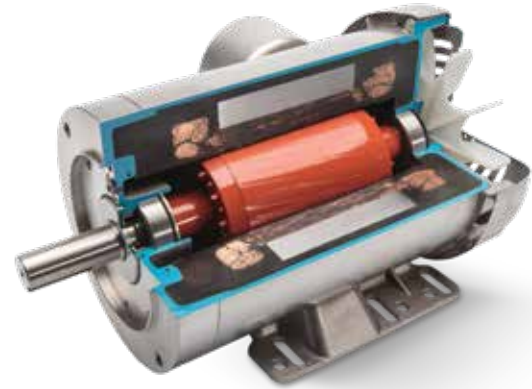
# WASHGUARD® MOTORS

THREE PHASE - STANDARD &  
NEMA PREMIUM®\* RATINGS



## FEATURES

- IP69 certified enclosure protection
- Fully encapsulated internal epoxy encapsulation reduces points of entry for contaminants and eliminates need for drain plugs and breathers
- Two-piece shaft seal technology provides three points of protection on both ends of the motor
- Easily removed Q-Car™ rotor cartridge makes bearing replacement ultra simple
- 360° rotatable round conduit box for convenient wire placement
- Colored, non-wicking, chemical and abrasion-resistant leads for easy connection and installation
- UL®\*\* recognized, CSA®\*\* certified and CE®\*\* mark
- Smaller ratings are available from Commercial Segment



## C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	CT SPEED RANGE	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230/460	182T	---	<b>132646.00</b>	√	10:1	86.5	7.6/3.8	85	15.78	-
	1800	230/460	182T	---	<b>132647.00</b>	√	10:1	89.5	7.8/3.9	90	15.78	-
5	3600	230/460	184T	---	<b>132648.00</b>	√	10:1	88.5	12.4/6.2	103	15.78	-
	1800	230/460	184T	---	<b>132649.00</b>	√	10:1	89.5	12.6/6.3	103	15.78	-
7 1/2	3600	230/460	213T	---	<b>141409.00</b>	√	10:1	89.5	18.6/9.3	168	19.18	-
	1800	230/460	213T	---	<b>141410.00</b>	√	10:1	91.7	19.2/9.6	173	19.18	-
10	3600	230/460	215T	---	<b>141411.00</b>	√	10:1	90.2	23.6/11.8	182	19.18	-
	1800	230/460	215T	---	<b>141412.00</b>	√	10:1	91.7	26.4/13.2	203	19.18	-

## Q-CAR™ ACCESSORY KITS - EXTREME DUCK ULTRA MOTORS

Kit makes replacing worn bearings ultra simple. No special tools, no damaged seals.

## FEATURES

- The kit ensures a perfectly fitted and watertight bearing with no additional machining required in a matter of minutes
- Maintains factory IP69 rating
- Easily replaced in the field reducing costly downtime



KIT #	Where Used	KIT DESCRIPTION	STOCK	WT.
176332.00	132646.00	Q-CAR KIT - TEFC Design, 3HP, 3600RPM, 184TC	√	36
176333.00	132647.00	Q-CAR KIT - TEFC Design, 3HP, 1800RPM, 184TC	√	28
176334.00	132648.00	Q-CAR KIT - TEFC Design, 5HP, 3600RPM, 184TC	√	37
176335.00	132649.00	Q-CAR KIT - TEFC Design, 5HP, 1800RPM, 184TC	√	30
176336.00	141409.00	Q-CAR KIT - TEFC Design, 7.5HP, 3600RPM, 213TC	√	45
176337.00	141410.00	Q-CAR KIT - TEFC Design, 7.5HP, 1800RPM, 213TC	√	45
176338.00	141411.00	Q-CAR KIT - TEFC Design, 10HP, 3600RPM, 215TC	√	50
176339.00	141412.00	Q-CAR KIT - TEFC Design, 10HP, 1800RPM, 215TC	√	50

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
Model numbers highlighted in bold blue are premium efficient.

\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JM MOTORS

## SINGLE PHASE, DRIPPROOF

### APPLICATIONS

Close-coupled pumps where the pump impeller is mounted directly on the motor shaft in environments that are relatively clean and dry variable



### FEATURES

- NEMA® JM pump shaft dimensions
- Ball bearings, mechanically locked on shaft end
- Capacitor start design for high starting torque
- Capacitor start / capacitor run design for higher efficiency, as noted
- Continuous duty
- 1.15 service factor
- UL® recognized and CSA® certified

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1800	115/230	182JM	Z405A	182TCDW7074	√	72.0	23.0/11.5	69	16.09	13
3	3600	115/230	182JM	Z406A	182TCDW7318	√	75.5	32.0/16.1	60	15.32	13
	1800	115/230	184JM	Z407A	184TCDW7047	√	75.5	33.0/16.5	77	17.59	13
5	3600	230	184JM	Z408A	184TBDW17007	√	80.0	22.0	93	16.32	1, 13
	1800	230	213JM	Z409	213TCDW7027	√	78.5	28.0	115	19.92	
7 1/2	3600	230	213JM	Z410	213TCDW7002	√	78.5	37.0	106	18.42	
	1800	230	215JM	Z411	215TBDW7029	√	84.0	34.5	120	19.92	1
10	3600	230	215JM	Z412	215TCDW7002	√	81.5	47.0	150	19.92	
	1800	230	215JM	Z413	215TBDW7027	√	82.5	44.0	159	21.17	1

# CLOSE-COUPLED PUMP

## SINGLE PHASE, TOTALLY ENCLOSED

### APPLICATIONS

Close-coupled pumps where the pump impeller is mounted directly on the motor shaft in damp, dusty, or dirty environments.



### FEATURES

- NEMA JM pump shaft dimensions
- Ball bearings, mechanically locked on shaft end
- Capacitor start design for high starting torque
- Capacitor start / capacitor run design for higher efficiency, as noted
- Continuous duty
- 1.15 service factor
- UL recognized and CSA certified

### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	230	184JM		132457.00		82.5	14.0	82	18.59	18
5	3600	230	184JM	Z433	184TBFW7315	√	82.5	19.2	89	18.59	13
7 1/2	3600	230	213JM	Z434	213TBFW7010		81.5	32.0	90	20.59	
10	3600	230	215JM	Z435	215TBFW7010	√	85.5	41.5	236	22.09	18

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JP MOTORS

## SINGLE PHASE, DRIPPROOF

### FEATURES

- NEMA®\* JP pump shaft dimensions
- Ball bearings, mechanically locked on shaft end
- Capacitor start design for high starting torque
- Capacitor start / capacitor run design for higher efficiency, as noted
- Continuous duty
- 1.15 service factor
- UL®\* recognized and CSA®\* certified



### C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3600	115/230	182JP	Z425	182TCDR8005	¶	74.0	32.0/16.0	87	18.65	13
5	3600	230	184JP	Z427A	184TBDW17011	√	80.0	22.0	89	19.46	1, 13
7 1/2	3600	230	213JP	Z429	213TCDW7003	√	78.5	37.0	118	22.29	95
10	3600	230	215JP	Z431	215TCDW7004	√	81.5	47.0	135	23.79	95

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available    ¶- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JM MOTORS

## THREE PHASE, DRIPPROOF, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)



### FEATURES

- Meets or exceeds all USA mandated efficiencies
- Suitable for use on a VFD. 10:1 variable torque and 2:1 constant torque
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- NEMA®\* JM pump shaft dimensions
- JMV frame (includes drip cover as noted) for vertical mount without base
- JM frame has rigid base, drip cover not included
- Ball bearings, mechanically locked on shaft end
- Class F Insulation (except as noted)
- Dual rated motors are nameplated 60/50 hertz, 190/380 volts at next lower HP
- Standard assembly F1, reversible to F2 assembly (except as noted)
- UL®\* recognized, CSA®\* certified and CE®\* marked.



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	208-230/460	182JM	<b>GT0405A</b>	182TTDBD6082	¶	86.5	4.8-4.6/2.3	77	14.64	A
2	1200	230/460	184JM	<b>GT0408A</b>	184TTDBD6082	¶	87.5	6.4-6.4/3.2	91	15.64	
3	1800	208-230/460	182JM	<b>GT0410A</b>	182TTDBD6032	√	89.5	8.6-8.0/4.0	92	14.64	A
	1800	208-230/460	182JMV	<b>GT4110</b>	182TTDBD6044	√	89.5	8.6-8.0/4.0	92	16.64	A
	1800	230/460	182JM	<b>GT0410A-P</b>	182TTDBD6072		89.5	8.6-8.0/4.0	82	14.97	A
	1800	230/460	182JMV	<b>E148B</b>	182TTDW16067	√	89.5	8.0/4.0	75	14.95	13,27
	1200	230/460	213JM	<b>GT0411A</b>	213TTDBD6082		88.5	8.4/4.2	132	19.15	
	1200	575	213JM	<b>GT0511A</b>	213TTDBD6092		88.5	3.35	132	19.15	
5	3600	208-230/460	182JMV	<b>M316B</b>	182TTDW17008	√	86.5	13.6-12.4/6.2	95	14.95	13,27
	3600	230/460	182JM	<b>GT0412A</b>	182TTDBD6007	√	86.5	13.2/6.6	77	14.64	A
	3600	230/460	182JMV	<b>E153B</b>	182TTDW16021	¶	86.5	12.4/6.2	46	14.95	13,27
	3600	575	182JM	<b>GT0512A</b>	182TTDBD6008		86.5	5.3	68	14.64	A
	1800	230/460	184JM	<b>GT0413A</b>	184TTDBD6032	√	89.5	13.2/6.6	70	15.64	A
	1800	230/460	184JM	<b>GT0413A-P</b>	184TTDBD6072		89.5	13.2/6.6	92	15.97	A
	1800	230/460	184JMV	<b>GT4113</b>	184TTDBD6044	√	89.5	13.2/6.6	175	17.64	A
	1800	575	184JM	<b>GT0513A</b>	184TTDBD6033		89.5	5.3	175	15.64	A
	1200	230/460	215JM	<b>GT0414A</b>	215TTDBD6082		89.5	13.8/6.9	112	19.15	
	1200	575	215JM	<b>GT0514A</b>	215TTDBD6092		89.5	5.5	210	19.15	
7 1/2	3600	208-230/460	184JM	<b>GT0415A</b>	184TTDBD6007	√	88.5	19.6-18.4/9.2	66	15.64	A
	3600	230/460	184JM	<b>GT0415A-P</b>	184TTDBD6009		88.5	19.6-18.4/9.2	100	15.97	A
	3600	230/460	184JMV	<b>E163B</b>	184TTDW16310	√	88.5	17.8/8.9	90	17.12	13,27
	1800	200	213JMV	<b>E167A</b>	213TTDWD16347		91.0	23.0	122	20.44	27
	1800	230/460	213JM	<b>GT0416A</b>	213TTDBD6032	√	91.0	19.8/9.9	136	19.15	
	1800	230/460	213JM	<b>GT0416A-P</b>	213TTDBD6072		91.0	19.8/9.9	135	19.15	
	1800	230/460	213JMV	<b>E168A</b>	213TTDWD16333	√	91.0	20.0/10.0	122	20.44	27
	1800	230/460	213JMV	<b>GT4116</b>	213TTDBD6044	√	91.0	19.8/9.9	128	20.87	
	1800	575	213JM	<b>GT0516A</b>	213TTDBD6033		91.0	7.9	128	19.15	
	1200	230/460	254JM	<b>GT0457</b>	254TTDBD6082	¶	90.2	20.2/10.1	221	24.41	
10	1200	575	254JM	<b>GT0557</b>	254TTDBD6092		90.2	8.1	322	24.41	
	3600	230/460	213JM	<b>GT0418A</b>	213TTDBD6007	√	89.5	24.2/12.1	180	19.15	
	3600	575	213JM	<b>GT0518A</b>	213TTDBD6008		89.5	9.7	100	19.15	
	1800	208-230/460	215JM	<b>GT0419A</b>	215TTDBD6032	√	91.7	27.8-25.4/12.7	185	19.15	
	1800	230/460	215JM	<b>GT0419A-P</b>	215TTDBD6072		91.7	25.4/12.7	140	19.15	
	1800	230/460	215JMV	<b>E178A</b>	215TTDWD16349	¶	91.7	26.2/13.1	134	20.44	27,BI
	1800	575	215JM	<b>GT0519A</b>	215TTDBD6033		91.7	10.2	186	19.15	
	1200	230/460	256JM	<b>GT0458</b>	256TTDBD6082	¶	91.7	27.8-25.6/12.8	267	25.99	
	1200	575	256JM	<b>GT0558</b>	256TTDBD6092		91.7	10.3	285	25.99	

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

Continued on next page.

\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JM MOTORS

## THREE PHASE, DRIPPROOF, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
15	3600	230/460	215JM	<b>GT0421A</b>	215TTDBD6007	√	90.2	36.0/18.0	135	19.15	
	3600	230/460	215JMV	<b>E183A</b>	215TTDWD4023	√	91.0	36.5/18.2	124	20.44	
	3600	230/460	215JMV	<b>GT4121</b>	215TTDBD6014	√	90.2	36.0/18.0	124	20.87	
	3600	575	215JM	<b>GT0521A</b>	215TTDBD6008	¶	90.2	14.4	186	19.15	
	3600	575	215JMV	<b>GT4221</b>	215TTDBD6016		90.2	14.4	125	20.87	
	1800	208-230/460	254JM	<b>GT0459</b>	254TTDBD6032	√	93.0	40.5-37.5/18.8	287	24.41	
	1800	230/460	254JM	<b>GT0459-P</b>	254TTDBD6072		93.0	40.5-37.5/18.8	340	24.67	
	1800	230/460	254JMV	<b>E188A</b>	254TTDR16027	√	93.0	38.0/18.9	284	25.45	BI
	1800	230/460	254JMV	<b>GT4159</b>	254TTDBD6044	√	93.0	37.5/18.8	243	26.30	
	1800	575	254JM	<b>GT0559</b>	254TTDBD6033		93.0	15.1	243	24.41	
	1200	230/460	284JM	<b>GT0460</b>	284TTDBD6082	¶	91.7	41.0/20.6	411	26.58	
1200	575	284JM	<b>GT0560</b>	284TTDBD6092		91.7	16.5	353	26.58		
20	3600	208-230/460	254JM	<b>GT0461</b>	254TTDBD6007	√	91.0	51.5-48.0/24.0	275	24.41	
	3600	575	254JM	<b>GT0561</b>	254TTDBD6008	¶	91.0	19.2	284	24.41	
	1800	230/460	256JM	<b>GT0462</b>	256TTDBD6032	√	93.0	48.5/24.3	311	25.99	
	1800	230/460	256JM	<b>GT0462-P</b>	256TTDBD6072		93.0	48.5/24.3	370	26.24	
	1800	575	256JM	<b>GT0562</b>	256TTDBD6033	¶	93.0	19.5	290	25.99	
	1200	230/460	286JM	<b>GT0463</b>	286TTDBD6082	¶	92.4	52.5/26.3	178	27.09	
	1200	575	286JM	<b>GT0563</b>	286TTDBD6092		92.4	21.1	390	27.09	
25	3600	208-230/460	256JM	<b>GT0464</b>	256TTDBD6007	√	91.7	64.0-59.5/29.7	291	25.99	
	3600	575	256JM	<b>GT0564</b>	256TTDBD6008		91.7	23.8	302	25.99	
	1800	230/460	284JM	<b>GT0465</b>	284TTDBD6032	√	93.6	62.5/31	359	26.58	
	1800	230/460	284JM	<b>GT0465-P</b>	284TTDBD6072		93.6	62.5/31	300	26.78	
	1800	575	284JM	<b>GT0565</b>	284TTDBD6033		93.6	25.0	423	26.58	
	1200	230/460	324JM	<b>GT0468</b>	324TTDBD6082		93.0	65.0/32.5	474	28.94	
	1200	575	324JM	<b>GT0568</b>	324TTDBD6092		93.0	26.0	523	28.94	
30	3600	230/460	284JM	<b>GT0469</b>	284TTDBD6007	√	91.7	71.5/35.5	357	26.58	
	3600	575	284JM	<b>GT0569</b>	284TTDBD6008		91.7	28.6	357	26.58	
	1800	230/460	286JM	<b>GT0467</b>	286TTDBD6032	√	94.1	73.0/36.5	397	27.09	
	1800	230/460	286JM	<b>GT0467-P</b>	286TTDBD6072		94.1	73.0/36.5	425	28.16	
	1800	575	286JM	<b>GT0567</b>	286TTDBD6033		94.1	29.2	545	27.09	
	1200	230/460	326JM	<b>GT0471</b>	326TTDBD6082		93.6	82.0-75.0/37.5	625	30.12	
	1200	575	326JM	<b>GT0571</b>	326TTDBD6092		93.6	30.0	734	30.12	
40	3600	208-230/460	286JM	<b>GT0472</b>	286TTDBD6007	√	92.4	102-93.0/46.5	397	27.09	
	3600	575	286JM	<b>GT0572</b>	286TTDBD6008	¶	92.4	37.0	462	27.09	
	1800	208-230/460	324JM	<b>GT0473</b>	324TTDBD6032	√	94.1	103-95.5/47.5	490	28.94	
	1800	575	324JM	<b>GT0573</b>	324TTDBD6033		94.1	38.0	552	28.94	
50	3600	208-230/460	324JM	<b>GT0476</b>	324TTDBD6007		93.0	127-115/57.5	535	28.94	
	3600	575	324JM	<b>GT0576</b>	324TTDBD6008		93.0	46.0	657	28.94	
	1800	230/460	326JM	<b>GT0477</b>	326TTDBD6032		94.5	118/59.0	542	30.12	
	1800	575	326JM	<b>GT0577</b>	326TTDBD6033		94.5	47.0	604	30.12	

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

# CLOSE-COUPLED PUMP, JM MOTORS

## THREE PHASE, TEFC, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

### FEATURES

- Meets or exceeds all USA mandated efficiencies
- IP55 rating, enclosure protection against dust and water jets, as noted
- Hazardous Duty® motors division 2 UL certification nameplate, as noted
- Division 2 / zone 2 class 1 (gases), groups A, B, C, D
- NEMA®\* JM pump shaft dimensions
- JMV frame (includes drip cover as noted) for vertical mount without base
- JM frame has rigid base, drip cover not included
- Suitable for use on a VFD. 10:1 variable torque and 2:1 constant torque
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Dual rated motors are nameplated 60/50 hertz, 190/380 volts at next lower HP
- Class F Insulation
- Ball bearings, mechanically locked on shaft end
- Standard assembly F1, reversible to F2 assembly
- UL®\* recognized, CSA®\* certified and CE®\* marked.



HP	RPM	VOLTS	FRAME	IP55	DIV II	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182JM	N	Y	<b>GT3105A</b>	182TTFBD6082	¶	87.5	4.6/2.3	104	17.37	A
2	1200	230/460	184JM	N	Y	<b>GT3108A</b>	184TTFBD6082	¶	88.5	6.2/3.1	112	18.37	A
3	3600	230/460	182JM	N	Y	<b>GT3109A</b>	182TTFBD6006	√	86.5	8.0/4.0	126	17.37	A
	1800	230/460	182JM	N	N	<b>GT3110A-P</b>	182TTFBD6072		89.5	8.3/4.15	90	17.37	A
	1800	230/460	182JM	N	Y	<b>GT3110A</b>	182TTFBD6031	√	89.5	8.3/4.15	75	17.37	A
	1200	230/460	213JM	N	Y	<b>GT3111A</b>	213TTFBD6082		89.5	8.6/4.3	133	20.27	
	1200	575	213JM	N	Y	<b>GT3211A</b>	213TTFBD6092		89.5	3.5	140	20.27	
5	3600	230/460	184JM	N	Y	<b>GT3112A</b>	184TTFBD6006		88.5	12.4/6.2	90	18.37	A
	3600	575	184JM	N	Y	<b>GT3212A</b>	184TTFBD6008	√	88.5	5.0	90	18.37	A
	1800	230/460	184JM	N	N	<b>GT3113A-P</b>	184TTFBD6072		89.5	13.2/6.6	107	18.37	A
	1800	230/460	184JM	N	Y	<b>GT3113A</b>	184TTFBD6031		89.5	13.2/6.6	114	18.37	A
	1200	230/460	215JM	N	Y	<b>GT3114A</b>	215TTFBD6082	√	89.5	13.6/6.8	167	21.85	
7 1/2	1200	575	215JM	N	Y	<b>GT3214A</b>	215TTFBD6092		89.5	5.5	155	21.85	
	3600	230/460	213JM	N	Y	<b>GT3115A</b>	213TTFBD6006		90.3	18.4/9.2	140	20.27	
	3600	575	213JM	N	Y	<b>GT3215A</b>	213TTFBD6008	√	90.3	7.4	133	20.27	
	1800	230/460	213JM	N	N	<b>GT3116A-P</b>	213TTFBD6072	¶	91.7	19/9.5	156	20.27	
	1800	230/460	213JM	N	Y	<b>GT3116A</b>	213TTFBD6031		91.7	19/9.5	163	20.27	
	1800	575	213JM	N	Y	<b>GT3216A</b>	213TTFBD6033	√	91.7	7.6	162	20.27	
	1200	230/460	254JM	Y	Y	<b>GT3117A</b>	254TTFCD6082	¶	91.0	19.8/9.9	254	26.15	
10	1200	575	254JM	Y	Y	<b>GT3217A</b>	254TTFCD6092	¶	91.0	7.9	254	26.15	
	3600	230/460	215JM	N	N	<b>GT3118A-P</b>	215TTFBD6009		90.2	23.6/11.8	160	21.85	
	3600	230/460	215JM	N	Y	<b>GT3118A</b>	215TTFBD6006	√	90.2	23.6/11.8	170	21.85	
	3600	575	215JM	N	Y	<b>GT3218A</b>	215TTFBD6008	√	90.2	9.5	163	21.85	
	1800	230/460	215JM	N	N	<b>GT3119A-P</b>	215TTFBD6072	¶	91.7	27.3-25.0/12.5	180	21.85	
	1800	208-230/460	215JM	N	Y	<b>GT3119A</b>	215TTFBD6031		91.7	27.6-25.0/12.5	185	21.85	
	1800	575	215JM	N	Y	<b>GT3219A</b>	215TTFBD6033	√	91.7	10.0	171	21.85	
	1200	230/460	256JM	Y	Y	<b>GT3120A</b>	256TTFCD6082		91.0	25.8/12.9	325	27.89	
15	1200	575	256JM	Y	Y	<b>GT3220A</b>	256TTFCD6092	¶	91.0	10.3	316	27.89	
	3600	230/460	215JM	N	Y	<b>GT31111</b>	215TTFBD6020		91.7	35.0/17.4	190	21.85	A
	3600	230/460	254JM	N	N	<b>U344A</b>	254TTF16008	√	91.0	36.0/18.0	302	25.52	AL
	3600	230/460	254JM	Y	Y	<b>GT3121A</b>	254TTFCD6006	¶	91.0	35.5/17.8	251	26.15	
	3600	575	254JM	Y	Y	<b>GT3221A</b>	254TTFCD6008	√	91.0	14.3	295	26.15	
	1800	230/460	254JM	Y	N	<b>GT3122A-P</b>	254TTFCD6072		92.4	37.5/18.8	300	26.15	
	1800	230/460	254JM	N	N	<b>U348A</b>	254TTF16045		92.4	37.5/18.8	251	25.52	AL
	1800	230/460	254JM	Y	Y	<b>GT3122A</b>	254TTFCD6031	¶	92.4	37.5/18.8	309	26.15	
	1800	575	254JM	Y	Y	<b>GT3222A</b>	254TTFCD6033	√	92.4	15.1	309	26.15	
	1200	230/460	284JM	Y	Y	<b>GT3123A</b>	284TTFCD6082	¶	91.7	40.0/20.0	351	27.52	
1200	575	284JM	Y	Y	<b>GT3223A</b>	284TTFCD6092	¶	91.7	16.0	413	27.52		

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

Blue shaded areas are cast iron frames.

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

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\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JM MOTORS

## THREE PHASE, TEFC, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	IP55	DIV II	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
20	3600	230/460	256JM	N	N	<b>U351A</b>	256TTFL16004	¶	92.4	47/23.4	272	27.27	AL
	3600	230/460	256JM	Y	Y	<b>GT3124A</b>	256TTFCD6006	√	91.0	47.5/23.7	122	27.89	
	3600	575	256JM	Y	Y	<b>GT3224A</b>	256TTFCD6008	¶	91.0	19.0	312	27.89	
	1800	230/460	256JM	Y	N	<b>GT3125A-P</b>	256TTFCD6072		93.0	48.5/24.2	360	27.89	
	1800	230/460	256JM	N	N	<b>U354A</b>	256TTFL16042	¶	93.0	48.0/24.1	230	27.27	AL
	1800	230/460	256JM	Y	Y	<b>GT3125A</b>	256TTFCD6031	√	93.0	48.5/24.2	291	27.89	
	1800	575	256JM	Y	Y	<b>GT3225A</b>	256TTFCD6033		93.0	19.4	360	27.89	
	1200	230/460	286JM	Y	Y	<b>GT3126A</b>	286TTFCD6082		91.7	52.0/26.0	458	29.02	
1200	575	286JM	Y	Y	<b>GT3226A</b>	286TTFCD6092		91.7	20.8	457	29.02		
25	3600	230/460	284JM	Y	Y	<b>GT3127A</b>	284TTFCD6006	√	91.7	60.0/30.0	403	27.52	
	3600	575	284JM	Y	Y	<b>GT3227A</b>	284TTFCD6008		91.7	24.0	405	27.52	
	1800	230/460	284JM	Y	N	<b>GT3128A-P</b>	284TTFCD6072		93.6	60.0/30.0	462	27.52	
	1800	230/460	284JM	Y	Y	<b>GT3128A</b>	284TTFCD6032	√	93.6	60.0/30.0	342	27.52	
	1800	575	284JM	Y	Y	<b>GT3228A</b>	284TTFCD6033		93.6	24.0	404	27.52	
	1200	575	324JM	Y	Y	<b>GT3229A</b>	324TTFCD6092		93.0	25.6	520	32.93	
30	3600	230/460	286JM	Y	Y	<b>GT3130A</b>	286TTFCD6006	√	91.7	71.0/35.5	364	29.02	
	3600	575	286JM	Y	Y	<b>GT3230A</b>	286TTFCD6008	¶	91.7	28.5	540	29.02	
	1800	230/460	286JM	Y	N	<b>GT3131A-P</b>	286TTFCD6072		93.6	71.0/35.5	500	29.02	
	1800	230/460	286JM	Y	Y	<b>GT3131A</b>	286TTFCD6032	√	93.6	71.0/35.5	437	29.02	
	1800	575	286JM	Y	Y	<b>GT3231A</b>	286TTFCD6033		93.6	28.4	500	29.02	
	1200	230/460	326JM	Y	Y	<b>GT3132A</b>	326TTFCD6082	¶	93.0	76.0/38.0	683	34.11	
	1200	575	326JM	Y	Y	<b>GT3232A</b>	326TTFCD6092		93.0	30.5	647	34.11	
	3600	230/460	324JM	Y	Y	<b>GT3133A</b>	324TTFCD6007	√	92.4	92.0/46.0	525	32.93	
40	3600	575	324JM	Y	Y	<b>GT3233A</b>	324TTFCD6008	¶	92.4	37.0	643	32.93	
	1800	230/460	324JM	Y	Y	<b>GT3134A</b>	324TTFCD6031	¶	94.1	95.0/47.5	259	32.93	
	1800	575	324JM	Y	Y	<b>GT3234A</b>	324TTFCD6033		94.1	38.0	571	32.93	
	3600	230/460	326JM	Y	Y	<b>GT3136A</b>	326TTFCD6007	√	94.1	113/56.5	595	34.11	
50	3600	575	326JM	Y	Y	<b>GT3236A</b>	326TTFCD6008	¶	94.1	45.0	732	34.11	
	1800	230/460	326JM	Y	Y	<b>GT3137A</b>	326TTFCD6031	¶	94.5	117/58.5	698	34.11	
	1800	575	326JM	Y	Y	<b>GT3237A</b>	326TTFCD6033		94.5	47.0	698	34.11	

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available ¶- Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

# CLOSE-COUPLED PUMP, JP MOTORS

## THREE PHASE, DRIPPROOF, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

### FEATURES

- **Meets or exceeds all USA mandated efficiencies**
- Suitable for use on a VFD. 10:1 variable torque and 2:1 constant torque
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- NEMA®\* JP pump shaft dimensions
- JPV frame (includes drip cover as noted) for vertical mount without base
- JP frame has rigid base, drip cover not included
- Ball bearings, mechanically locked on shaft end
- Class F Insulation
- Dual rated motors are nameplated 60/50 hertz, 190/380 volts at next lower HP
- Standard assembly F1, reversible to F2 assembly
- UL®\* recognized and CSA®\* certified



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1200	230/460	184JP	<b>GT2408A</b>	184TTDBD6085		87.5	6.4-6.0/3.0	76	18.70	
	1800	208-230/460	182JP	<b>GT2410A</b>	182TTDBD6037	√	89.5	8.6-8.0/4.0	80	17.70	A
3	1800	575	182JP	<b>GT2510A</b>	182TTDBD6038		89.5	3.2	81	17.70	A
	1200	230/460	213JP	<b>GT2411A</b>	213TTDBD6085		88.5	8.4/4.2	139	23.11	
	1200	575	213JP	<b>GT2511A</b>	213TTDBD6095		88.5	3.35	135	23.11	
	3600	230/460	182JP	<b>GT2412A</b>	182TTDBD6012	¶	86.5	13.2/6.6	83	17.70	A
5	3600	575	182JP	<b>GT2512A</b>	182TTDBD6013		86.5	5.3	83	17.70	A
	3600	575	182JPV	<b>GT4512</b>	182TTDBD6019		86.5	5.3	58	19.58	A
	1800	230/460	184JP	<b>GT2413A</b>	184TTDBD6037	¶	89.5	13.2/6.6	86	18.70	A
	1800	575	184JP	<b>GT2513A</b>	184TTDBD6038		89.5	5.3	120	18.70	A
	1200	230/460	215JP	<b>GT2414A</b>	215TTDBD6085		89.5	13.8/6.9	158	23.11	
	1200	575	215JP	<b>GT2514A</b>	215TTDBD6095		89.5	5.5	120	23.11	
	3600	208-230/460	184JP	<b>GT2415A</b>	184TTDBD6012	√	88.5	19.6-18.4/9.2	88	18.70	A
7 1/2	3600	575	184JP	<b>GT2515A</b>	184TTDBD6013		88.5	7.4	80	18.70	A
	1800	230/460	213JP	<b>GT2416</b>	213TTDB6037		91.7	19.0/9.5	140	23.11	
	1800	230/460	213JP	<b>GT2416A</b>	213TTDBD6037		91.0	19.8/9.9	153	23.11	
	1800	575	213JP	<b>GT2516</b>	213TTDB6038		91.7	7.6	140	23.11	
	1800	575	213JP	<b>GT2516A</b>	213TTDBD6038		91.0	7.9	230	23.11	
	1200	230/460	254JP	<b>GT2457</b>	254TTDBD6085		90.2	20.2/10.1	289	27.32	
	1200	575	254JP	<b>GT2557</b>	254TTDBD6095		90.2	8.1	289	27.32	
	3600	230/460	213JP	<b>GT2418A</b>	213TTDBD6012	√	89.5	24.2/12.1	158	23.11	
10	3600	575	213JP	<b>GT2518A</b>	213TTDBD6013		89.5	9.7	156	23.11	
	1800	208-230/460	215JP	<b>GT2419A</b>	215TTDBD6037		91.7	27.8-25.4/12.7	153	23.11	
	1800	575	215JP	<b>GT2519A</b>	215TTDBD6038		91.7	10.2	105	23.11	
	1200	208-230/460	256JP	<b>GT2458</b>	256TTDBD6085	¶	91.7	27.8-25.6/12.8	122	28.90	
	1200	575	256JP	<b>GT2558</b>	256TTDBD6095		91.7	10.3	269	28.90	
	3600	230/460	215JP	<b>GT2421A</b>	215TTDBD6012		90.2	36.0/18.0	165	23.11	
15	3600	575	215JP	<b>GT2521A</b>	215TTDBD6013		90.2	14.4	153	23.11	
	1800	208-230/460	254JPV	<b>GT4459</b>	254TTDBD6046	√	93.0	40.5-37.5/18.8	290	29.21	
	1800	230/460	254JP	<b>GT2459</b>	254TTDBD6037	√	93.0	40.5-37.5/18.8	263	27.32	
	1800	230/460	254JPV	<b>U210A</b>	254TTDR16028		93.0	38.0/18.9	290	27.92	27
	1800	575	254JP	<b>GT2559</b>	254TTDBD6038		93.0	15.1	309	27.32	
	1200	230/460	284JP	<b>GT2460</b>	284TTDBD6085		91.7	41.0/20.6	420	29.53	
	1200	575	284JP	<b>GT2560</b>	284TTDBD6095		91.7	16.5	465	29.53	

Continued on next page.

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√- Available    ¶- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# CLOSE-COUPLED PUMP, JP MOTORS

## THREE PHASE, DRIPPROOF, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
20	3600	208-230/460	254JP	<b>GT2461</b>	254TTDBD6012	¶	91.0	51.5-48.0/24.0	232	27.32	
	3600	575	254JP	<b>GT2561</b>	254TTDBD6013		91.0	19.2	105	27.32	
	1800	230/460	256JP	<b>GT2462</b>	256TTDBD6037	√	93.0	48.5/24.3	269	28.90	
	1800	575	256JP	<b>GT2562</b>	256TTDBD6038	¶	93.0	19.5	304	28.90	
	1200	230/460	286JP	<b>GT2463</b>	286TTDBD6085		92.4	52.5/26.3	392	30.91	
	1200	575	286JP	<b>GT2563</b>	286TTDBD6095		92.4	21.1	463	30.91	
25	3600	208-230/460	256JP	<b>GT2464</b>	256TTDBD6012	√	91.7	64-59.5/29.7	249	28.90	
	3600	575	256JP	<b>GT2564</b>	256TTDBD6013	¶	91.7	23.8	313	28.90	
	1800	230/460	284JP	<b>GT2465</b>	284TTDBD6037	√	93.6	62.5/31.0	426	29.53	
	1800	575	284JP	<b>GT2565</b>	284TTDBD6038		93.6	25.0	449	29.53	
	1200	230/460	324JP	<b>GT2468</b>	324TTDBD6085	¶	93.0	65.0/32.5	474	31.82	
	1200	575	324JP	<b>GT2568</b>	324TTDBD6095		93.0	26.0	535	31.82	
30	3600	230/460	284JP	<b>GT2469</b>	284TTDBD6012		91.7	71.5/35.5	426	29.53	
	3600	575	284JP	<b>GT2569</b>	284TTDBD6013		91.7	28.6	403	29.53	
	1800	230/460	286JP	<b>GT2467</b>	286TTDBD6037		94.1	73.0/36.5	485	30.91	
	1800	575	286JP	<b>GT2567</b>	286TTDBD6038		94.1	29.2	463	30.91	
	1200	230/460	326JP	<b>GT2471</b>	326TTDBD6085		93.6	82-75.0/37.5	564	33.00	
	1200	575	326JP	<b>GT2571</b>	326TTDBD6095		93.6	30.0	560	33.00	
40	3600	230/460	286JP	<b>GT2472</b>	286TTDBD6012		92.4	102-93.0/46.5	340	30.91	
	3600	575	286JP	<b>GT2572</b>	286TTDBD6013		92.4	37.0	455	30.91	
	1800	208-230/460	324JP	<b>GT2473</b>	324TTDBD6037	√	94.1	103-95.5/47.5	539	31.82	
	1800	575	324JP	<b>GT2573</b>	324TTDBD6038	¶	94.1	38.0	552	31.82	
50	3600	208-230/460	324JP	<b>GT2476</b>	324TTDBD6012	√	93.0	127-115/57.5	567	31.82	
	3600	575	324JP	<b>GT2576</b>	324TTDBD6013		93.0	46.0	567	31.82	
	1800	230/460	326JP	<b>GT2477</b>	326TTDBD6037	√	94.5	118/59.0	650	33.00	
	1800	575	326JP	<b>GT2577</b>	326TTDBD6038		94.5	47.0	650	33.00	

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

# CLOSE-COUPLED PUMP, JP MOTORS

## THREE PHASE, TEFC, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

### FEATURES

- Meets or exceeds all USA mandated efficiencies
- IP55 rating, enclosure protection against dust and water jets, as noted
- Hazardous Duty® motor Division 2 UL®\* certification nameplate, as noted
- Division 2 / zone 2 class 1 (gases), groups A, B, C, D
- NEMA®\* JP pump shaft dimensions
- JPV frame (includes drip cover as noted) for vertical mount without base
- JP frame has rigid base, drip cover not included
- Suitable for use on a VFD. 10:1 variable torque and 2:1 constant torque
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power (except as noted)
- Dual rated motors are nameplated 60/50 hertz, 190/380 volts at next lower HP
- Class F Insulation
- Ball bearings, mechanically locked on shaft end
- Standard assembly F1, reversible to F2 assembly (except as noted)
- UL®\* recognized, CSA®\* certified and CE®\* marked.



HP	RPM	VOLTS	FRAME	IP55	DIV II	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
1 1/2	1200	230/460	182JP	N	Y	<b>GT3405A</b>	182TTFBD6085		87.5	4.6/2.3	104	20.44	A
2	1200	230/460	184JP	N	Y	<b>GT3408A</b>	184TTFBD6085		88.5	6.2/3.1	112	21.44	A
3	3600	230/460	182JP	N	Y	<b>GT3409A</b>	182TTFBD6012	¶	86.5	8.0/4.0	126	20.44	A
	1800	230/460	182JP	N	Y	<b>GT3410A</b>	182TTFBD6037	√	89.5	8.3/4.15	142	20.44	A
	1200	230/460	213JP	N	Y	<b>GT3411A</b>	213TTFBD6085		89.5	8.6/4.3	149	24.13	
	1200	575	213JP	N	Y	<b>GT3511A</b>	213TTFBD6095		89.5	3.45	149	24.13	
5	3600	230/460	184JP	N	Y	<b>GT3412A</b>	184TTFBD6012	√	88.5	12.4/6.2	100	21.44	A
	1800	230/460	184JP	N	Y	<b>GT3413A</b>	184TTFBD6037	√	89.5	13.2/6.6	97	21.44	A
	1800	575	184JP	N	Y	<b>GT3513A</b>	184TTFBD6038		89.5	5.2	96	21.44	A
	1200	230/460	215JP	N	Y	<b>GT3414A</b>	215TTFBD6085	√	89.5	13.6/6.8	163	25.63	
7 1/2	3600	230/460	213JP	N	Y	<b>GT3415A</b>	213TTFBD6012		90.3	18.4/9.2	180	24.13	
	3600	575	213JP	N	Y	<b>GT3515A</b>	213TTFBD6013		90.3	7.4	165	24.13	
	1800	230/460	213JP	N	Y	<b>GT3416A</b>	213TTFBD6037	√	91.7	19.0/9.5	167	24.13	
	1800	575	213JP	N	Y	<b>GT3516A</b>	213TTFBD6038	¶	91.7	7.6	167	24.13	
	1200	230/460	254JP	Y	Y	<b>GT3417A</b>	254TTFCD6085	¶	91.0	19.8/9.9	256	29.03	
	1200	575	254JP	Y	Y	<b>GT3517A</b>	254TTFCD6095		91.0	7.9	256	29.03	
10	3600	230/460	215JP	N	Y	<b>GT3418A</b>	215TTFBD6012		90.2	23.6/11.8	167	25.63	
	3600	575	215JP	N	Y	<b>GT3518A</b>	215TTFBD6013		90.2	9.5	165	25.63	
	1800	208-230/460	215JP	N	Y	<b>GT3419A</b>	215TTFBD6037	√	91.7	27.6-25/12.5	167	25.63	
	1800	575	215JP	N	Y	<b>GT3519A</b>	215TTFBD6038		91.7	10.0	180	25.63	
	1200	230/460	256JP	Y	Y	<b>GT3420A</b>	256TTFCD6085	√	91.0	25.8/12.9	276	30.76	
	1200	575	256JP	Y	Y	<b>GT3520A</b>	256TTFCD6095	¶	91.0	10.3	323	30.76	
15	3600	230/460	254JP	Y	Y	<b>GT3421A</b>	254TTFCD6012	¶	91.0	35.5/17.8	320	29.03	
	3600	575	254JP	Y	Y	<b>GT3521A</b>	254TTFCD6013		91.0	14.3	319	29.03	
	1800	230/460	254JP	Y	Y	<b>GT3422A</b>	254TTFCD6037	√	92.4	37.5/18.8	365	29.03	
	1800	575	254JP	Y	Y	<b>GT3522A</b>	254TTFCD6038		92.4	15.1	365	29.03	
	1200	230/460	284JP	Y	Y	<b>GT3423A</b>	284TTFCD6085	¶	91.7	40.0/20.0	351	30.40	
	1200	575	284JP	Y	Y	<b>GT3523A</b>	284TTFCD6095		91.7	16.0	415	30.40	

Blue shaded areas are cast iron frames.

Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

√: Available ¶: Stocked components, Ready To Built Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

Continued on next page.

# CLOSE-COUPLED PUMP, JP MOTORS

## THREE PHASE, TEFC, C-FACE FOOTLESS (VERTICAL) AND C-FACE FOOTED (RIGID BASE)

HP	RPM	VOLTS	FRAME	IP55	DIV II	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
20	3600	230/460	256JP	Y	Y	<a href="#">GT3424A</a>	256TTFCD6012	√	91.0	47.5/23.7	276	30.76	
	3600	575	256JP	Y	Y	<a href="#">GT3524A</a>	256TTFCD6013		91.0	19.0	386	30.76	
	1800	230/460	256JP	Y	Y	<a href="#">GT3425A</a>	256TTFCD6037	√	93.0	48.5/24.2	295	30.76	
	1800	575	256JP	Y	Y	<a href="#">GT3525A</a>	256TTFCD6038		93.0	19.4	363	30.76	
	1200	230/460	286JP	Y	Y	<a href="#">GT3426A</a>	286TTFCD6085	¶	91.7	52.0/26.0	458	31.90	
	1200	575	286JP	Y	Y	<a href="#">GT3526A</a>	286TTFCD6095		91.7	20.8	463	31.90	
25	3600	230/460	284JP	Y	Y	<a href="#">GT3427A</a>	284TTFCD6012	√	91.7	60.0/30.0	342	30.40	
	3600	575	284JP	Y	Y	<a href="#">GT3527A</a>	284TTFCD6013		91.7	24.0	342	30.40	
	1800	230/460	284JP	Y	Y	<a href="#">GT3428A</a>	284TTFCD6037	√	93.6	60.0/30.0	406	30.40	
	1800	575	284JP	Y	Y	<a href="#">GT3528A</a>	284TTFCD6038		93.6	24.0	551	30.40	
	1200	575	324JP	Y	Y	<a href="#">GT3529A</a>	324TTFCD6095		93.0	25.6	525	32.82	
30	3600	230/460	286JP	Y	Y	<a href="#">GT3430A</a>	286TTFCD6012	¶	91.7	71.0/35.5	368	31.90	
	3600	575	286JP	Y	Y	<a href="#">GT3530A</a>	286TTFCD6013		91.7	28.5	432	31.90	
	1800	230/460	286JP	Y	Y	<a href="#">GT3431A</a>	286TTFCD6037	√	93.6	71.0/35.5	443	31.90	
	1800	575	286JP	Y	Y	<a href="#">GT3531A</a>	286TTFCD6038		93.6	28.4	542	31.90	
	1200	575	326JP	Y	Y	<a href="#">GT3532A</a>	326TTFCD6095		93.0	30.5	651	34.31	
40	3600	230/460	324JP	Y	Y	<a href="#">GT3433A</a>	324TTFCD6012		92.4	92.0/46.0	520	32.82	
	3600	575	324JP	Y	Y	<a href="#">GT3533A</a>	324TTFCD6013		92.4	37.0	527	32.82	
	1800	230/460	324JP	Y	Y	<a href="#">GT3434A</a>	324TTFCD6037		94.1	95.0/47.5	647	32.82	
	1800	575	324JP	Y	Y	<a href="#">GT3534A</a>	324TTFCD6038		94.1	38.0	571	32.82	
50	3600	230/460	326JP	Y	Y	<a href="#">GT3436A</a>	326TTFCD6012	¶	94.1	113/56.5	732	34.31	
	3600	575	326JP	Y	Y	<a href="#">GT3536A</a>	326TTFCD6013		94.1	45.0	732	34.31	
	1800	230/460	326JP	Y	Y	<a href="#">GT3437A</a>	326TTFCD6037	√	94.5	117/58.5	698	34.31	
	1800	575	326JP	Y	Y	<a href="#">GT3537A</a>	326TTFCD6038		94.5	47.0	698	34.31	

Blue shaded areas are cast iron frames.

√: Available ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

# FIRE PUMP MOTORS

THREE PHASE, ODP, RIGID BASE, EPACT EFFICIENCY



## APPLICATIONS

For use on pumps designed for fire pump duty and installed per NFPA-20. These dripproof motors are intended for installation in relatively clean and dry environments.

## FEATURES

- UL®\* file EX5190, CSA®\* file LR2025 and CE®\* mark
- 50° C ambient
- Ball bearings
- 1.15 service factor (except as noted)
- Red paint on 25 HP through 250 HP
- NEMA®\* design B, code G or less
- Dual voltage motors have 12 leads, suitable for wye-delta or across the line start on either voltage, or part winding start on low voltage
- Single voltage motors have 12 leads and are suitable for wye-delta, across the line, or part winding start
- Will accept C-Face kits (except as noted), see accessories section for kits
- 230/460 and 460 Volt models rated for 50 HZ at next lower HP, 1.15 SF, as noted see accessories section for kits
- 230/460 and 460 Volt models rated for 50 HZ at next lower HP, 1.15 SF, as noted

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
25	3600	190/380-400	256T	<b>U501A</b>	256TTDBD4020		91.0	70.0/35.0-33.5	284	24.22	
	3600	230/460	256T	<b>U500A</b>	256TTDBD4024		91.0	58.0/29.0	229	24.22	68
	3600	575	256T	<b>U1100</b>	256TTDBD4008		91.0	23.2	274	24.22	
	1800	190/380-400	284T	<b>U1052</b>	284TTDBD4047		91.7	74.0/36.5-34.5	320	25.71	
	1800	230/460	284T	<b>U552</b>	284TTDBD4027		91.7	61.0/30.5	378	25.71	68
	1800	575	284T	<b>U1101</b>	284TTDBD4035		91.7	24.4	378	25.71	
30	3600	190/380-400	284TS	<b>U1053</b>	284TSTDBD4007		91.0	87.0/43.5-41.0	374	24.34	
	3600	230/460	284TS	<b>U553</b>	284TSTDBD4002		91.0	72.0/36.0	315	24.34	68
	3600	575	284TS	<b>U1103</b>	284TSTDBD4008		91.0	28.8	374	24.34	
	1800	190/380-400	286T	<b>U1054</b>	286TTDBD14042		92.4	87.0/43.0-41.0	164	27.09	
	1800	230/460	286T	<b>U554</b>	286TTDBD4041		92.4	72.0/36.0	362	27.09	68
	1800	575	286T	<b>U1104</b>	286TTDBD4035		92.4	28.8	424	27.09	
40	3600	190/380-400	286TS	<b>U1155</b>	286TSTDBD4023		91.7	114/57.0-54.0	357	25.72	
	3600	230/460	286TS	<b>U592</b>	286TSTDBD4022		91.7	94.0/47.0	362	25.72	68
	3600	575	286TS	<b>U1106</b>	286TSTDBD4008		91.7	37.5	421	25.72	
	1800	190/380-400	324T	<b>U511A</b>	324TTDCD14049		93.0	114/56.5-53.5	249	28.55	
	1800	230/460	324T	<b>U510A</b>	324TTDCD4038		93.0	94.0/47.0	556	28.55	68
	1800	575	324T	<b>U1107</b>	324TTDCD4035		93.0	37.5	599	28.55	
50	3600	190/380-400	324TS	<b>U513A</b>	324TSTDCD4007		92.4	138/69.0-67.0	633	27.05	
	3600	230/460	324TS	<b>U512A</b>	324TSTDCD4010		92.4	114/57.0	547	27.05	68
	3600	575	324TS	<b>U1109</b>	324TSTDCD4008		92.4	45.5	252	27.05	
	1800	190/380-400	326T	<b>U515A</b>	326TTDCD4344		93.0	145/72.0-68.5	591	29.73	
	1800	230/460	326T	<b>U514A</b>	326TTDCD4345		93.0	120/60.0	266	29.73	68
	1800	575	326T	<b>U1110</b>	326TTDCD4035		93.0	48	324	29.73	
60	3600	190/380-400	326TS	<b>U517A</b>	326TSTDCD4022		93.0	165/82.5-77.5	694	28.23	
	3600	230/460	326TS	<b>U516A</b>	326TSTDCD4024		93.0	136/68.0	611	28.23	68
	3600	575	326TS	<b>U1112</b>	326TSTDCD4008		93.0	54.5	610	28.23	
	1800	190/380-400	364TS	<b>U519A</b>	364TSTDCD4337		93.6	167/83.5-80.0	839	29.57	
	1800	230/460	364TS	<b>U561</b>	364TSTDBD4332		93.6	137/68.5	836	29.44	
	1800	230/460	364TS	-	364TSTDCD4333		93.6	138/69.0	836	29.57	68
	1800	575	364TS	<b>U1159</b>	364TSTDBD4035		93.6	55.0	846	29.44	
	1800	575	364TS	<b>U1113</b>	364TSTDCD4035		93.6	55.0	846	29.57	
75	3600	230/460	364TS	<b>U522A</b>	364TSTDCD4025		93.0	170/85.0	734	29.57	68
	3600	230/460	364TS	<b>U522B</b>	364TSTDCD4026		93.0	170/85.0	800	29.57	68
	3600	575	364TS	<b>U1160</b>	364TSTDBD4008		93.0	68.0	625	29.44	
	3600	575	364TS	<b>U1115</b>	364TSTDCD4008		93.0	68.0	807	29.57	
	1800	190/380	365TS	-	365TSTDCD4348		94.1	206/103	979	31.14	
	1800	230/460	365TS	-	365TSTDCD4333		94.1	170/85.0	759	31.14	68
	1800	575	365TS	<b>U1116</b>	365TSTDCD4035		94.1	68.0	416	31.14	
	1800	575	365TS	<b>U1161</b>	365TSTDBD4035		94.1	68.0	416	31.14	

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\*See back cover page for attribution.

# FIRE PUMP MOTORS

THREE PHASE, ODP, RIGID BASE, EPACT EFFICIENCY

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
100	3600	190/380-400	365TS	<b>U1526A</b>	365TSTDCD4303		93.0	276/138-132	927	31.1	
	3600	230/460	365TS	<b>U526A</b>	365TSTDCD4025		93.0	228/114	384	31.14	68
	3600	230/460	365TS	<b>U564</b>	365TSTDBD4025		93.0	228/114	NULL	31.14	68
	3600	575	365TS	<b>U1118</b>	365TSTDCD4008		93.0	91.0	919	31.14	
	3600	575	365TS	<b>U1162</b>	365TSTDBD4008		93.0	91.0	741	31.01	
	1800	190/380	405TS	<b>U1528B</b>	404TSTDCD4335		94.1	274/137	NULL	31.44	
	1800	230/460	404TS	<b>U528B</b>	404TSTDCD4334	√	94.1	226/113	1075	33.86	68
	1800	575	404TS	<b>U1119A</b>	404TSTDCD4031		94.1	90.5	1075	31.44	
125	1500	415	404TS	<b>U1428</b>	404TSTDCD4029	√	92.7	127	1143	31.44	
	3600	380	404TS	<b>U1530B</b>	404TSTDCD14009		93.6	168	1143	31.44	
	3600	460	404TS	<b>U530B</b>	404TSTDCD4018	¶	93.6	139	1070	33.86	68
	3600	575	404TS	<b>U1121</b>	404TSTDCD4008		93.6	111	1165	33.86	
	3600	575	404TS	<b>U1121A</b>	404TSTDCD4002	√	93.6	111	1080	31.44	
	3000	415	404TS	<b>U1430</b>	404TSTDCD4005		93.0	155	1080	31.44	
	1800	200/400	405TS	<b>U533</b>	405TSTDS4333		94.5	331/166	1070	31.00	
	1800	230/460	405TS	<b>U532</b>	405TSTDS4332		94.5	288/144	1125	31.00	68
	1800	380	405TS	<b>U1532B</b>	405TSTDCD4335		94.5	170	1417	31.44	
	1800	460	405TS	<b>U532A</b>	405TSTDCD4332		94.5	142	1385	35.44	68
	1800	460	405TS	<b>U532B</b>	405TSTDCD4334	¶	94.5	141	1428	35.44	68
	1800	575	405TS	<b>U1122</b>	405TSTDCD4035		94.5	114	1475	35.44	
	1800	575	405TS	<b>U1122A</b>	405TSTDCD4031		94.5	112	1450	31.44	
	1500	415	405TS	<b>U1432</b>	405TSTDCD4029	√	93.0	157	1238	31.44	
150	3600	380	405TS	<b>U1534B</b>	405TSTDCD14019		93.6	200	1200	31.44	
	3600	460	405TS	<b>U534B</b>	405TSTDCD14306	√	93.6	165	1241	31.44	68
	3600	575	405TS	<b>U1124A</b>	405TSTDCD4002		93.6	132	1080	31.44	
	3600	575	405TS	<b>U1124</b>	405TSTDCD4008		93.6	134	1244	35.44	
	1800	380	444TS	<b>U1535B</b>	444TSTDCD14038		95.0	204	1438	36.47	
	1800	460	444TS	<b>U535B</b>	444TSTDCD4333		95.0	169	1771	36.47	68
	1800	575	444TS	<b>U1125A</b>	444TSTDCD4031		95.0	135	1432	36.47	
	1800	575	444TS	<b>U1125</b>	444TSTDCD4035		95.0	136	1840	40.83	
200	3600	460	444TS	<b>U536B</b>	444TSTDCD4011	√	94.5	218	1728	36.47	68
	3600	575	444TS	<b>U1127A</b>	444TSTDCD4002		94.5	174	1425	36.47	
	1800	380	445TS	<b>U1537B</b>	445TSTDCD14046		95.0	270	1428	36.47	
	1800	575	445TS	<b>U1128A</b>	445TSTDCD4030		95.0	178	2122	36.47	
250	3600	380	445TS	<b>U1539B</b>	445TSTDCD14024		94.5	329	1425	36.47	
	3600	575	445TS	<b>U1130A</b>	445TSTDCD4002		94.5	217	1440	36.47	
	1800	380	445TS	<b>U1540B</b>	445TSTDCD14065		95.4	338	1430	36.47	
	1800	460	445TS	<b>U540B</b>	445TSTDCD14027	√	95.4	279	2262	36.47	68
	1800	575	445TS	<b>U1131A</b>	445TSTDCD4031		95.4	223	1430	36.47	
	1800	575	447TS	<b>U1131</b>	445TSTDCD4036		95.5	222	1500	45.95	
300	3600	460	447TS	<b>U541</b>	447TSTDCD4002	¶	95.0	322&327	2046	45.76	68
	1800	460	447TS	<b>U542</b>	447TSTDCD4026		95.4	328&333	2046	45.76	68
350	3600	460	447TS	<b>U543</b>	447TSTDCD4003	¶	95.5	377&393	2046	45.76	68
450	1800	460	449TS	<b>H815A</b>	449TSTDN14033		95.8	505&480	2564	44.58	17, 68
	3600	460	449TS	<b>H819A</b>	449TSTDN14005		95.8	546&525	2620	44.58	68
500	1800	460	449TS	<b>H816</b>	449TSTDN7027		95.8	560&540	2695	44.58	17, 68

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

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Catalog numbers (Cat No.) highlighted in bold blue are premium efficient.

# FIRE PUMP MOTORS

THREE PHASE, TEFC, RIGID BASE, EPACT EFFICIENCY

## APPLICATIONS

For use on pumps designed for fire pump duty and installed per NFPA-20. Fire Pump motors are not recommended for use with variable frequency drives.

## FEATURES

- UL®\* file EX5190, CSA®\* file LR2025 and CE®\* mark
- Ball bearings
- 1.15 service factor
- Red paint on exterior
- NEMA®\* design B, code G or less
- Dual voltage motors have 12 leads, suitable for wye-delta or across the line start on either voltage, or part winding start on low voltage
- Single voltage motors have 12 leads and are suitable for wye-delta, across the line, or part winding start
- Will accept C-Face kits, see accessories section
- 230/460 and 460 Volt models rated for 50 HZ at next lower HP, 1.15 SF, as noted see accessories section for kits
- 230/460 and 460 Volt models rated for 50 HZ at next lower HP, 1.15 SF
- For special designs, contact district sales office near you



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
15	3600	230/460	254T	<b>Y1608</b>	254TTFPA14014		90.2	35.0/17.5	262	23.47	
	1800	230/460	254T	<b>Y1609</b>	254TTFNA14336	¶	91.0	39.0/19.5	297	23.65	68
25	1800	230/460	284T	<b>Y1613</b>	284TTFPA14055		92.4	61.0/30.5	369	26.39	68
40	1800	230/460	324T	<b>Y1618</b>	324TTFPA14071		93.0	100/50.0	583	28.97	68
50	3600	230/460	326TS	<b>Y1619</b>	326TSTFPA14013		92.4	112/56.0	522	28.97	68
60	1800	230/460	364T	<b>Y1624</b>	364TTFS14064		93.6	142/71.0	882	31.52	68
200	3600	460	445TS	<b>Y1637</b>	445TSTFN14014		95.0	220	2108	39.60	68
250	3600	460	449TS	<b>Y1640</b>	449TSTFS14012		95.4	270	2700	48.11	68
300	3600	460	449TS	<b>Y1643</b>	449TSTFS14013		95.4	328	2902	47.88	68
	1800	460	449T	<b>Y1645</b>	449TTFS14057		95.4	335	3041	51.86	68

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\*See back cover page for attribution.

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# VERTICAL SOLID SHAFT P-BASE MOTORS

## THREE PHASE, DRIPPROOF

### APPLICATIONS

For use on: Vertical end suction, short couple, centrifugal, non-clog, mix flow, turbine, and propeller pumps. HP type shafts, per NEMA®\*MG-1 18.625. HPH and TCV type shafts, single phase, and other modifications such as adding screens are also available through special order. Contact your sales representative for more information.



### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- Normal and medium thrust
- Rolled steel frames are normal thrust. Cast iron frames are medium thrust
- Ball bearings and angular contact bearings for medium thrust applications
- Class F insulation
- 1.15 service factor
- Suitable for 230 volt part winding start through 100 HP (dual voltage motors)
- Heavy duty lifting lugs
- Drip cover/canopy cap included
- UL®\* recognized, CSA®\* certified
- UL Listed for Fire Pump applications (except as noted)

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	DOWN THRUST	BASE DIA.	"C" DIM.	FOOT NOTES
3	1200	230/460	213HP	<b>M802B</b>	213TTDWD16089		88.5	9.0/4.5	129	560	9.88	20.30	98
5	1800	230/460	184HP	<b>M804B</b>	184TTDR16009		89.5	12.6/6.3	120	490	9.88	17.18	98
10	1200	230/460	256HP	<b>M711</b>	256TTDN16082		91.7	26.0/13.0	238	3000	9.88	24.30	
15	1800	230/460	254HP	<b>M814B</b>	254TTDX16054		93.0	38.5/19.2	227	640	9.88	24.30	98
25	1200	230/460	324HP	<b>M823B</b>	324TTDR16091		93.0	65.0/32.5	588	1000	16.38	30.06	98
30	1800	230/460	286HP	<b>M726</b>	286TTDN16330		94.1	74.0/37.0	520	2625	12.55	29.56	
	900	230/460	364HP	<b>M728</b>	364TTDS16105		91.0	82.0/41.0	700	4125	16.50	29.00	
40	3600	230/460	286HP	<b>M729</b>	286TTDN16011		92.4	90.0/45.0	602	2063	12.55	28.56	
	1200	230/460	364HP	<b>M731</b>	364TTDS16088		94.1	101/50.5	784	3750	16.50	28.06	
50	1800	230/460	326HP	<b>M734</b>	326TTDN16035		95.0	124/62.0	615	3000	16.38	30.56	
	1200	230/460	365HP	<b>M735</b>	365TTDS16086		94.5	125/62.5	784	3750	16.50	29.00	
	900	460	404HP	<b>M736</b>	404TTDS16102		92.4	65.0	1244	5250	16.50	31.75	
75	3600	230/460	364HP	<b>M741</b>	364TTDS16009		94.5	170/85.0	733	2250	16.50	29.00	
100	3600	230/460	365HP	<b>M745</b>	365TTDS16016		94.1	230/115	784	2250	16.50	29.00	
125	1800	460	405HP	<b>M750</b>	405TTDS16070		95.4	141	1142	3375	16.50	31.75	
200	900	460	505P	<b>M760</b>	505UTDS16101		94.1	265	1960	6000	20.00	38.75	98

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# VERTICAL SOLID SHAFT P-BASE MOTORS

## THREE PHASE, TOTALLY ENCLOSED

### APPLICATIONS

For use on: Vertical end suction, short couple, centrifugal, non-clog, mix flow, turbine, and propeller pumps. Totally enclosed fan cooled construction restricts the free exchange of ambient air inside the motor. Suitable for demanding applications in the process industries. HP type shafts, per NEMA® MG-1, 18.625. HPH type shafts, severe duty features, explosion proof, and other modifications such as adding screens are also available through special order. Contact your sales representative for more information.



### FEATURES

- Meets or exceeds NEMA Premium®\* efficiencies
- Normal thrust
- Class F insulation
- 1.15 service factor
- Suitable for 230 volt part winding start through 100 HP (dual voltage motors)
- Heavy duty lifting lugs drip cover/canopy cap included over/canopy cap included
- UL®\*\* recognized, CSA®\*\* certified

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF	FL. AMPS	WT.	DOWN THRUST	BASE DIA.	"C" DIM.
7 1/2	3600	230/460	213HP	<b>M881B</b>	213TTFWD16016		89.5	18.6/9.3	157	380	9.88	22.66
	1200	230/460	254HP	<b>M883B</b>	254TTFNA16088		91.0	19.8/9.9	422	720	9.88	28.26
10	1800	230/460	215HP	<b>M885B</b>	215TTFWD16057		91.7	26.0/13.0	158	560	9.88	23.91
20	1800	230/460	256HP	<b>M893B</b>	256TTFNA16031		93.0	48.0/24.1	536	640	9.88	28.26
25	1200	230/460	324HP	<b>M898B</b>	324TTFNA16087		93.0	65.0/32.5	778	1000	16.38	35.62
30	3600	230/460	286HP	<b>M900B</b>	286TTFNA16021		93.0	67.0/33.5	535	550	9.88	27.38
40	1200	230/460	364HP	<b>M906B</b>	364TTFNA16087		94.1	100/50.0	934	1000	16.38	37.61
50	1800	230/460	326HP	<b>M909B</b>	326TTFNA16037		94.5	120/60.0	825	800	16.38	34.59
	1200	230/460	365HP	<b>M910B</b>	365TTFNA16088		94.5	123/61.5	998	1000	16.38	37.61
75	1200	230/460	405HP	<b>M918B</b>	405TTFNA16082		94.5	180/90.0	1460	1400	16.38	40.58

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\*See back cover page for attribution.

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# CENTRIFUGAL FAN

## SINGLE PHASE, DRIPPROOF, RIGID BASE

### APPLICATIONS

Direct drive centrifugal fans installed in relatively clean and dry applications

### FEATURES

- Capacitor start/capacitor run design for high starting torque and low amps
- Ball bearings, mechanically locked on shaft end
- 84" leads, rodent screens
- Heavy gauge steel frame and base
- Shaft 1" longer than NEMA®\* standard for extra clearance
- 1.15 service factor (unless otherwise noted)
- UL®\* recognized and CSA®\* certified



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
10	1800	230	215TZ	Z126	215TBDW7362		82.5	44.0	158	21.1	13

# AGGREGATE DUTY - BLUE CHIP SERIES® CRUSHER MOTORS

NEMA PREMIUM®\* XRI®, TOTALLY ENCLOSED,  
THREE PHASE, RIGID BASE, HIGH TORQUE

## APPLICATIONS

Specifically designed for the aggregate industry crusher applications such as cone, jaw, and roller type impactors, pulverizers, etc.

## FEATURES

- Meets or exceeds NEMA Premium efficiencies
- Blue Chip Series® quality, 100% cast iron construction for rigidity and reduced vibration
- 4140 high strength shaft material
- NEMA®\* design C, extra high starting and breakdown torque design
- Roller bearing on drive end for belted loads
- IP55 rating, enclosure protection against dust and water jets
- Suitable for use on a VFD. 10:1 variable torque and 10:1 constant torque
- 1.15 service factor on sinewave, 1.0 service factor on IGBT power
- Suitable for across the line, wye-delta, part winding, or inverter start
- 80°C rise at rated load
- Class F insulation
- Axial surface seal (50 to 200HP) and Inpro® smart ring plus
- Rotating shaft seals, each end for the 250HP model
- External epoxy paint
- Brass drain and breather
- UL®\* recognized and CSA®\* certified



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
50	1800	230/460	326T	<b>Y818A</b>	326TFC6633	√	94.5	118/59.0	755	33.86	YD
	1200	230/460	365T	<b>Y840A</b>	365TFC6683	√	94.1	120/60.0	1064	38.39	YD
60	1800	230/460	364T	<b>Y819A</b>	364TFC6633	√	95.0	138/69.0	1014	36.61	YD
	1200	230/460	404T	<b>Y850A</b>	404TFC6683	√	94.5	144/72.0	1348	42.72	YD
75	1800	230/460	365T	<b>Y820A</b>	365TFC6633	√	95.4	172/86.0	1098	38.39	YD
	1200	230/460	405T	<b>Y852A</b>	405TFC6683	√	94.5	178/89.0	1455	42.72	YD
100	1800	230/460	405T	<b>Y822B</b>	405TFC6633	√	95.4	228/114	1462	42.72	YD
	1200	460	444T	<b>Y851A</b>	444TFC6683	√	95.0	114	2106	50.79	YD
125	1800	460	444T	<b>Y824A</b>	444TFC6633	√	95.4	140	2202	50.79	YD
	1200	460	445T	<b>Y853A</b>	445TFC6683	√	95.0	142	2346	50.79	YD
150	1800	460	445T	<b>Y826B</b>	445TFC6633	√	95.8	165	2200	50.79	YD
	1200	460	447T	<b>Y854A</b>	447TFC6683	√	95.8	170	2569	55.91	YD
200	1800	460	447T	<b>Y828A</b>	447TFC6633	√	96.2	225	2509	55.91	YD
	1200	460	449T	<b>Y855B</b>	449TFC6683	√	95.8	228	2652	55.91	YD

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\*See back cover page for attribution.

# AIR COMPRESSOR MOTORS

## SINGLE PHASE, DRIPPROOF, RIGID BASE

### FEATURES

- Capacitor start/capacitor run design for low amps and high efficiency, as noted
- High starting and breakdown torque
- Heavy gauge steel frame and base
- Continuous duty at nameplate ratings
- Thermal protection, as noted
- UL®\* recognized and CSA®\* certified



HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
7 1/2	3600	208-230	213T	NONE	I105B	213TBDBD7001		87.5	33.5-30.5	114	18.14	
	1800	230	215T	NONE	I115A	215TBDBD7026	√	84.0	33.5	133	18.14	
10	3600	208-230	215T	NONE	I106A	215TBDBD7001		82.5	42.5-39.5	119	19.39	
	1800	230	215TZ	NONE	I116A	215TBDBD7028	√	86.5	39.0	140	19.39	

# COOLING TOWER, TWO-SPEED, ONE WINDING, VARIABLE TORQUE MOTORS

BLUE CHIP SERIES® SEVERE DUTY, XRI®  
THREE PHASE, TOTALLY ENCLOSED, RIGID BASE



## APPLICATIONS

Cooling towers, fan and blowers, and other severe duty environments where long life and ultra-high efficiency are desired. Guaranteed efficiencies offer an eXtra Return on your Investment when using these premium efficiency motors on high cycle or long run applications. Replacement for two-speed Marley®\* cooling tower motors.

## FEATURES

- Blue Chip Series quality, 100% cast iron construction for rigidity and reduced vibration
- Internal and external epoxy paint
- Class F insulation
- 1.15 service factor
- Extended grease tubes, regreasable in service
- T-drains provided for effective drainage (Installed in both endshields)
- Shaft slinger
- Forsheda®\* seals on both ends
- Actual test and vibration data supplied with each motor
- Ball bearings
- UL®\* recognized and CSA®\* certified
- Three year warranty
- Horizontal mounting only; consult engineering for vertical mounting

**IP55**

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3/7.5	1800/900	460	184T	Y380A	184TTFCD7290		86.5	4.0	107	16.20	
5/1.25	1800/900	460	213T	Y381A	213TTFCD7238		89.5	6.2	173	18.53	
7.5/1.9	1800/900	460	215T	Y382A	215TTFCD7290		89.5	9.0	172	20.03	
10/2.5	1800/900	460	254T	Y383A	254TTFCD7210		90.2	12.3	259	24.15	
15/3.75	1800/900	460	256T	Y384A	256TTFCD7250	√	91.0	18.8	303	25.89	
20/5	1800/900	460	284T	Y385A	284TTFCD7240		91.0	24.8	433	26.64	
25/6.25	1800/900	460	286T	Y386A	286TTFCD7260	√	91.7	34.0	400	28.14	
30/7.5	1800/900	460	324T	Y387A	324TTFCD7290		92.4	38.0	620	29.85	
40/10	1800/900	460	326T	Y388A	326TTFCD9210	√	93.0	52.5	676	31.35	
50/12.5	1800/900	460	364T	Y389A	364TTFCD9234		93.0	59.5	890	33.40	
60/15	1800/900	460	365T	Y390A	365TTFCD9230		93.6	71.5	926	34.40	
75/18.75	1800/900	460	405T	Y391A	405TTFCD7297		94.1	83.0	1265	38.88	
100/25	1800/900	460	444T	Y392A	444TTFCD7262		94.1	110	1650	46.83	

Blue shaded areas are cast iron frames.

√: Available    1- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# MULTI-SPEED: TWO-SPEED, ONE-WINDING, VARIABLE TORQUE MOTORS

THREE PHASE, DRIPPROOF, RIGID BASE

## APPLICATIONS

Commercial and industrial fans, blowers, pumps, and other machinery that have variable torque characteristics. Prolonged use at low speed can result in significant energy savings. Dripproof motors are intended for use in environments that are relatively clean and dry.

## FEATURES

- Ball bearings
- 1.15 service factor
- UL®\* recognized and CSA®\* certified



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3/7.5	1800/900	200-230	182T	Y484B	182TTDBD7412		85.5	8.5-7.5	72	12.25	
	1800/900	460	182T	Y485B	182TTDBD7203		85.5	3.8	73	12.25	
5/1.25	1800/900	200-230	184T	Y486B	184TTDBD7287		86.5	14-13	79	13.25	
7.5/1.88	1800/900	460	213T	Y489A	213TTDBD7201	¶	86	9.2&3.2	130	17.30	
10/2.5	1800/900	200-230	215T	Y490A	215TTDBD17206		87.5	28.4-25.5	170	17.30	
	1800/900	460	215T	Y491A	215TTDBD7201		87.5	12.5	140	17.30	
15/3.75	1800/900	460	256T	Y492A	256TTDBD7207		91.0	19.8	239	23.88	

# MULTI-SPEED: TWO-SPEED, TWO-WINDING, VARIABLE TORQUE MOTORS

THREE PHASE, DRIPPROOF, RIGID BASE

## ADDITIONAL FEATURES

- Economical two-winding design



HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2/5	1800/900	460	182T	Y467B	182TTDBD7411	√	83.0	2.5	65	12.25	
2/8.8	1800/1200	200-230	182T	Y453B	182TTDBD7413	√	80.0	7.0-6.4	63	12.25	
2/9	1800/1200	460	182T	Y409B	182TTDBD7211		80.0	3.2	65	12.25	
3/7.5	1800/900	460	184T	Y468B	184TTDBD7230		83.5	3.8	74	13.25	
5/1.25	1800/1200	460	215T	Y469A	215TTDBD7205		87.5	6.5	136	17.30	
5/2.22	1800/1200	200-230	215T	Y455A	215TTDBD7204		87.5	14.5-14.0	145	17.30	
15/6.67	1800/900	460	284T	Y459A	284TTDBD7221		89.5	18.5	365	25.60	

√: Available ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# XRI® KILN DUTY MOTORS

## BLUE CHIP SERIES® SEVERE DUTY, TEAO, RIGID BASE, THREE PHASE



**IP55**



### APPLICATIONS

Fans found in kilns and other high ambient environments where long life and high efficiency are desired. These TEAO motors must be mounted within the airstream for proper cooling. Suitable for use on variable frequency drives.

### FEATURES

- Blue Chip Series quality, 100% cast iron construction for rigidity and reduced vibration
- Internal and external epoxy paint
- CR200 corona resistant magnet wire
- Class H insulation system
- Normally closed thermostats (one per phase, Class H)
- Heat stabilized ball bearings and high temperature grease
- Suitable for inverter use, 20:1 variable torque with 1.0 S.F. IN 90°C ambient
- Suitable for 90°C ambient at 1.15 S.F. or 100°C ambient at 1.0 S.F.
- Extended grease tubes, regreasable in service
- 8 foot leads
- UL®\* recognized and CSA®\* certified

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1200	460	184T	S504	184TTTS18577	√	87.5	3.0	115	13.74	d
	1800	460	182T	S506	182TTTS18532		90.2	3.9	106	13.74	75
3	1200	460	213T	S507A	213TTTCD18077	√	89.5	4.3	175	15.97	
	1200	575	213T	S557A	213TTTCD18078		89.5	3.5	175	15.97	
5	1200	460	215T	S510	215TTTS17077	√	87.5	6.9	196	17.19	d
	1200	460	215T	S510A	215TTTCD18077		88.5	6.8	185	17.47	
	1200	575	215T	S560A	215TTTCD18078		88.5	5.5	200	17.47	
7 1/2	1200	460	254T	S513	254TTTNA17077	√	90.2	9.8	318	20.83	d
	1200	460	254T	S513A	254TTTCD18077		90.2	9.9	660	20.53	
	900	575	256T	S564A	256TTTCD18601		86.5	8.4	310	22.27	
10	1200	460	256T	S516	256TTTNA18578	√	91.0	12.8	351	22.58	d
	1200	460	256T	S516A	256TTTCD18578		91.0	12.7	425	22.27	
	1200	575	256T	S566A	256TTTCD18577		91.0	10.2	425	22.27	
	900	460	284T	S517A	284TTTCD18601		88.5	13.8	475	23.34	
	900	575	284T	S567A	284TTTCD18101		88.5	11.0	457	23.34	
15	1800	460	254T	S518	254TTTNA18530	√	92.4	18.2	276	20.83	d
	1800	460	254T	S518A	254TTTCD18530		92.4	18.8	276	20.53	
	1200	460	284T	S519A	284TTTCD18578		91.7	19.0	425	23.34	
	900	460	286T	S530	286TTTNA18602		88.5	23.0	503	24.92	

Blue shaded areas are cast iron frames.

√: Available    ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# 50 HERTZ, SINGLE PHASE MOTORS

## RIGID BASE

### FEATURES

- Ball bearings
- 1.15 service factor (except as noted)
- Heavy gauge steel frame and base
- Class F insulation
- IP54 ingress protection on TEFC only
- Brake provisions available to add brake kit, TEFC only
- Higher efficient capacitor start / capacitor run designs (except as noted)
- Thermal Overload Protection, as indicated
- UL®\* recognized, CSA®\* certified, CE®\* mark



**IP54**

### ODP

HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1500	220	182T	NONE	---	131554.00		76	16.8	83	14.69	2,13
5	1500	220	184T	NONE	---	131555.00		80	23.2	98	15.69	13

### TEFC

HP	RPM	VOLTS	FRAME	OVERLOAD	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	F.L. AMPS	WT.	"C" DIM.	FOOT NOTES
2	1500	220	182T	NONE	---	131556.00		72.0	11.2	98	15.46	2,13,17
3	1500	220	184T	NONE	---	131557.00		79.0	15.9	101	16.96	2,13,17
	1500	220	184T	MANUAL	---	131601.00		75.5	15.9	101	16.96	2,13,17
5	3000	220	184T	NONE	---	131638.00		81.5	20.5	101	17.46	13,17
	1500	220	184T	NONE	---	131578.00		82.5	21.0	83	17.46	13,17

Specifications are subject to change without notice.

√: Available    ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# 50 HERTZ, THREE PHASE MOTORS

## RIGID BASE



**IP55**



### FEATURES

- Ball bearings
- 1.15 service factor (except as noted)
- Heavy gauge steel frame and base
- Class F insulation
- IP55 ingress protection on TEFC only
- Brake provisions available to add brake kit, TEFC only
- Thermal Overload Protection, as indicated
- UL®\* recognized, CSA®\* certified, CE®\* mark

### ODP, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	1500	200/400	182T	H953A	182TTDBD8026		81.5	8.55/4.3	63	12.25	F,YD
5	1500	200/400	184T	H954A	184TTDBD8026		82.5	14.3/7.1	87	13.25	F,YD
7 1/2	1500	200/400	213T	H955A	213TTDBD8026		87.5	21.9/10.9	112	17.30	F,YD
10	1500	200/400	215T	H956A	215TTDBD8026		88.8	28.9/14.5	155	17.30	F,YD
15	1500	200/400	254T	H957A	254TTDBD8026	√	88.5	42.0/20.9	192	22.31	F,YD
20	1500	200/400	256T	H958	256TTDBD8026		89.5	57.0/28.5	225	23.88	F,YD

### TEFC, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3000	200/400	182T	H1022	182TTFBD8001		82.5	8.4/4.8/4.2	61	15.10	F,YD
	1500	220/380/440	182T	H1023	182TTFBD8026	√	82.5	7.8/4.5/3.9	68	15.10	F,YD
5	3000	200/400	184T	H1025	184TTFBD8001	√	84.0	12.8/7.4/6.4	79	16.10	F,YD
	1500	220/380/440	184T	H1026	184TTFBD8026	√	87.5	13.0/7.5/6.5	85	16.10	F,YD

### TEFC, C-FACE FOOTLESS

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	WT.	"C" DIM.	FOOT NOTES
3	3000	220/380/440	182TC	H1122	182TTFBD8003		82.5	8.4/4.8/4.2	62	15.85	F,YD
	1500	220/380/440	182TC	H1123	182TTFBD8029		82.5	7.75/4.5/3.9	66	15.87	F,YD
5	3000	220/380/440	184TC	H1125	184TTFBD8003		84.0	12.8/7.4/6.4	78	16.85	F,YD
	1500	220/380/440	184TC	H1126	184TTFBD8029		87.5	13.0/7.5/6.5	84	16.85	F,YD

Specifications are subject to change without notice.

√: Available    ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ELEVATOR MOTORS

## SUBMERSIBLE HYDRAULIC DUTY

### APPLICATIONS

Hydraulic pump passenger, service, freight and low rise elevators, up to 6 floors at speeds up to 200 fpm.

### FEATURES

- Intermittent duty
- Suitable for Wye-Delta starters
- 1.0 service factor and 70°C ambient rated
- UL®\* recognized component listing and CSA®\* approved
- Three bolt circles, 12 mounting holes, and face mounting to accept both the IMO®\* and Allweiler®\* pumps
- Normally closed thermostats
- Class F insulation
- Two stainless steel nameplates, one shipped separate for remote mount
- 10 foot long leads, spliced 40 inches from motor to prevent wicking on hydraulic fluid

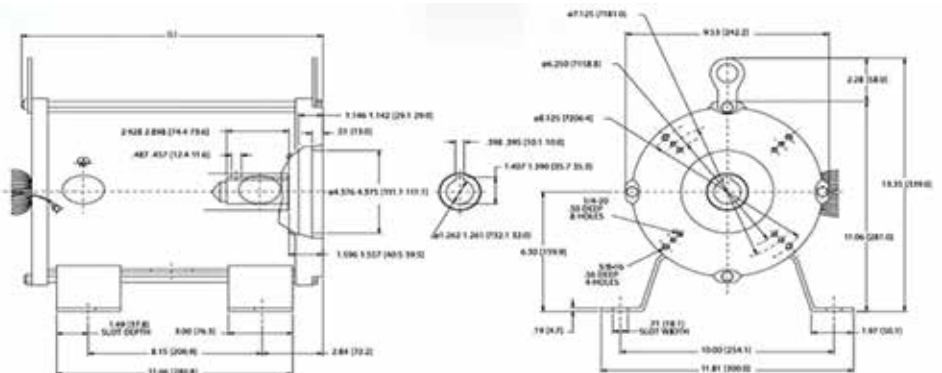


### ODP, RIGID BASE

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	FL. AMPS	KVA CODE"	LOCKED ROTOR AMPS	WT.	FOOT NOTES
15	3600	200	160Z	---	LM29656		82.5	48.5	F	242	110	
	3600	230/460	160Z	---	LM29657		82.5	42.0/21.0	F	210/105	110	
	3600	575	160Z	---	LM29658		82.5	16.8	F	84	110	
20	3600	200	160Z	---	LM29659		85.5	58.5	G	329	112	
	3600	230/460	160Z	---	LM29660		85.5	51.0/25.5	G	286/143	112	
	3600	575	160Z	---	LM29661		85.5	20.4	G	114	112	
25	3600	200	160Z	---	LM29662		86.5	72.5	G	426	135	
	3600	230/460	160Z	---	LM29663		86.5	63/31.5	G	370/185	115	
	3600	575	160Z	---	LM29664		86.5	25.2	G	148	115	
30	3600	200	160Z	---	LM29665		86.5	87.5	G	495	119	
	3600	230/460	160Z	---	LM29666		86.5	76.0/38.0	G	430/215	129	
	3600	575	160Z	---	LM29667		86.5	30.5	G	172	119	
40	3600	200	160Z	---	LM29668		88.5	110	G	690	132	
	3600	230/460	160Z	---	LM29669		88.5	96.0/48.0	G	600/300	167	
	3600	575	160Z	---	LM29670		88.5	38.5	G	240	132	
50	3600	200	160Z	---	LM29671		89.5	133	G	865	143	
	3600	230/460	160Z	---	LM29672		89.5	116/58.0	G	752/376	188	
	3600	575	160Z	---	LM29673		89.5	46.5	G	292	171	

Used to adapt the Marathon® and Lincoln Motors™ Submersible Elevator motors to some IMO and Allweiler Pumps. Kit includes necessary through-bolts to mount this kit to these motors.

MODEL NO	STOCK	DESC SYM	WT
LM31777		A	12



√ Available    1- Stocked components, Ready To Built  
 \*See back cover page for attribution.

Blank: Build Up rating, subject to lead time

# ELEVATOR MOTORS DRY HYDRAULIC DUTY

THREE PHASE, DRIPPROOF, RIGID BASE,  
80 STARTS PER HOUR



## APPLICATIONS

Hydraulic pump passenger, service, freight and low rise elevators, up to 6 floors at speeds up to 200 fpm.

## FEATURES

- Dual Rated nameplates for 80 and 120 starts/hour
- Designed for belt driven pumps
- Wye Start / Delta Run
- Class F insulation
- 40°C Ambient
- F1 mounting
- Ball bearings with grease fittings and automatic relief
- UL®\* recognized component listed and CSA®\* approved
- Constructed for low noise and low vibration

## 80 STARTS PER HOUR

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL / ITEM NO.	STOCK	NOM. EFF.	80 STARTS FL. AMPS	LOCKED ROTOR AMPS	WT.
15	3600	230/460	213T	-	LM30092		85.5	35.5/17.8	162/81	149
	1800	200	215T	-	LM28867		84.0	45.0	170	128
	1800	230/460	215T	-	LM28868		84.0	39.0/19.6	148/74	124
20	3600	200	215T	-	LM30093		88.5	53.0	267	135
	1800	230/460	215T	-	LM34240		89.5	47.0/23.5	232/116	122
	1800	200	254T	-	LM28873	¶	88.5	59.0	267	203
	1800	230/460	254T	-	LM28874	√	88.5	51.5/25.7	232/116	205
25	3600	200	254T	-	LM30095		90.2	68.0	331	175
	3600	230/460	254T	-	LM30096		90.2	59.0/29.5	288/144	158
	1800	200	256T	-	LM28879		90.2	73.5	368	205
	1800	230/460	256T	-	LM28880		90.2	64.0/32.0	320/160	233
30	3600	200	256T	-	LM30097		90.2	80.0	418.6	235
	3600	230/460	256T	-	LM30098		90.2	69.0/34.5	364/182	235
	1800	200	284T	-	LM29850		90.2	84.0	391	300
	1800	230/460	284T	-	LM29851		90.2	73.0/36.5	340/170	316
40	3600	200	284T	-	LM30099	¶	88.5	112	460	320
	3600	230/460	284T	-	LM30100	√	88.5	97.0/48.5	400/200	279
	1800	200	286T	-	LM29852		91.7	112	495	450
	1800	230/460	286T	-	LM29853		91.7	97.0/48.5	430/215	367

Blue shaded areas are cast iron frames.

√: Available ¶- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ELEVATOR MOTORS DRY HYDRAULIC DUTY

THREE PHASE, DRIPPROOF, RIGID BASE,  
120 STARTS PER HOUR

## APPLICATIONS

Hydraulic pump passenger, service, freight and low rise elevators, up to 6 floors at speeds up to 200 fpm.

## FEATURES

- Dual Rated nameplates for 80 and 120 starts/hour
- Designed for belt driven pumps
- Wye Start / Delta Run
- Class F insulation
- 40°C Ambient
- F1 mounting
- Ball bearings with grease fittings and automatic relief
- UL®\* recognized component listed and CSA®\* approved
- Constructed for low noise and low vibration



## 120 STARTS PER HOUR

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	STOCK	NOM. EFF.	120 STARTS F.L. AMPS	LOCKED ROTOR AMPS	WT.	FOOT NOTES
10	3600	230/460	213T	-	LM30092		88.5	23.4/11.7	162/81	149	
	1800	200	215T	-	LM28867		89.5	28.8	170	128	
	1800	230/460	215T	-	LM28868		89.5	25.0/12.5	148/74	124	
15	3600	200	215T	-	LM30093		90.2	39.0	267	135	
	3600	230/460	215T	-	LM34240		91.0	36.5/18.2	232/116	122	
	1800	200	254T	-	LM28873	¶	91.0	44.0	267	203	
20	1800	230/460	254T	-	LM28874	√	91.0	38.5/19.2	232/116	205	
	3600	200	254T	-	LM30095		91.0	53.0	331	175	
	3600	230/460	254T	-	LM30096		91.0	46.0/23.1	288/144	158	
25	1800	200	256T	-	LM28879		91.0	60.0	368	205	
	1800	230/460	256T	-	LM28880		91.0	52.0/26.0	320/160	233	
	3600	200	256T	-	LM30097		91.0	66.5	419	235	
30	3600	230/460	256T	-	LM30098		91.0	58.0/29.0	364/182	235	
	1800	230/460	284T	-	LM29851		91.7	61.0/30.5	340/170	316	
	3600	200	284T	-	LM30099	¶	91.0	83.0	460	320	
30	3600	230/460	284T	-	LM30100	√	91.0	72.0/36.0	400/200	279	
	1800	200	286T	-	LM29852		92.4	83.0	495	450	
	1800	230/460	286T	-	LM29853		92.4	72.0/36.0	430/215	367	

Blue shaded areas are cast iron frames.

√: Available ¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# marathon®

## **ENDURANCE SERIES® Large AC Low and Medium Voltage Motors**



AVAILABLE TO ORDER  
**OVER 700 CONFIGURATIONS  
OF MEDIUM VOLTAGE MOTORS**

# ENDURANCE SERIES<sup>®</sup> MOTORS

marathon<sup>®</sup>

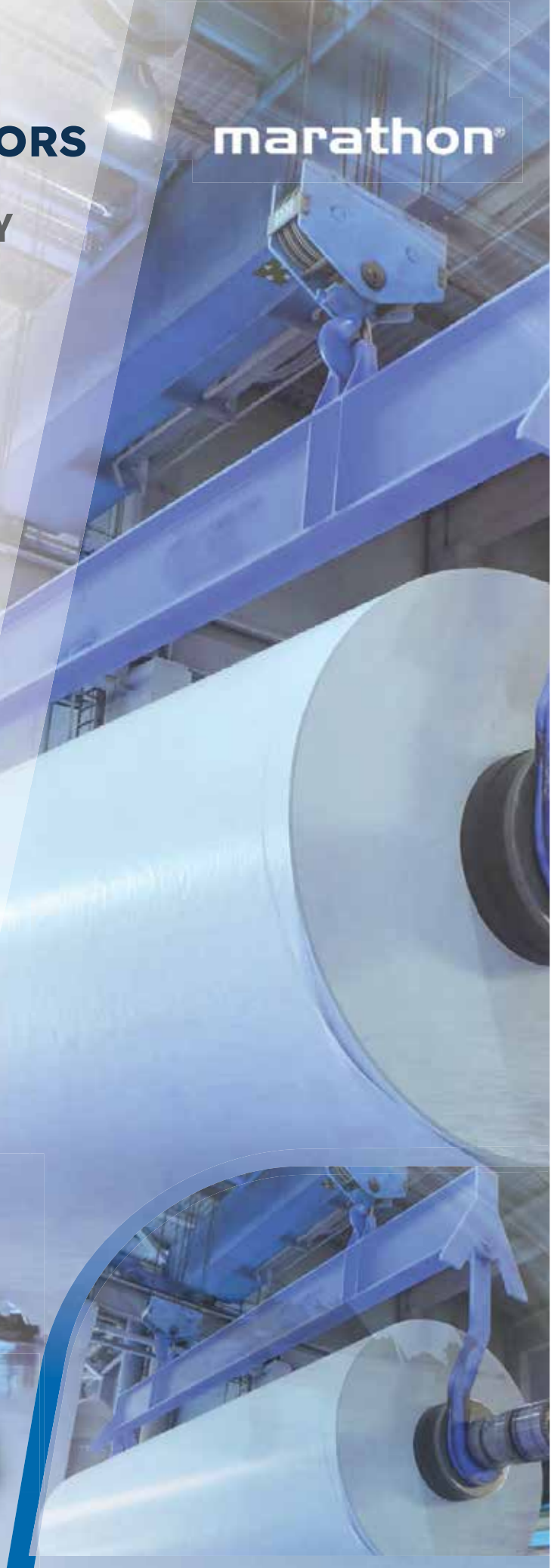
## LARGE, ROBUST MOTORS FOR HEAVY DUTY AND EXTREME APPLICATIONS

Endurance Series motors are the right choice for applications demanding ruggedness and high reliability.

### Features

- Oversized Conduit Box
- Braced End Turns
- Corrosion Protection
- Anti-Friction Bearings

Users recognize the value of Marathon<sup>®</sup> motors and their ability to support a multitude of applications with high efficiency and longer performance. Every Marathon Endurance Series<sup>™</sup> Motor is backed by more than 100 years of manufacturing experience, plus state-of-the-art engineering and production, along with comprehensive service, starting in the earliest planning stages of your motor.



# ENDURANCE SERIES® MOTORS

## IEC®\* TOTALLY ENCLOSED FAN COOLED GENERAL PURPOSE IEC

### APPLICATIONS

General purpose use on compressors, pumps, conveyors, blowers and other machinery in dirty and dusty environments.

### FEATURES

- Cast iron frame, brackets and conduit box, fabricated steel fan guard
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- Provisions to add stub shaft for an encoder
- Internal & external epoxy paint
- MAX GUARD® Class F, VPI Insulation system
- Inverter Duty 10:1 Variable
- Extended grease tubes, regreasable in service
- Ball bearing construction, insulated NDE bearing
- 120V space heaters
- 100Ω Ohm Platinum winding RTD's (2/phase)
- 100Ω Ohm Platinum bearing RTD's (1/bearing)
- Three year warranty



### IEC - TEFC - LOW VOLTAGE

HP	RPM	VOLTS	FRAME	CATALOG NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	EST. SHIPPING WT. (LBS)	OUTLINE DRAWING	"C" DIM (IN)	FOOT NOTES
400	1800	460	355	<b>R9204</b>	355HTFC6027		96.2	437	4410	0235501829	60.71	NP
	1200	460	355	R9205	355HTFC6077		95.8	465	4655	0235501829	60.71	NP, NE
450	1800	460	355	<b>R9007</b>	355HTFC6028		96.2	492	4720	0235501829	60.71	NP
	1200	460	355	R9208	355HTFC6078		95.8	524	4890	0235501829	60.71	NP, NE
500	1800	460	355	<b>R9210</b>	355HTFC6029		96.2	547	4985	0235501829	60.71	NP
	1200	460	355X	R9211	355HTFC6079		95.0	587	6505	0235501810	74.80	NE
600	1800	460	355X	R9212	355HTFC6030		95.4	669	6295	0235501810	74.80	NE
	1200	460	400	R9213	400HTFC6076		95.0	688	8670	0240000741	79.72	NE
700	1800	460	400	R9214	400HTFC6026		95.4	772	7540	0240000741	79.72	NE
	1200	460	400	R9215	400HTFC6077		95.0	802	8360	0240000741	79.72	NE
800	1800	460	400	R9216	400HTFC6027		95.4	882	7630	0240000741	79.72	NE
	1200	460	450	R9217	450HTFC6076		95.0	917	11115	0245001030	94.49	NE
900	1800	460	400	R9218	400HTFC6028		95.4	992	7960	0240000741	79.72	NE
	1200	460	450	R9219	450HTFC6077		95.0	1031	11574	0245001030	94.49	NE
1000	1800	460	400	R9220	400HTFC6029		95.4	1103	8420	0240000741	79.72	NE
	1200	460	450	R9221	450HTFC6078		95.0	1146	12080	0245001030	94.49	NE

Specifications are subject to change without notice.

√ Available    ¶ Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
Catalog number (Cat No.) highlighted bold blue have efficiency levels that meet PREMIUM NEMA MG1 Table 12-12

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## IEC®\* TOTALLY ENCLOSED FAN COOLED GENERAL PURPOSE IEC



### APPLICATIONS

General purpose use on compressors, pumps, conveyors, pulp and paper mills, mineral processing, waste management facilities, lumber and wood processing mills, automotive manufacturing plants, blowers, and other machinery in dirty and dusty environments.

### FEATURES

- Cast iron frame and brackets, fabricated steel conduit box and fan guard
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- Form wound coil design, copper bar rotor design
- Internal & external epoxy paint
- Provisions to add stub shaft for an encoder
- MAX GUARD® Class F, VPI Insulation system
- Inverter Duty 10:1 Variable
- Extended grease tubes, regreasable in service
- Brass drain and breather
- UL®\* Recognized
- Ball bearing construction, Insulated NDE bearing
- 120V space heaters
- 100Ω Ohm Platinum winding RTD's (2/phase)
- 100Ω Ohm Platinum bearing RTD's (1/bearing)
- Three year warranty



### IEC - TEFC - MEDIUM VOLTAGE

HP	RPM	VOLTS	FRAME	CATALOG NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	EST. SHIPPING WT. (LBS)	OUTLINE DRAWING	"C" DIM (IN)	FOOT NOTES
350	1800	2300/4000	355	<b>R9301</b>	355HVFC6026		95.0	78/44.9	4189	0235502685	72.24	
	1200	2300/4000	355	<b>R9302</b>	355HVFC6077		95.0	81.8/47.0	5622	0235502685	72.24	
400	1800	2300/4000	355	<b>R9304</b>	355HVFC6027		95.0	89.6/51.5	4630	0235502685	72.24	
	1200	2300/4000	400	<b>R9305</b>	400HVFC6076		95.0	91.3/52.5	6614	0240001696	79.13	
450	1800	2300/4000	355	<b>R9307</b>	355HVFC6028		95.0	100/57.5	4740	0235502685	72.24	
	1200	2300/4000	400	<b>R9308</b>	400HVFC6077		95.0	102.6/59.0	6790	0240001696	79.13	
500	1800	2300/4000	355	<b>R9310</b>	355HVFC6029		95.0	111.3/64.0	4806	0235502685	72.24	
	1200	2300/4000	400	<b>R9311</b>	400HVFC6078		95.0	113.9/65.5	6945	0240001696	79.13	
600	1800	2300/4000	400	<b>R9313</b>	400HVFC6026		95.4	132.2/76.0	6460	0240001696	79.13	
	1200	2300/4000	450	<b>R9314</b>	450HVFC6076		95.0	135.7/78.0	7936	0245001222	87.40	
700	1800	2300/4000	400	<b>R9316</b>	400HVFC6027		95.4	153.9/88.5	6835	0240001696	79.13	
	1200	2300/4000	450	<b>R9317</b>	450HVFC6077		95.0	158.3/91.0	8488	0245001222	87.40	
800	1800	2300/4000	450	<b>R9319</b>	450HVFC6026		95.4	175.7/101	7826	0245001221	85.83	
	1200	2300/4000	450	<b>R9320</b>	450HVFC6078		95.0	180/103.5	9150	0245001222	87.40	
900	1800	2300/4000	450	<b>R9322</b>	450HVFC6027		95.4	197.4/113.5	8047	0245001221	85.83	
	1200	4000	500	<b>R9323</b>	500HVFC6076		95.0	117	11464	0250000728	94.88	
1000	1800	2300/4000	450	<b>R9325</b>	450HVFC6028		95.4	220/126.5	8377	0245001221	85.83	
	1200	4000	500	<b>R9326</b>	500HVFC6077		95.0	130	11905	0250000728	94.88	

∇: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time  
 Catalog number (Cat No.) highlighted bold blue have efficiency levels that meet NEMA PREMIUM MG1 Table 12-12, Table 20-B or Table 20-C  
 \*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## IEC®\* WEATHER PROTECTED TYPE 1 GENERAL PURPOSE IEC

### APPLICATIONS

Industrial Refrigeration Compressors for HVAC, Oil and Gas, Food and Beverage, Chemical processing, Medical and other process industries.

### FEATURES

- Fabricated steel frame and conduit box, with cast iron brackets
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- MAX GUARD®\* Class F, VPI Insulation system
- Form wound coil design, copper bar rotor design
- Internal & external epoxy paint
- Inverter Duty 10:1 Variable
- Extended grease tubes, regreasable in service
- UL®\* Recognized
- Ball bearing construction, Insulated NDE bearing
- 120V space heaters
- 100Ω Ohm Platinum winding RTD's (2/phase)
- 100Ω Ohm Platinum bearing RTD's (1/bearing)
- Three year warranty



### IEC - WPI - MEDIUM VOLTAGE

HP	RPM	VOLTS	FRAME	CATALOG NO.	MODEL NO.	STOCK	NOM. EFF.	F.L. AMPS	EST. SHIPPING WT. (LBS)	OUTLINE DRAWING	"C" DIM (IN)	FOOT NOTES
350	1800	2300/4000	355	R9401	355HVLf6027		91.7	80.0/46.0	4667	0235502461	72.05	99,110,NE
	1200	2300/4000	355	R9402	355HVLf6077		92.4	83.0/48.0	4799	0235502461	72.05	NE
400	1800	2300/4000	355	R9404	355HVLf6028		91.7	90.0/52.0	4667	0235502461	72.05	99,110,NE
	1200	2300/4000	355	R9405	355HVLf6078		92.4	94.0/54.0	5075	0235502461	72.05	NE
450	1800	2300/4000	355	R9407	355HVLf6029		94.5	101/58.0	4667	0235502461	72.05	99,NE
	1200	2300/4000	355	R9408	355HVLf6079		93.6	104/60.0	5075	0235502461	72.05	NE
500	1800	2300/4000	355	R9410	355HVLf6030		93.0	111/64.0	4667	0235502461	72.05	NE
	1200	2300/4000	400	R9411	400HVLf6076		94.5	117/67.0	6140	0240001510	77.95	99,NE
600	1800	2300/4000	355	R9413	355HVLf6031		93.0	136/78.0	4943	0235502461	72.05	NE
	1200	2300/4000	400	R9414	400HVLf6077		94.5	139/80.0	6448	0240001510	77.95	99,NE
700	1800	2300/4000	400	R9416	400HVLf6027		94.6	160/92.0	6625	0240001510	77.95	99,NE
	1200	2300/4000	400	R9417	400HVLf6078		94.5	162/93.0	6448	0240001510	77.95	NE
800	1800	2300/4000	400	R9419	400HVLf6028		95.0	176/101.0	6625	0240001510	77.95	NE
	1200	2300/4000	450	<b>R9420</b>	450HVLf6076		95.0	181/104.0	7870	0245001121	83.66	99
900	1800	2300/4000	400	R9422	400HVLf6029		95.0	197/113.0	6867	0240001510	77.95	NE
	1200	2300/4000	450	<b>R9423</b>	450HVLf6077		95.0	203/117.0	7870	0245001121	83.66	
1000	1800	2300/4000	450	<b>R9425</b>	450HVLf6026		95.8	216/124.0	8201	0245001121	82.68	99
	1200	2300/4000	450	<b>R9426</b>	450HVLf6078		95.4	219/126.0	9039	0245001121	83.66	
1250	1800	2300/4000	450	<b>R9428</b>	450HVLf6027		95.8	271/156.0	8201	0245001121	82.68	
	1200	2300/4000	450	<b>R9429</b>	450HVLf6079		95.4	278/160.0	9039	0245001121	83.66	
1500	1800	2300/4000	450	<b>R9431</b>	450HVLf6028		95.8	325/187.0	8532	0245001121	82.68	
	1200	4000	500	<b>R9432</b>	500HVLf6076		95.8	191	11757	0250000684	89.17	99
1750	1800	4000	500	<b>R9434</b>	500HVLf6026		96.2	222	11515	0250000681	89.17	
	1200	4000	500	<b>R9435</b>	500HVLf6077		95.4	224	11757	0250000684	89.17	
2000	1800	4000	500	<b>R9437</b>	500HVLf6027		96.2	253	11515	0250000681	89.17	
	1200	4000	560	<b>R9438</b>	560HVLf6076		95.4	250	15068	0256000375	100.79	99
2250	1800	4000	500	<b>R9440</b>	500HVLf6028		96.2	279	12617	0250000681	89.17	
	1200	4000	560	<b>R9441</b>	560HVLf6077		96.5	285	15642	0256000375	100.79	
2500	1800	4000	560	<b>R9443</b>	560HVLf6026		96.5	306	16391	0256000372	98.82	99
3000	1800	4000	560	R9446	560HVLf6027		96.5	363	16391	0256000372	98.82	99,NE
3500	1800	4000	560	R9449	560HVLf6028		96.7	433	16391	0256000372	98.82	NE

1 - Suitable for 2:1 CT operation

4 - 1.2 Service Factor

8 - Not defined by NEMA Premium standards

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog number (Cat No.) highlighted bold blue have efficiency levels that meet NEMA PREMIUM MG1 Table 12-12, Table 20-B or Table 20-C

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## IEC®\* WEATHER PROTECTED TYPE 2 GENERAL PURPOSE IEC

### APPLICATIONS

Industrial Refrigeration Compressors for HVAC, Oil and Gas, Food and Beverage, Chemical processing, Medical and other process industries.

### FEATURES

- Fabricated steel frame and conduit box, with cast iron brackets
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- MAX GUARD® Class F, VPI Insulation system
- Form wound coil design, copper bar rotor design
- Internal & external epoxy paint
- Inverter Duty 10:1 Variable
- Extended grease tubes, regreasable in service
- UL®\* Recognized
- Ball bearing construction, Insulated NDE bearing
- 120V space heaters
- 100Ω Ohm Platinum winding RTD's (2/phase)
- 100Ω Ohm Platinum bearing RTD's (1/bearing)
- Three year warranty



### IEC - WPII - MEDIUM VOLTAGE

HP	RPM	VOLTS	FRAME	CATALOG NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	EST. SHIPPING WT. (LBS)	OUTLINE DRAWING	"C" DIM (IN)	FOOT NOTES
350	1800	2300/4000	355	R9501	355HVMF6027		91.7	80.0/46.0	5072	0235502462	74.21	99,110,NE
	1200	2300/4000	355	R9502	355HVMF6078		92.4	83.0/48.0	5182	0235502462	74.21	NE
400	1800	2300/4000	355	R9504	355HVMF6028		91.7	90.0/52.0	5072	0235502462	74.21	99,NE
	1200	2300/4000	355	R9505	355HVMF6079		92.4	94.0/54.0	5479	0235502462	74.21	NE
450	1800	2300/4000	355	R9507	355HVMF6029		94.5	101/58.0	5072	0235502462	74.21	99,NE
	1200	2300/4000	355	R9508	355HVMF6080		93.6	104/60.0	5479	0235502462	74.21	NE
500	1800	2300/4000	355	R9510	355HVMF6030		93.0	111/64.0	5347	0235502462	74.21	NE
	1200	2300/4000	400	R9511	400HVMF6076		94.5	117/67.0	6526	0240001511	78.54	99,NE
600	1800	2300/4000	355	R9513	355HVMF6031		93.0	136/78.0	5347	0235502462	74.21	NE
	1200	2300/4000	400	R9514	400HVMF6077		94.5	139/80.0	6834	0240001511	78.54	99,NE
700	1800	2300/4000	400	R9516	400HVMF6026		94.6	160/92.0	7011	0240001511	78.54	99,NE
	1200	2300/4000	400	R9517	400HVMF6078		94.5	162/93.0	6834	0240001511	78.54	NE
800	1800	2300/4000	400	R9519	400HVMF6027		95.0	176/101	7011	0240001511	78.54	NE
	1200	2300/4000	450	<b>R9520</b>	450HVMF6076		95.0	181/104	8467	0245001125	84.84	99
900	1800	2300/4000	400	R9522	400HVMF6028		95.0	197/113	7253	0240001511	78.54	NE
	1200	2300/4000	450	<b>R9523</b>	450HVMF6077		95.0	203/117	8467	0245001125	84.84	
1000	1800	2300/4000	450	<b>R9525</b>	450HVMF6026		95.8	216/124	8710	0245001122	83.27	
	1200	2300/4000	450	<b>R9526</b>	450HVMF6078		95.4	219/126	9636	0245001125	84.84	
1250	1800	2300/4000	450	<b>R9528</b>	450HVMF6027		95.8	271/156	8710	0245001122	83.27	
	1200	2300/4000	450	<b>R9529</b>	450HVMF6079		95.4	278/160	9636	0245001125	84.84	
1500	1800	2300/4000	450	<b>R9531</b>	450HVMF6028		95.8	325/187	9129	0245001122	83.27	
	1200	4000	500	<b>R9532</b>	500HVMF6076		95.8	184	12368	0250000685	90.94	99
1750	1800	4000	500	<b>R9534</b>	500HVMF6026		96.2	222	12125	0250000682	90.94	
	1200	4000	500	<b>R9535</b>	500HVMF6077		95.4	224	12368	0250000685	90.94	
2000	1800	4000	500	<b>R9537</b>	500HVMF6027		96.2	253	12125	0250000682	90.94	
	1200	4000	560	<b>R9538</b>	560HVMF6076		95.4	253	15741	0256000376	103.74	99
2250	1800	4000	500	<b>R9540</b>	500HVMF6028		96.2	279	13228	0250000682	90.94	
	1200	4000	560	<b>R9541</b>	560HVMF6077		96.5	285	16314	0256000376	103.74	
2500	1800	4000	560	<b>R9543</b>	560HVMF6026		96.5	306	17064	0256000373	101.77	99
	1200	4000	560	<b>R9544</b>	560HVMF6078		96.5	285	16314	0256000376	103.74	
3000	1800	4000	560	R9546	560HVMF6027		96.5	363	17064	0256000373	101.77	99,NE
3500	1800	4000	560	R9549	560HVMF6028		96.5	433	17064	0256000373	101.77	NE

Specifications are subject to change without notice.

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog number (Cat No.) highlighted bold blue have efficiency levels that meet NEMA PREMIUM MG1 Table 12-12, Table 20-B or Table 20-C

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

IEC®\* TOTALLY ENCLOSED AIR-TO-AIR COOLED  
GENERAL PURPOSE IEC

## APPLICATIONS

Industrial Refrigeration Compressors for HVAC, Oil and Gas, Food and Beverage, Chemical processing, Medical and other process industries.

## FEATURES

- Fabricated steel frame and conduit box, with cast iron brackets
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- MAX GUARD® Class F, VPI Insulation system
- Form wound coil design, copper bar rotor design
- Internal & external epoxy paint
- Inverter Duty 10:1 Variable
- Extended grease tubes, regreasable in service
- UL®\* Recognized
- Ball bearing construction, Insulated NDE bearing
- 120V space heaters
- 100Ω Ohm Platinum winding RTD's (2/phase)



- 100Ω Ohm Platinum bearing RTD's (1/bearing)
- Three year warranty

## IEC - TEAAC - MEDIUM VOLTAGE

HP	RPM	VOLTS	FRAME	CATALOG NO.	MODEL NO.	STOCK	NOM. EFF.	FL. AMPS	EST. SHIPPING WT. (LBS)	OUTLINE DRAWING	"C" DIM (IN)	FOOT NOTES
350	1800	2300/4000	355	R9601	355HVKF6027		93.0	80.0/46.0	5203	0235502463	83.07	99,NE
	1200	2300/4000	355	R9602	355HVKF6077		92.4	83.0/48.0	5611	0235502463	83.07	NE
400	1800	2300/4000	355	R9604	355HVKF6028		93.6	90.0/52.0	5203	0235502463	83.07	99,NE
	1200	2300/4000	400	R9605	400HVKF6076		94.1	94.0/54.0	6845	0240001512	87.99	99,NE
450	1800	2300/4000	355	R9607	355HVKF6029		93.0	103/59.0	5478	0235502463	83.07	NE
	1200	2300/4000	400	R9608	400HVKF6077		94.1	104/60.0	6845	0240001512	87.99	99,NE
500	1800	2300/4000	355	R9610	355HVKF6030		93.0	117/67.0	5478	0235502463	83.07	NE
	1200	2300/4000	400	R9611	400HVKF6078		94.1	117/67.0	7154	0240001512	87.99	99,NE
600	1800	2300/4000	400	R9613	400HVKF6026		94.1	136/78.0	7330	0240001512	87.99	99,NE
	1200	2300/4000	400	R9614	400HVKF6079		94.1	141/81.0	7154	0240001512	87.99	NE
700	1800	2300/4000	400	R9616	400HVKF6027		94.5	155/89.0	7330	0240001512	87.99	NE
	1200	2300/4000	450	R9617	450HVKF6076		93.6	158/91.0	8918	0245001126	95.67	NE
800	1800	2300/4000	400	R9619	400HVKF6028		94.5	176/101	7573	0240001512	87.99	NE
	1200	2300/4000	450	R9620	450HVKF6077		94.1	183/105	8918	0245001126	95.67	NE
900	1800	2300/4000	450	R9622	450HVKF6026		94.5	197/113	9215	0245001123	94.09	NE
	1200	2300/4000	450	R9623	450HVKF6078		94.5	200/115	10086	0245001126	95.67	NE
1000	1800	2300/4000	450	R9625	450HVKF6027		94.5	219/126	9215	0245001123	94.09	NE
	1200	2300/4000	450	R9626	450HVKF6079		94.5	221/127	10086	0245001126	95.67	NE
1250	1800	2300/4000	450	R9628	450HVKF6028		95.0	273/157	9546	0245001123	94.09	NE
	1200	4000	500	<b>R9629</b>	500HVKF6076		95.0	161	13635	0250000686	101.38	
1500	1800	4000	500	<b>R9631</b>	500HVKF6026		95.4	192	13360	0250000683	101.38	
	1200	4000	500	<b>R9632</b>	500HVKF6077		95.0	193	13635	0250000686	101.38	
1750	1800	4000	500	R9634	500HVKF6027		95.4	224	13360	0250000683	101.38	NE
	1200	4000	560	R9635	560HVKF6076		95.0	221	17769	0256000377	113.58	99,NE

## IN STOCK MODIFICATION OPTIONS

Altitude Rerate	Nameplate-Extra Main
Ambient Rerate	Nameplate-Rotation
Assembly-F1 to F2 Mounting Conversion	Packaging-Crate/Export
Leads-Spliced at Endturn	Rotation-Cast Rotor (CCW -> CW)
Nameplate-Auxiliary Tag	Service Factor

Specifications are subject to change without notice.

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

Catalog number (Cat No.) highlighted bold blue have efficiency levels that meet NEMA PREMIUM MG1 Table 12-12, Table 20-B or Table 20-C

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

OPEN DRIP PROOF  
MEDIUM VOLTAGE

## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame & brackets (NEMA®\*)
- Fabricated frame & cast iron brackets (IEC®\*)
- MAX GUARD® Class F insulation system
- IP23 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty



**IP23**

**MAX  
GUARD**



## ODP - MEDIUM VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
350	3600	5008S	FW	Consult Factory	
	1800	-		355	CB,FW
	1200	-		355	CB,FW
400	3600	5008S	FW		
	1800	-		355	CB,FW
	1200	-		400	CB,FW
450	3600	5008S	FW		
	1800	-		400	CB,FW
	1200	-		400	CB,FW
500	3600	5008S	FW		
	1800	-		400	CB,FW
	1200	-		400	CB,FW
600	3600	5010S	CB,FW		
	1800	-		400	CB,FW
	1200	-		450	CB,FW
700	3600	5808S	CB,FW		
	1800	-		400	CB,FW
	1200	-		450	CB,FW
800	3600	5808S	CB,FW		
	1800	-		450	CB,FW
	1200	-		450	CB,FW
900	3600	5808S	CB,FW		
	1800	-		450	CB,FW
	1200	-		450	CB,FW
1000	3600	5810S	CB,FW		
	1800	-		450	CB,FW
	1200	-		500	CB,FW
1250	3600	5810S	CB,FW		
	1800	-		450	CB,FW
	1200	-		500	CB,FW
1500	3600	5810S	CB,FW		
	1800	-		500	CB,FW
	1200	-		560	CB,FW
1750	3600	5810S	CB,FW		
	1800	-		500	CB,FW
	1200	-		560	CB,FW
2000	3600	-		Consult Factory	
	1800	-		560	CB,FW
	1200	-		630	4, CB,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

WEATHER PROTECTED TYPE 1  
LOW VOLTAGE



**IP23**

**MAX  
GUARD**



## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame & brackets (NEMA®\*)
- MAX GUARD® Class F insulation system
- 120V or 240V space heaters
- Stator/Rotor Epoxy
- IP23 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty

## ODP - LOW VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS	
		FRAME	FOOTNOTES
350	3600	-	
	1800	505	
	1200	508	
400	3600	-	
	1800	508	
	1200	508	
450	3600	-	
	1800	508	
	1200	-	
500	3600	5008S	
	1800	508	
	1200	-	
600	3600	5008S	
	1800	510	
	1200	-	
700	3600	5010S	
	1800	5808	
	1200	-	
800	3600	5808S	
	1800	5808	
	1200	-	
900	3600	5808S	
	1800	5810	
	1200	-	
1000	3600	5810S	CB,FW
	1800	5810	
	1200	-	
1250	3600	5810S	CB,FW
	1800	-	
	1200	-	
1500	3600	-	
	1800	-	
	1200	-	
1750	3600	-	
	1800	-	
	1200	-	
2000	3600	-	
	1800	-	
	1200	-	

Consult factory for 449 frame & smaller

√: Available    1: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

WEATHER PROTECTED TYPE 1  
MEDIUM VOLTAGE



## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Fabricated frame & cast iron brackets (IEC®\*)
- Cast iron frame & brackets (NEMA®\*)
- MAX GUARD® Class F insulation system
- 120V or 240V space heaters
- Stator/Rotor Epoxy
- IP23 minimum
- 60 Hertz
- 40°C Ambient

**IP23**

**MAX  
GUARD**



- 3300 FSL max
- Three year warranty

## WPI - MEDIUM VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC ®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
350	3600	5008S	FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
400	3600	5008S	FW		
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
450	3600	5008S	FW		
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
500	3600	5008S	FW		
	1800	-		355	40,CB,FW
	1200	-		400	40,CB,FW
600	3600	5010S	CB,FW		
	1800	-		355	40,CB,FW
	1200	-		400	40,CB,FW
700	3600	5808S	CB,FW		
	1800	-		400	40,CB,FW
	1200	-		400	40,CB,FW
800	3600	5808S	CB,FW		
	1800	-		400	40,CB,FW
	1200	-		450	40,CB,FW
900	3600	5808S	CB,FW		
	1800	-		400	40,CB,FW
	1200	-		450	40,CB,FW
1000	3600	5810S	CB,FW		
	1800	-		450	40,CB,FW
	1200	-		450	40,CB,FW
1250	3600	5810S	CB,FW		
	1800	-		450	40,CB,FW
	1200	-		450	40,CB,FW
1500	3600	5810S	CB,FW		
	1800	-		450	40,CB,FW
	1200	-		500	40,CB,FW
1750	3600	5810S	CB,FW		
	1800	-		500	40,CB,FW
	1200	-		500	40,CB,FW
2000	3600	-		Consult Factory	
	1800	-		500	40,CB,FW
	1200	-		560	40,CB,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

√ Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

WEATHER PROTECTED TYPE 2  
LOW VOLTAGE

## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame & brackets (NEMA®\*)
- MAX GUARD® Class F insulation system
- 120V or 240V space heaters
- Stator/Rotor Epoxy
- IP24 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty



## WP11 - LOW VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS	
		FRAME	FOOTNOTES
350	3600	-	
	1800	-	
	1200	-	
400	3600	-	
	1800	-	
	1200	-	
450	3600	-	
	1800	-	
	1200	-	
500	3600	5008S	
	1800	-	
	1200	-	
600	3600	5010S	
	1800	-	
	1200	-	
700	3600	5808S	
	1800	-	
	1200	-	
800	3600	5808S	
	1800	-	
	1200	-	
900	3600	5808S	
	1800	-	
	1200	-	
1000	3600	5810S	CB,FW
	1800	-	
	1200	-	
1250	3600	5810S	CB,FW
	1800	-	
	1200	-	
1500	3600	-	
	1800	-	
	1200	-	
1750	3600	-	
	1800	-	
	1200	-	
2000	3600	-	
	1800	-	
	1200	-	

Consult factory for 449 frame & smaller

√ Available    1- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## WEATHER PROTECTED TYPE 2 MEDIUM VOLTAGE

### BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame & brackets (NEMA®\*)
- Fabricated frame & cast iron brackets (IEC®\*)
- MAX GUARD® Class F insulation system
- 120V or 240V space heaters
- IP24 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max



- Stator/Rotor Epoxy
- Three year warranty

### WP11 - MEDIUM VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
350	3600	5008S	FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
400	3600	5008S	FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
450	3600	5008S	FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		355	40,CB,FW
500	3600	5008S	FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		400	40,CB,FW
600	3600	5010S	CB,FW	Consult Factory	
	1800	-		355	40,CB,FW
	1200	-		400	40,CB,FW
700	3600	5808S	CB,FW	Consult Factory	
	1800	-		400	40,CB,FW
	1200	-		400	40,CB,FW
800	3600	5808S	CB,FW	Consult Factory	
	1800	-		400	40,CB,FW
	1200	-		450	40,CB,FW
900	3600	5808S	CB,FW	Consult Factory	
	1800	-		400	40,CB,FW
	1200	-		450	40,CB,FW
1000	3600	5810S	CB,FW	Consult Factory	
	1800	-		450	40,CB,FW
	1200	-		450	40,CB,FW
1250	3600	5810S	CB,FW	Consult Factory	
	1800	-		450	40,CB,FW
	1200	-		450	40,CB,FW
1500	3600	5810S	CB,FW	Consult Factory	
	1800	-		450	40,CB,FW
	1200	-		500	40,CB,FW
1750	3600	5810S	CB,FW	Consult Factory	
	1800	-		500	40,CB,FW
	1200	-		500	40,CB,FW
2000	3600	-		Consult Factory	
	1800	-		500	40,CB,FW
	1200	-		560	40,CB,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

√ Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

TOTALLY ENCLOSED FAN COOLED  
LOW VOLTAGE

## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame and brackets
- MAX GUARD® Class F insulation system
- NEMA®\* Design B
- IP54 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty



## TEFC - LOW VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC ®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
400	3600	5011		355	
	1800	5011		355	40,CB,FW
	1200	5011		355	40,CB,FW
	900	5013		400	
450	3600	5011		355	40,CB,FW
	1800	5011		355	40,CB,FW
	1200	5013		400	
	900	-		400	40,CB,FW
500	3600	5011		355	40,CB,FW
	1800	5011		355	
	1200	5013		400	40,CB,FW
	900	-		400	40,CB,FW
600	3600	-		400	
	1800	5011		400	40,CB,FW
	1200	-		400	40,CB,FW
	900	-		400	
700	3600	-		400	40,CB,FW
	1800	5013		400	40,CB,FW
	1200	-		400	
	900	-		450	40,CB,FW
800	3600	-		400	40,CB,FW
	1800	-		400	
	1200	-		450	40,CB,FW
	900	-		500	40,CB,FW
900	3600	-		400	
	1800	-		400	40,CB,FW
	1200	-		450	40,CB,FW
	900	-		500	
1000	3600	-		400	40,CB,FW
	1800	-		400	40,CB,FW
	1200	-		450	
	900	-		560	40,CB,FW
1250	3600	-		450	40,CB,FW
	1800	-		450	
	1200	-		500	40,CB,FW
	900	-		560	40,CB,FW
1500	3600	-		500	
	1800	-		500	40,CB,FW
	1200	-		500	40,CB,FW
1750	1800	-		500	40,CB,FW
	1200	-		560	40,CB,FW
2000	1800	-		560	40,CB,FW
	1200	-		560	40,CB,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

# ENDURANCE SERIES® MOTORS

TOTALLY ENCLOSED FAN COOLED  
MEDIUM VOLTAGE



**IP54**

**MAX  
GUARD**



## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame and brackets
- MAX GUARD® Class F insulation system
- NEMA®\* Design B
- IP54 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty

## TEFC - MEDIUM VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC ®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
150	900	5011	FW	355	CW,FW
	3600	-		355	CW,FW
200	1800	5011	FW	355	CW,FW
	1200	5011	FW	355	CW,FW
	900	5011	FW	355	CW,FW
	3600	5009	FW	355	CW,FW
250	1800	5011	FW	355	CW,FW
	1200	5011	FW	355	CW,FW
	900	5011	FW	400	CW,FW
	3600	5011	FW	355	CW,FW
300	1800	5011	FW	355	CW,FW
	1200	5011	FW	400	CW,FW
	900	5013	FW	400	CW,FW
	3600	5011	FW	355	CW,FW
350	1800	5011	FW	355	CW,FW
	1200	5011	FW	400	CW,FW
	900	5013	FW	450	CW,FW
	3600	5011	CW,FW	400	CW,FW
400	1800	5011	CW,FW	400	CW,FW
	1200	5011	CW,FW	400	CW,FW
	900	5013	CW,FW	450	CW,FW
	3600	5011	CW,FW	400	CW,FW
450	1800	5011	CW,FW	400	CW,FW
	1200	5013	CW,FW	450	CW,FW
	900	-		450	CW,FW
	3600	-		400	CW,FW
500	1800	5013	CW,FW	400	CW,FW
	1200	5013	CW,FW	450	CW,FW
	900	-		450	CW,FW
	3600	-		400	CW,FW
600	1800	5011	CW,FW	450	CW,FW
	1200	-		450	CW,FW
	900	-		450	CW,FW
	3600	-		450	CW,FW
700	1800	5013	CW,FW	450	CW,FW
	1200	-		450	CW,FW
	900	-		500	CW,FW
	3600	-		450	CW,FW
800	1800	5013	CW,FW	450	CW,FW
	1200	-		500	CW,FW
	900	-		500	CW,FW
	3600	-		450	CW,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

TOTALLY ENCLOSED FAN COOLED  
MEDIUM VOLTAGE

## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Cast iron frame and brackets
- MAX GUARD® Class F insulation system
- NEMA®\* Design B
- IP54 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty



**IP54**

**MAX  
GUARD**



## TEFC - MEDIUM VOLTAGE

HP	RPM	NEMA®* FRAME DESIGNS		IEC ®* FRAME DESIGNS	
		FRAME	FOOTNOTES	FRAME	FOOTNOTES
900	3600	-		450	CB,FW
	1800	-		450	CB,FW
	1200	-		500	CB,FW
	900	-		500	CB,FW
1000	3600	-		500	CB,FW
	1800	-		500	CB,FW
	1200	-		500	CB,FW
	900	-		560	CB,FW
1250	3600	-		500	CB,FW
	1800	-		500	CB,FW
	1200	-		560	CB,FW
	900	-		560	CB,FW
1500	1800	-		500	CB,FW
	1200	-		560	CB,FW
1750	1800	-		560	CB,FW
	1200	-		560	CB,FW
2000	1800	-		560	CB,FW
	1200	-		560	CB,FW

Consult factory for 449 frame & smaller

Consult factory for 315 frame & smaller

# ENDURANCE SERIES® MOTORS

TOTALLY ENCLOSED AIR TO AIR COOLED  
MEDIUM VOLTAGE

## BUILD TO ORDER FEATURES

- Rigid, Horizontal Mounting
- Fabricated frame & cast iron brackets (IEC®\*)
- MAX GUARD® Class F insulation system
- IP55 minimum
- 60 Hertz
- 40°C Ambient
- 3300 FSL max
- Three year warranty



## WP11 - LOW VOLTAGE

HP	RPM	IEC®* FRAME DESIGNS	
		FRAME	FOOTNOTES
350	3600	Consult Factory	
	1800	355	40,CB,FW
	1200	355	40,CB,FW
400	3600	Consult Factory	
	1800	355	40,CB,FW
	1200	355	40,CB,FW
450	3600	Consult Factory	
	1800	355	40,CB,FW
	1200	400	40,CB,FW
500	3600	Consult Factory	
	1800	355	40,CB,FW
	1200	400	40,CB,FW
600	3600	Consult Factory	
	1800	400	40,CB,FW
	1200	400	40,CB,FW
700	3600	Consult Factory	
	1800	400	40,CB,FW
	1200	450	40,CB,FW
800	3600	Consult Factory	
	1800	400	40,CB,FW
	1200	450	40,CB,FW
900	3600	Consult Factory	
	1800	450	40,CB,FW
	1200	450	40,CB,FW
1000	3600	Consult Factory	
	1800	450	40,CB,FW
	1200	450	40,CB,FW
1250	3600	Consult Factory	
	1800	450	40,CB,FW
	1200	500	40,CB,FW
1500	3600	Consult Factory	
	1800	500	40,CB,FW
	1200	500	40,CB,FW
1750	3600	Consult Factory	
	1800	500	40,CB,FW
	1200	560	40,CB,FW
2000	3600	Consult Factory	
	1800	500	40,CB,FW
	1200	560	40,CB,FW

Consult factory for 315 frame & smaller

√: Available    1- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## BUILD UP OPTIONS

FEATURES	ODP	TEFC	WP11	TEAAC	TEWAC
<b>Altitude/Ambient</b>					
Altitude - Above 3300', up to 5000'	■	■	■	■	■
Ambient - Above 40°C, up to 60°C	■	■	■	■	■
Ambient - Below -25°C			CF		
<b>Balance</b>					
Precision Balance	■	■	■	■	■
Special Balance			CF		
<b>Bearing</b>					
Roller Bearing (DE)***	CF	■	CF	CF	CF
Insulated Bearing (NDE)**	■	■	■	■	■
Oil Site Gauge			CF		
Oil Sump Heater			CF		
Sleeve Bearing			CF		
<b>Blowers</b>					
Radial Blower			CF		
<b>Brackets</b>					
FF-Flange - DE (IEC Frames Only)	■	■	■	■	■
NEMA** - C-Face - DE (NEMA Frames Only)	CF	■	CF	NA	NA
NEMA - D-Flange - DE (NEMA Frames Only)	■	■	■	NA	NA
<b>Conduit Box</b>					
Accessory Auxiliary Box	STD WITH ACCESSORIES	STD WITH ACCESSORIES	STD WITH ACCESSORIES	STD WITH ACCESSORIES	STD WITH ACCESSORIES
Cable Gland Installed			CF		
Drain/Breather Installed			CF		
Oversized Box			CF		
<b>Coupling</b>					
Customer Half Coupling Installed			CF		
<b>Drain &amp; Breathers</b>					
Brass Drain & Breather	NA	■	NA	■	■
Stainless Steel Drain & Breather	NA	■	NA	■	■
<b>Encoder/Tachometer</b>					
Provisions (Tether Mount)			CF		
Installed			CF		
<b>Frequency</b>					
60Hz to 50Hz Rerate			CF		
<b>Grease/Lubrication/Fittings</b>					
High Temperature Grease	■	■	■	■	■
Low Temperature Grease	■	■	■	■	■
Oil Mist System			CF		
<b>Grounding</b>					
Shaft Grounding Brush**	■	■	■	■	■
Shaft Grounding Ring**	■	■	■	■	■
<b>Hardware</b>					
Stainless Steel			CF		
<b>Leads</b>					
Longer Leads (\$ per ft)	■	■	■	■	■
Special Terminal Requirement			CF		
<b>Low Noise</b>					
Low Noise Abatement			CF		
<b>Mounting/Assembly-Terminal Box Location</b>					
IEC** -Low Voltage	F3	F3	NA	NA	NA
IEC-Medium Voltage	F1 or F2	F1 or F2	F1 or F2	F1 or F2	F1 or F2
NEMA** -Low Voltage & Medium Voltage	F1 or F2	F1 or F2 or F3	F1 or F2	F1 or F2	F1 or F2
<b>Nameplate/Markings</b>					
Additional Data on Nameplate	■	■	■	■	■
Replacement Nameplate	■	■	■	■	■
Rotation Arrow	■	■	■	■	■
Separate Auxiliary Nameplate	■	■	■	■	■

■ = Available CF = Consult Factory NA = Not Available

\*\* - Not Available on Division 2 motors

\*\*\* - Not Available on 2 pole designs

\*See back cover page for attribution.

# ENDURANCE SERIES® MOTORS

## BUILD UP OPTIONS

FEATURES	ODP	TEFC	WP/II	TEAAC	TEWAC
<b>Packaging</b>					
Crating			CF		
Export Packaging			CF		
<b>Paint</b>					
Stock Marathon® Motor Color	■	■	■	■	■
Special Color			CF		
<b>Protection-Current and Voltage</b>					
Current Transformer			CF		
Potential Transformer			CF		
<b>Protection-Mechanical</b>					
Accelerometer	■	■	■	■	■
Vibration Sensor Provision	■	■	■	■	■
Vibration Sensor Installed	■	■	■	■	■
<b>Protection-Surge</b>					
Lightning Arrestors			CF		
Surge Capacitors			CF		
<b>Protection-Thermal</b>					
Bearing Temperature Detectors (BTDs) 100Ω Platinum	■	■	■	■	■
Stator Temperature Detectors (RTDs) 100Ω Platinum	■	■	■	■	■
Thermistor Control Module	■	■	■	■	■
Thermistors-Winding	■	■	■	■	■
Thermostats (N/C)	■	■	■	■	■
Thermostats (N/C) - Hermetically Sealed	■	■	■	■	■
<b>Service Factor</b>					
Service Factor Rerate			CF		
<b>Shaft Modification</b>					
Shaft Extension (Length, Keyway, Tapered, etc)			CF		
Shaft Features (Internal Thread, Milled Flat, Material)			CF		
<b>Shaft Seals</b>					
Labyrinth Seals	NA	■	NA	NA	NA
Radial Lip Seals	■	■	■	■	■
V-Ring Seals	■	■	■	■	■
<b>Space Heater</b>					
Space Heater-Standard (120V or 240V or 460V)	■	■	■	■	■
Space Heater-Silicone Free (120V or 240V)	■	■	■	■	■
<b>Testing</b>					
Unwitnessed - Complete Initial Test	■	■	■	■	■
Unwitnessed - Polarization Index Test	■	■	■	■	■
Unwitnessed - Sound Test	■	■	■	■	■
Unwitnessed - Vibration Test	■	■	■	■	■
Witnessed - Complete Initial Test	■	■	■	■	■
Witnessed - Sound Test	■	■	■	■	■
Witnessed - Vibration Test	■	■	■	■	■
<b>Torques</b>					
NEMA®* Design A, C or D			CF		
Torque - Special			CF		
<b>Voltage</b>					
Low Voltage > 601V			CF		
Medium Voltage > 4160V, but < 6900V			CF		
Medium Voltage 6900V through 13.2KV			CF		
<b>Weatherproofing / Special Service</b>					
Division 2 Hazardous Motor			CF		
Tropical Anti-Fungus Treatment	■	■	■	■	■
<b>WP/II Enclosure Options</b>					
Filter-Galvanized	NA	NA	■	NA	NA
Filter-Stainless	NA	NA	■	NA	NA
Pressure Differential Switch	NA	NA	■	NA	NA

■ = Available    CF = Consult Factory    NA = Not Available

\*\* - Not Available on Division 2 motors

\*\*\* - Not Available on 2 pole designs

# AC/DC CONTROLS

## QUICK REFERENCE



DC Adjustable Speed Drives

**Speedmaster™ DC drives for use with SCR rated motors. Models range from sub-FHP through 3 HP. NEMA®\* 1, NEMA 4/12 and NEMA 4X enclosures available. Low voltage controls available through 120 amps @ 12/24 V and 100 amps @ 36/48 V.**



SM2/SM4 Series Flux Vector Sub-Micro AC Inverters

**Speedmaster sensorless vector drives with “big drive” features and ultra-compact size. SM2 - 1/2 through 25 HP. IP31 enclosure – NEMA 1 Type. SM4 - 1/2 through 10 HP IP65 NEMA 4.**



Platinum e™ Series AC Inverters

**Platinum e™ Series Drives are for use with an AC induction motor or a PMAC motor. IP20 enclosure protection. 1/3 HP through 30 HP.**



# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

## SCR THYRISTOR CONTROLS



### PWM AND SCR CONTROLS GENERAL SPECIFICATIONS

- General purpose for permanent magnet or shunt wound DC motors
- NEMA®\* 4X and 4/12 suitable for washdown applications
- Dual voltage capable on most designs – see HP range
- AC Line Voltage: 115 / 230 VAC, ±10%, 50/60 Hz, 1Ø
- DC 90 volt or 180 volt output
- Adjustable minimum and maximum speed
- Speed pot included on chassis controls
- Adjustable IR compensation
- Heat sinks required as noted
- PWM controls provide quieter operation, lower motor temperature and greater motor overload capacity

### REGENERATIVE CONTROLS GENERAL SPECIFICATIONS

- Four quadrant controls for precise motion control
- NEMA 4X or chassis style
- Motoring and braking torque regulation ¼ HP through 2 HP

### ENCLOSED SCR

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT	FOOT NOTES
				115V	230V		
<b>NEMA 1 General Purpose</b>							
— Non-Reversing	174307.00	√	10	1/8 to 1	1/4 to 2	5	□
— Reversing with dynamic braking	174308.00	√	10	1/8 to 1	1/4 to 2	5	□
— Heat Sink	174316.00	√	—	—	—	1	
<b>NEMA 4X Washdown – Dust-Tight</b>							
— Non-Reversing, Plastic Enclosure	174102.00	√	10	1/8 to 1	1/4 to 2	6	
— Non-Reversing, Plastic Enclosure with Signal Follower	174103.00	√	10	1/8 to 1	1/4 to 2	7	
— Reversing, Plastic Enclosure	174107.00	√	10	1/8 to 1	1/4 to 2	7	**
<b>NEMA 4</b>							
— Non-Reversing 3HP	174709.00	√	15	—	3	8	

□ Chassis heat sink (174314.00) is required when the amp draw of the motor exceeds 5 amps.

\*\* Drive does not have dynamic braking. Motor shaft must be at zero speed before reversing.

# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

### SCR THYRISTOR & PWM CONTROLS

#### OPEN CHASSIS SCR - HAS FIELD SUPPLY FOR SHUNT WOUND MOTORS.

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT	FOOT NOTES
				115V	230V		
Chassis with Speed Pot-Non Reversing	174311.00	√	10	1/8 to 1	1/4 to 2	1	□
Chassis Heat Sink	174314.00	√	—	—	—	1	



#### REGENERATIVE SCR - FOUR QUADRANT - FULL WAVE - REVERSIBLE AND HAS REGENERATIVE BRAKING.

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT	FOOT NOTES
				115V	230V		
NEMA®* 4X Washdown	175720.00	√	10	1/4 to 1	1/2 to 2	8	□
Open Chassis with Speed Pot	175721.00	√	10	1/4 to 1	1/2 to 2	2	□
Chassis Heat Sink	175722.00	√	—	—	—	2	



#### PWM - ENCLOSED

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT	FOOT NOTES
				115V	230V		
<b>NEMA 1 General Purpose</b>							
— SCR Non-Reversing	M1740005.00	√	3	1/40 to 1/8	1/40 to 1/4	5	
— SCR Reversing With Dynamic Braking	M1740006.00	√	3	1/40 to 1/8	1/40 to 1/4	5	
— PWM Non-Reversing	M1740008.00	√	3	1/40 to 1/8	1/40 to 1/4	2	



#### PWM & SCR - OPEN CHASSIS

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT	FOOT NOTES
				115V	230V		
<b>Open Chassis SCR Type</b>							
— Chassis with Speed Pot, Non Reversing	M1740007.00	√	1.5	1/40 to 1/8	1/40 to 1/4	1	
<b>Open Chassis PWM Type</b>							
— Chassis with Speed Pot, Non Reversing	M1740009.00	√	2	1/40 to 1/8	—	1	



□ Chassis heat sink (174314.00) is required when the amp draw of the motor exceeds 5 amps.

# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

### SCR - 4 QUADRANT - CHASSIS - REGENERATIVE CONTROLS

#### FEATURES

- Industry standard footprint - Allows for replacing competitive drives
- Microprocessor-based design - Allows for customer programming
- Fully regenerative - 4-Quadrant allows for quick braking
- Multiple operation modes - speed, torque, cycling and positioning
- 3-Wire / Stopping modes - Inhibit (braking) and Enable (coasting) can be used for frequent starting and stopping

#### SPECIFICATIONS

- AC Line Voltage: 115 / 230 VAC,  $\pm 10\%$ , 50/60 Hz, 1 $\emptyset$
- Field Voltage with 115 VAC Line (230 VAC Line): 50/100 (100/200) VDC
- Maximum Field Amperage: 0.74 Amps
- Acceleration Time Range: 0.1 - 15 seconds
- Deceleration Time Range: 0.1 - 15 seconds
- Regenerative braking and reversing
- Analog Signal Range: 0  $\pm$  10 VDC, 4 - 20 mA
- Input Impedance (COM to SIG1, SIG2): >100K  $\Omega$
- Form Factor: 1.37 at base speed
- Tachogenerator Feedback Range: 0 to 7 - 50 VDC / 1000 RPM
- Load Regulation:
  - Armature Feedback: 1.0% of base speed or better
  - Tach Feedback: 0.1% of base speed or better
- Armature Feedback: 50:1
- Tach Feedback: 60:1
- Ambient Temperature Range: 10°C - 50°C

#### OPEN CHASSIS

MODEL / ITEM NO.	STOCK	MAX CURRENT (ADC)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VDC)	HP RANGE	FIELD/SHUNT SUPPLY (VDC)	WT	BRAKING	REVERSING	ISOLATION	FOOT NOTES
174062.00	√	1.5	115	0-90	1/50 - 1/8	YES	5	YES	YES	YES	
			230	0-90	1/50 - 1/8						
				0-180	1/25 - 1/4						
174064.00	√	11	115	0-90	1/8 - 1	YES	5	YES	YES	YES	□
			230	0-90	1/8 - 1						
				0-180	1/4 - 2						
174314.00	√	Chassis Heat Sink				—	1	—	—	—	

□ Chassis heat sink (174314.00) is required when the amp draw of the motor exceeds 5 amps.

# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

### LOW VOLTAGE CONTROLS

#### FEATURES

- Industry standard footprint - Allows for replacing competitive drives
- Microprocessor-based design - Allows for customer programming
- Fully regenerative - 4-Quadrant allows for quick braking
- Torque mode - Can be used for speed control or torque control
- Stopping modes - Inhibit (braking) can be used for N.O. or N.C. operation
- Can be used for frequent starting and stopping
- Bidirectional (Wigwag) mode - Can be set so that the potentiometer determines both speed and direction

#### SPECIFICATIONS

- AC Line Voltage: 115 / 230 VAC,  $\pm 10\%$ , 50/60 Hz, 1 $\emptyset$
- Acceleration Time Range: 0.5 - 20 seconds
- Deceleration Time Range: 0.5 - 20 seconds
- Regenerative braking and reversing
- Analog Signal Range: 0  $\pm$  10 VDC
- Input Impedance (COM to SIG1): >100K  $\Omega$
- Form Factor: 1.37 at base speed
- Load Regulation: 1.0% of base speed or better
- Speed Range 50:1
- Ambient Temperature Range: 10°C - 50°C

#### OPEN CHASSIS

MODEL / ITEM NO.	STOCK	MAX CURRENT (ADC)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VDC)	HP RANGE	FIELD/SHUNT SUPPLY (VDC)	WT	BRAKING	REVERSING	ISOLATION	FOOT NOTES
174065.00	√	1.5	115	0-90	1/50 - 1/8	NO	5	YES	YES	NO	
			230	0-90 0-180	1/50 - 1/8 1/25 - 1/4						
174066.00	√	11	115	0-90	1/8 - 1	NO	5	YES	YES	NO	□
			230	0-90 0-180	1/8 - 1 1/4 - 2						
174314.00	√	Chassis Heat Sink				—	1	—	—	—	

□ Chassis heat sink (174314.00) is required when the amp draw of the motor exceeds 5 amps.

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

### SCR CONTROLS

#### 15 SERIES GENERAL SPECIFICATIONS

- 0-90 / 0-180 volts DC
- Adjustable min. and max. speed
- Adjustable IR compensation
- Fixed acceleration - 5 seconds
- 5K ohm speed potentiometer included
- 25:1 speed range and 1% speed regulation



NEMA 4/12  
Non-Reversing

174695.00

174694.00

DESCRIPTION	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	HP RANGE		WT
				115V	230V	
NEMA®* 4X DC CONTROL.Non-Reversing	174696.00	√	3	1/3	2/3	1
15 Series DC DRIVE Vertical Chassis Control	174695.00	√	2	1/6	1/6	1
15 Series DC DRIVE Horizontal Chassis Control	174694.00	√	2	1/6	1/6	1

## LOW VOLTAGE ADJUSTABLE SPEED CONTROLLERS

#### GENERAL SPECIFICATIONS

- Chassis type design
- DC input / DC output
- Speed potentiometer shipped loose
- High efficient designs increase battery life

#### FEATURES

- 40:1 speed range
- Holds speed control as battery discharges
- Adjustable min. and max. speeds
- IR compensation
- 200% current limit overload protection
- Inhibit pins provide optional start-stop
- Power on LED indicator



#### SCR CONTROLS - ENCLOSED

INPUT VOLTAGE (VDC)	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	DIMENSIONS (INCHES)			WT
				LENGTH	WIDTH	HEIGHT	
12/24	175290.00	√	16	6.90	4.44	2.19	2
12/24	175291.00	√	60	7.78	6.90	3.25	4
36/48	175292.00	√	60	7.78	6.90	3.25	4

# AC/DC CONTROLS

## DC ADJUSTABLE SPEED DRIVES

### LOW VOLTAGE CONTROLS



#### GENERAL SPECIFICATIONS

- Chassis type design
- DC input / DC output
- Speed potentiometer shipped loose
- High efficient designs increase battery life

#### FEATURES

- Accepts switch closure for reversing and braking
- Built-in temperature sensor
- On board trim pots for calibration, speed and forward and reverse settings
- Sleep mode feature
- Built-in short circuit protection
- 1.01 Form factor

#### FOUR QUADRANT CONTROL - OPEN CHASSIS

INPUT VOLTAGE (VDC)	MODEL / ITEM NO.	STOCK	OUTPUT AMPS	DIMENSIONS (INCHES)			WT
				LENGTH	WIDTH	HEIGHT	
12/24	174298.00	√	120	6.90	5.00	2.50	3
36/48	174299.00	√	100	6.90	5.00	2.50	3

#### DUAL MODE - DUAL SPEED CONTROLLERS

#### FEATURES

- SCR control is designed to run two DC motors at the same time in either independent mode or slave/master mode
- AC Line Voltage: 115 / 230 VAC, ±10%, 50/60 Hz, 1Ø with jumper
- Selectable 90/180 VDC output
- Jumper selectable speed and torque mode
- Two trim pots each for the minimum speed, maximum speed, IR compensation, current limit and acceleration/deceleration
- Comes standard with two potentiometers



#### FOUR QUADRANT CONTROL - OPEN CHASSIS

HP	STOCK	INPUT VOLTAGE	OUTPUT AMPS	OUTPUT VOLTAGE	MODEL / ITEM NO.	WT	FOOT NOTES
1 HP @ 90 VDC	√	115	10	0-90	174422.00	3	□
2 HP @ 180 VDC	√	230	10	0-180			
Chassis Heat Sink	√				174314.00	1	

□ Chassis heat sink (174314.00) is required when the amp draw of the motor exceeds 5 amps.

#### FOOT SWITCH/POTENTIOMETER

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT
Foot Operated 10k Speed Pot	174650.00	√	3



# AC/DC CONTROLS

LEESON® Speedmaster inverters are feature rich controls offering great process control and operating efficiency for your AC Motors. With our broad family of controls, we have the solution for your application needs at a competitive price.



BASIC FEATURES	SM2 VECTOR	SM4 VECTOR	PLATINUM e™ VSD	PLATINUM e™ VSD - PLUS
Enclosure Type	IP31	IP65	IP21	IP21
Enclosure Material	Plastic	Plastic	Plastic	Plastic
Number Pre-set Speeds	8	8	16	16
Washdown Duty	No	Yes	No	No
FWD & REV	Yes	Yes	Yes	Yes
Password Protected	Yes	Yes	Yes	Yes
Dynamic Brake Kits	No	No	No	Yes
Relays	Yes	Yes	Yes	Yes
EPM Programmable	Yes	Yes	Yes	Yes
Open Loop Vector	Yes	Yes	Yes	Yes
Closed Loop Vector	No	No	No	Yes
PMAC Motor Control	No	No	Yes	Yes
PID Software	Yes	Yes	Yes	No
Remote Keypads	Yes	Yes	Yes	Yes
Slip Compensation	Yes	Yes	Yes	Yes
Speed Reference Signals	Yes	Yes	Yes	Yes
Display - Words or Codes	4 - digit	4 - digit	Words & Codes	Words & Codes
Adjustable Carrier Frequency	4 - 10 kHz	4 - 10 kHz	2 - 16 kHz	2 - 16 kHz
DC Braking	Yes	Yes	Yes	Yes
Fault History	Yes	Yes	Yes	Yes
Max. HP @ 460 Volts	60	30	3	30
Max. HP @ 230 Volts	20	20	3	3
1 Phase Input / 3 Phase Output	Yes	Yes	Yes	Yes
Output Frequency	500 Hz	500 Hz	599 Hz	599 Hz

# AC/DC CONTROLS

## FHP™ SERIES AC CONTROLS

### AC ADJUSTABLE SPEED DRIVES



#### SINGLE PHASE INPUT / SINGLE OR THREE PHASE OUTPUT

HP	INPUT VOLTAGE 1Ø	OUTPUT AMPS	OUTPUT VOLTAGE 1 OR 3Ø	MODEL / ITEM NO.	STOCK	WT
1/4	115	2.4	115	175320.00	√	3
1/2	230	2.4	230	175321.00	√	3
1/2	115/230	2.4	230	175310.00	√	3
1/2	115	4.0	115	175322.00	√	4
1	230	4.0	230	175323.00	√	4
1	115/230	4.0	230	175311.00	√	4

#### FHP SERIES AC DRIVES - ACCESSORIES

HP	MODEL / ITEM NO.	STOCK	WT	FOOT NOTES
Process Control Module (PCM) Kit *	175324.00	√	2	*
Carrier Frequency Capacitor Kit	175325.00	√	1	



\* PCM Kit is for use with chassis drives only.

# AC/DC CONTROLS

## FHP™ SERIES AC CONTROLS

### AC ADJUSTABLE SPEED DRIVES

#### GENERAL SPECIFICATIONS

The FHP Series volts/hertz-type AC drives are as simple to set-up and calibrate as an SCR-type DC drive. Compact chassis design maintains industry standard mounting hole locations.

#### FEATURES FOR CHASSIS AND ENCLOSED UNITS

- Compact size – (4.30" x 3.70")
- Output voltage on dual voltage models is jumper selectable and has voltage doubler
- Acceleration and deceleration trim pots
- Torque, maximum speed and torque limit trim pots
- Torque 'foldback' feature – Allows up to 200% torque for short periods
- 16kHz switching frequency, with option to change between 4 and 16kHz
- Adjustable torque boost for startup – Up to 200%
- Color-coded on-board LEDs for power, fault and torque limit
- Easy start/stop and direction control with enable and direction terminal connections
- Accepts speed reference from 0-5VDC isolated signal
- Speed potentiometer shipped loose
- Plug-in Process Control Module (PCM) kit available to accept 0-5 VDC, 0-10 VDC or 4-20mA input

#### SPECIAL FEATURES OF THE NEMA® 4X DRIVE:

- NEMA®\* 4X enclosure
- Jumper selectable DC injection braking or coast to stop
- Brake time and current are adjustable
- Built-in isolation card to accept a speed reference signal
- Min speed adjustment
- Auto or manual restart after power loss

PARAMETER	SPECIFICATIONS FOR ALL FHP MODELS	FOOT NOTES
Max load	150% for 5 minutes	
Output frequency	0-120Hz	
Output type	6 step PWM	
Switching frequency	4-16kHz range with 16kHz as factory default	*
Speed regulation and range	±3% of base speed; up to 50:1	
On-board adjustable trim pots	Max speed, accel, decel, boost & torque limit	
Adjustable maximum frequency range	32-120Hz	
Adjustable accel and decel time range	1-12 seconds	
Torque boost range	0-200%	
LED indicators	Power (green), Fault (red), Torque Limit (yellow)	‡
Instantaneous over-current trip time	3 µsec	
Analog reference input and impedance	0-5VDC isolated, ~100Kohm	
Plug-in PCM isolator card input	0-5 VDC, 0-10VDC, 4-20mA	
Ambient temperature range	0-40°C	
Weight (Chassis Models)	1.2 lbs.	
Vibration (>50Hz)	0.5G max (20-50Hz); 0.1G max	
Approvals	UL®*, cUL®*	

\* Plug-in capacitor kit (175325.00) for field adjustments to less than 16khz

‡ Faults are Over-voltage, Under-voltage and Instantaneous Over Current trip Specifications are subject to change without notice.

# AC/DC CONTROLS

## SM2 SERIES FLUX VECTOR SERIES AC INVERTERS

### NEMA®\* 1 IP31 ENCLOSURE PROTECTION



### GENERAL SPECIFICATIONS

- Designed to be used with vector duty AC motors
- Open loop flux vector designs
- Typical applications would include: food processing, machinery, material handling and HVAC systems
- Enclosure: NEMA1, IP31, -10 to 55°C, 2.5% derate per °C above 40°C

### STANDARD FEATURES

**Easy Set-up and Operation: Program the vector control in one of four convenient ways:**

- From the front of the drive
- The optional remote keypad
- The innovative EPM programmer

### MODES OF OPERATION

- Open-loop flux vector (speed or torque)
- V/Hz (constant or variable)
- Enhanced V/Hz with auto-tuning

### EASY TO USE KEYPAD & DISPLAY

#### 6-BUTTON INTERFACE

- Start
- Stop
- Forward/reverse
- Scroll up
- Scroll down
- Enter/mode

### VIVID ILLUMINATION

- 4 digit LED display
- Easy to read from a distance
- Movable decimal point

### ACCELERATION/DECELERATION

#### PROFILES:

- Two independent accel ramps
- Two independent decel ramps
- Linear or S-type
- Auxiliary ramp-to-stop

### OUTPUT FREQUENCY

- 500 Hz Std., 1000 Hz optional

### SELECTABLE LOGIC ASSERTION

- Positive logic input (PNP current sourcing)
- Negative logic input (NPN current sinking)

### MULTIPLE BRAKING FUNCTIONS

- Loss of follower management
- Speed commands: keypad, jog, floating point control
- Voltage: scalable 0-10 VDC
- Current: scalable 4-20 mA, potentiometer
- 8 Preset speeds
- Process control: PID modes: direct or reverse acting
- PID sleep mode
- Voltage monitoring
- Current monitoring
- Real time monitoring: 8 register fault history, software version drive network ID, DC bus
- Voltage (V), motor voltage (V), output current (%) motor current (A), motor torque (%), power (kW) energy consumption (kWh), heatsink
- Temperature (°C), 0-10 VDC input (user defined), 4-20 mA input (user defined) continuity, keypad status, PID feedback (user defined), analog output (% load, % torque, kW), network speed (baud rate), terminal
- Elapsed run time (hours), elapsed power on time (hours)
- Standards: UL\*\* (USA), cUL\*\* (Canada), CE\*\* (Europe), GOST\*\* (Russia/Ukraine) C-Tick\*\* (Australia/New Zealand)

# AC/DC CONTROLS

## SM2 SERIES FLUX VECTOR SERIES AC INVERTERS

### NEMA®\* 1 IP31 ENCLOSURE PROTECTION



#### SINGLE PHASE INPUT / 230 VOLT THREE PHASE OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
115/230	1/3	1.7	115/230	174603.00	√	3	7.5 x 3.9 x 4.35	
	1/2	2.4	115/230	174604.00	√	3	7.5 x 3.9 x 4.35	
	1	4.2	115/230	174605.00	√	3	7.5 x 3.9 x 4.35	
	1 1/2	6.0	115/230	174651.00	√	5	7.5 x 3.9 x 5.45	

#### SINGLE OR THREE PHASE INPUT / 230 VOLT THREE PHASE OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
208-240	1/3	1.7	208/240	174606.00	√	3	7.5 x 3.9 x 4.35	€
	1/2	2.4	208/240	174607.00	√	3	7.5 x 3.9 x 4.35	
	1	4.2	208/240	174608.00	√	3	7.5 x 3.9 x 4.35	
	1 1/2	6.0	208/240	174609.00	√	4	7.5 x 3.9 x 5.45	
	2	7.0	208/240	174610.00	√	4	7.5 x 3.9 x 5.45	
	3	9.6	208/240	174611.00	√	4	7.5 x 3.9 x 5.45	

#### THREE PHASE INPUT / OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
200-240	1 1/2	6.0	200/240	174609.00	√	4	7.5 x 3.9 x 5.45	
	2	7.0	200/240	174610.00	√	4	7.5 x 3.9 x 5.45	
	3	9.6	200/240	174611.00	√	4	7.5 x 3.9 x 5.45	
	5	16.5	200/240	174615.00	√	4	7.5 x 3.9 x 5.8	
	7 1/2	23.0	200/240	174616.00	√	7	9.83 x 5.12 x 6.3	
	10	29.0	200/240	174617.00	√	7	9.83 x 5.12 x 6.3	
	15	42.0	200/240	174618.00	√	20	12.33 x 6.88 x 8.08	
400-480	1/2	1.1	400/480	174620.00	√	3	7.5 x 3.9 x 4.35	
	1	2.1	400/480	174621.00	√	3	7.5 x 3.9 x 4.35	
	1 1/2	3.0	400/480	174622.00	√	4	7.5 x 3.9 x 5.45	
	2	3.5	400/480	174623.00	√	4	7.5 x 3.9 x 5.45	
	3	4.8	400/480	174624.00	√	4	7.5 x 3.9 x 5.45	
	5	8.2	400/480	174625.00	√	4	7.5 x 3.9 x 5.8	
	7 1/2	11.0	400/480	174626.00	√	7	9.83 x 5.12 x 6.3	
	10	14.0	400/480	174627.00	√	7	9.83 x 5.12 x 6.3	
	15	21.0	400/480	174628.00	√	20	12.33 x 6.88 x 8.08	
	20	27.0	400/480	174629.00	√	20	12.33 x 6.88 x 8.08	
	25	35.0	400/480	174630.00	√	20	12.33 x 6.88 x 8.08	
	30	45.0	400/480	174991.00	√	14	12.5x6.92x8.09	
	40	59.0	400/480	174992.00	√	24	14.19x8.72x10.07	
480-590	1	1.7	480/590	174631.00	√	3	7.5 x 3.9 x 4.35	
	2	2.7	480/590	174632.00	√	4	7.5 x 3.9 x 5.45	
	3	3.9	480/590	174633.00	√	4	7.5 x 3.9 x 5.45	
	5	6.1	480/590	174634.00	√	4	7.5 x 3.9 x 5.8	
	7 1/2	9.0	480/590	174635.00	√	7	9.83 x 5.12 x 6.3	
	10	11.0	480/590	174636.00	√	7	9.83 x 5.12 x 6.3	
	15	17.0	480/590	174637.00	√	20	12.33 x 6.88 x 8.08	
	20	22.0	480/590	174638.00	√	20	12.33 x 6.88 x 8.08	
	25	27.0	480/590	174639.00	√	20	12.33 x 6.88 x 8.08	

€ Model 174606.00 is single-phase input only

√: Available

¶- Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

# AC/DC CONTROLS

## SM4 SERIES FLUX VECTOR SERIES AC INVERTERS

### NEMA®\* 4 IP65 ENCLOSURE PROTECTION



#### GENERAL SPECIFICATIONS

- Indoor use only inverter that is designed to be used with vector duty motors
- Typical applications would include: packaging machinery, food processing, conveying systems, machinery and HVAC systems
- Enclosure: NEMA 4, IP65, -10 to 55°C, derate per °C above 40°C

#### STANDARD FEATURES

- From the front of the drive
- The optional remote keypad
- A PC using TechLink software, software is available on our website
- The innovative EPM programmer

#### MODES OF OPERATION

- Open-loop flux vector (speed or torque)
- V/Hz (constant or variable)
- Enhanced V/Hz with auto-tuning

#### EASY TO USE KEYPAD & DISPLAY 6-BUTTON INTERFACE

- Start
- Stop
- Forward/reverse
- Scroll up
- Scroll down
- Enter/mode

#### VIVID ILLUMINATION

- 4 digit LED display
- Easy to read from a distance
- Movable decimal point

#### ACCELERATION/DECELERATION PROFILES:

- Two independent accel ramps
- Two independent decel ramps
- Linear or S-type
- Auxiliary ramp-to-stop

#### OUTPUT FREQUENCY

- 500 Hz Std., 1000 Hz optional

#### SELECTABLE LOGIC ASSERTION

- Positive logic input (PNP current sourcing)
- Negative logic input (NPN current sinking)

#### MULTIPLE BRAKING FUNCTIONS

- Loss of follower management
- Speed commands: keypad, jog, floating point control
- Voltage: scalable 0-10 VDC
- Current: scalable 4-20 mA, potentiometer
- 8 Preset speeds
- Process control: PID modes: direct or reverse acting
- PID sleep mode
- Voltage monitoring
- Current monitoring
- Real time monitoring: 8 register fault history, software version drive network ID, DC bus
- Voltage (V), motor voltage (V), output current (%) motor current (A), motor torque (%), power (kW) energy consumption (kWh), heatsink
- Temperature (°C), 0-10 VDC input (user defined), 4-20 mA input (user defined) continuity, keypad status, PID feedback (user defined), analog output (% load, % torque, kW), network speed (baud rate), terminal
- Elapsed run time (hours), elapsed power on time (hours)
- Standards: UL\*\* (USA), cUL\*\* (Canada), CE\*\* (Europe), GOST\*\* (Russia/Ukraine) C-Tick\*\* (Australia/New Zealand)

# AC/DC CONTROLS

## SM4 SERIES FLUX VECTOR SERIES AC INVERTERS

### NEMA® 4 IP65 ENCLOSURE PROTECTION



#### SINGLE PHASE INPUT / 230 VOLT THREE PHASE OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
115/230	1/2	2,4	115/230	174652.00	√	4	8.0 x 6.28 x 4.47	
	1/2	2,4	115/230	174540.00	√	4	8.0 x 6.28 x 4.47	DC
	1	4,2	115/230	174653.00	√	4	8.0 x 6.28 x 4.47	
	1,5	6,0	115/230	174654.00	√	4	8.0 x 6.28 x 4.47	

#### SINGLE OR THREE PHASE INPUT / 230 VOLT THREE PHASE OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
208-240	1/2	2,4	208-240	174655.00	√	4	8.0 x 6.28 x 4.47	
	1	4,2	208-240	174656.00	√	4	8.0 x 6.28 x 4.47	
	1 1/2	6,0	208-240	174657.00	√	6	8.0 x 6.28 x 6.31	
	2	7,0	208-240	174658.00	√	6	8.0 x 6.28 x 6.31	
	3	9,6	208-240	174659.00	√	7	8.0 x 7.12 x 6.77	

#### THREE PHASE INPUT / OUTPUT

VOLTAGE	HP	OUTPUT AMPS	INPUT VOLTAGE	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)	FOOT NOTES
208-240	5	16,5	208-240	174660.00	√	12	10.0 x 8.96 x 8.0	
	7 1/2	23,0	208-240	174661.00	√	11	10.0 x 8.04 x 8.0	FN
	10	29,0	208-240	174662.00	√	11	10.0 x 8.04 x 8.0	FN
	15	42,0	208-240	174699.00	√	25	14.5 x 9.42 x 9.45	FN
	20	54,0	208-240	174700.00	√	26	14.5 x 9.42 x 9.45	FN
400-480	1/2	1,5	400-480	174671.00	√	4	8.0 x 6.28 x 4.47	
	1/2	1,5	400-480	174542.00	√	4	8.0 x 6.28 x 4.47	FN,DC
	1	2,1	400-480	174672.00	√	4	8.0 x 6.28 x 4.47	
	1 1/2	3,0	400-480	174673.00	√	6	8.0 x 6.28 x 6.31	
	2	3,5	400-480	174674.00	√	6	8.0 x 6.28 x 6.31	
	3	4,8	400-480	174675.00	√	6	8.0 x 6.28 x 6.31	
	5	8,2	400-480	174676.00	√	12	10.0 x 8.96 x 8.0	
	7 1/2	11,0	400-480	174677.00	√	12	10.0 x 8.96 x 8.0	
	10	14,0	400-480	174678.00	√	11	10.0 x 8.04 x 8.0	FN
	10	14,0	400-480	174546.00	√	11	10.0 x 8.04 x 8.0	FN,DC
	15	21,0	400-480	174701.00	√	25	14.5 x 9.42 x 9.45	FN
	15	21,0	400-480	174544.00	√	25	14.5 x 9.42 x 9.45	FN,DC
	20	27,0	400-480	174702.00	√	26	14.5 x 9.42 x 9.45	FN
	25	34,0	400-480	174703.00	√	26	14.5 x 9.42 x 9.45	FN
30	40,0	400-480	174704.00	√	31	18.5 x 9.42 x 9.45	FN	
480-590	1	1,7	480-590	174663.00	√	4	8.0 x 6.28 x 4.47	
	2	2,7	480-590	174664.00	√	6	8.0 x 6.28 x 6.31	
	3	3,9	480-590	174665.00	√	6	8.0 x 6.28 x 6.31	
	5	6,1	480-590	174666.00	√	12	10.0 x 8.96 x 8.0	
	7 1/2	9,0	480-590	174667.00	√	12	10.0 x 8.96 x 8.0	
	10	11,0	480-590	174668.00	√	11	10.0 x 8.04 x 8.0	FN

√: Available

¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

# AC/DC CONTROLS

## PLATINUM e™ VSD SERIES

### IP20 ENCLOSURE PROTECTION

#### GENERAL SPECIFICATIONS:

- New state of the art inverter designs
- Space saving design: 2.36 in. (60 mm) wide, 5.12 in. (130 mm) deep, also zero-clearance mounting
- RoHS2-Compliance
- Fulfills IE2 according to new EN 50598-2
- Out of the box commissioning
- Easy commissioning with memory module
- Improved usability for easy commissioning
- Parameterization with USB module without external power supply
- Innovative interface options enable set-up times faster than ever before
- The wide-ranging modular system enables various product configurations depending on machine requirements
- Spring loaded control terminals (fixed)
- More functionalities for advanced application
- Fieldbus - CANopen/Modbus (optional)
- VFC Eco mode for more energy savings
- The Platinum e VSD is recommended in applications for pumps and fans, conveyors, formers, winders and machine tools

#### FEATURES: THREE SET-UP METHODS

- **Keypad** - If you only need to set up a few parameters, such as acceleration time, this can be done quickly from the keypad
- **Smart Keypad for use with an Android App** - Enables adjustment to a simple application such as a conveyor
- **Easy Starter** - For use if the function is needing a potentiometer or control, for positioning applications



Keypad



WLAN module



USB module

# AC/DC CONTROLS

## PLATINUM e™ VSD SERIES

### IP20 ENCLOSURE PROTECTION

FOR USE WITH THREE PHASE INDUCTION OR PMAC MOTORS



FIELD BUS	VOLT	HP	OUTPUT AMPS	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)
N/A	230/240 1 OR 3Ø	1/3	1.7	176105.00	√	2	6.1 x 2.36 x 5.12
		1/2	2.4	176106.00	√	2	6.1 x 2.36 x 5.12
		3/4	3.2	176107.00	√	2	7.09 x 2.36 x 5.12
		1	4.2	176108.00	√	2	7.09 x 2.36 x 5.12
		1 1/2	6.0	176109.00	√	3	9.84 x 2.36 x 5.12
		2	7.0	176110.00	√	3	9.84 x 2.36 x 5.12
		3	9.6	176111.00	√	3	9.84 x 2.36 x 5.12
CANopen/ Modbus	230/240 1 OR 3Ø	1/3	1.7	176112.00	√	2	6.1 x 2.36 x 5.12
		1/2	2.4	176113.00	√	2	6.1 x 2.36 x 5.12
		3/4	3.2	176114.00	√	2	7.09 x 2.36 x 5.12
		1	4.2	176115.00	√	2	7.09 x 2.36 x 5.12
		1 1/2	6.0	176116.00	√	3	9.84 x 2.36 x 5.12
		2	7.0	176117.00	√	3	9.84 x 2.36 x 5.12
		3	9.6	176118.00	√	3	9.84 x 2.36 x 5.12
N/A	400/480 3Ø	1/2	1.3	176120.00	√	2	6.1 x 2.36 x 5.12
		3/4	1.8	176121.00	√	2	7.09 x 2.36 x 5.12
		1	2.4	176122.00	√	2	7.09 x 2.36 x 5.12
		1 1/2	3.2	176123.00	√	3	9.84 x 2.36 x 5.12
		2	3.9	176124.00	√	3	9.84 x 2.36 x 5.12
		3	5.6	176125.00	√	3	9.84 x 2.36 x 5.12
CANopen/ Modbus	400/480 3Ø	1/2	1.3	176127.00	√	2	6.1 x 2.36 x 5.12
		3/4	1.8	176128.00	√	2	7.09 x 2.36 x 5.12
		1	2.4	176129.00	√	2	7.09 x 2.36 x 5.12
		1 1/2	3.2	176130.00	√	3	9.84 x 2.36 x 5.12
		2	3.9	176131.00	√	3	9.84 x 2.36 x 5.12
		3	5.6	176132.00	√	3	9.84 x 2.36 x 5.12

#### ACCESSORIES

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT
Keypad Interface	174356.00	√	1
USB Interface	174357.00	√	1
WiFi Direct Interface Module	174358.00	√	1
Blank Interface Cover (4-pack)	174359.00	√	1



Keypad



WLAN module



USB module

# AC/DC CONTROLS

## PLATINUM e™ VSD - PLUS SERIES

### IP20 ENCLOSURE PROTECTION

#### GENERAL SPECIFICATIONS:

- State of the art inverter designs
- Space saving design: 2.36 in. (60 mm) wide, 5.12 in. (130 mm) deep, also zero-clearance mounting
- RoHS2-Compliance
- Fulfills IE2 according to new EN 50598-2
- Out of the box commissioning
- Easy commissioning with memory module
- Improved usability for easy commissioning
- Parameterization with USB module without external power supply
- The wide-ranging modular system enables various product configurations depending on machine requirements
- The Platinum e VSD - PLUS is recommended in applications for pumps and fans, conveyors, formers, winders and machine tools
- Pluggable control terminal
- More functionalities for advanced application
- Fieldbus - EtherCAT, EtherNet/IP, Profinet, CANopen, Modbus, Profibus, (options)
- VFC Eco mode for more energy savings
- Innovative interface options enable set-up times faster than ever before

#### FEATURES:

- **Keypad** - If you only need to set up a few parameters, such as acceleration time, this can be done quickly from the keypad
- **Smart Keypad for use with an Android App** - Enables adjustment to a simple application such as a conveyor
- **Easy Starter** - For use if the function is needing a potentiometer or control, for positioning applications



Keypad



WLAN module



USB module

# AC/DC CONTROLS

## PLATINUM e™ VSD - PLUS SERIES

### IP20 ENCLOSURE PROTECTION

FOR USE WITH THREE PHASE INDUCTION OR PMAC MOTORS

VOLTAGE	HP	OUTPUT AMPS	MODEL / ITEM NO.	STOCK	WT	DIMENSIONS H x W x D (in.)
230/240 1 OR 3Ø	1/3	1.7	176133.00	√	2	6.1 x 2.36 x 5.12
	1/2	2.4	176134.00	√	2	6.1 x 2.36 x 5.12
	3/4	3.2	176135.00	√	2	7.09 x 2.36 x 5.12
	1	4.2	176136.00	√	2	7.09 x 2.36 x 5.12
	1 1/2	6.0	176137.00	√	3	9.84 x 2.36 x 5.12
	2	7.0	176138.00	√	3	9.84 x 2.36 x 5.12
	3	9.6	176139.00	√	3	9.84 x 2.36 x 5.12
400/480 3Ø	1/2	1.3	176140.00	√	2	6.1 x 2.36 x 5.12
	3/4	1.8	176141.00	√	2	7.09 x 2.36 x 5.12
	1	2.4	176142.00	√	2	7.09 x 2.36 x 5.12
	1 1/2	3.2	176143.00	√	3	9.84 x 2.36 x 5.12
	2	3.9	176144.00	√	3	9.84 x 2.36 x 5.12
	3	5.6	176145.00	√	3	9.84 x 2.36 x 5.12
	5	9.5	176146.00	√	5	9.84 x 3.54 x 5.12
	7 1/2	13.0	176147.00	√	5	9.84 x 3.54 x 5.12
	10	16.5	176148.00	√	8	10.83 x 4.72 x 5.12
	15	23.5	176149.00	√	8	10.83 x 4.72 x 5.12
	20	32.0	176150.00	√	23	13.78 x 8.07 x 9.06
	25	40.0	176151.00	√	23	13.78 x 8.07 x 9.06
30	47.0	176152.00	√	23	13.78 x 8.07 x 9.06	



### CONTROL UNITS

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT
Standard I/O	174362.00	√	1
Application I/O	174363.00	√	1
CANopen - Standard I/O	174364.00	√	1
Modbus-RTU - Standard I/O	174365.00	√	1
Profibus-DP - Standard I/O	174366.00	√	1
EtherCat - Standard I/O	174367.00	√	1
Profinet - Standard I/O	174368.00	√	1
EtherNet/IP - Standard I/O	174369.00	√	1

### ACCESSORIES

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT
Keypad Interface	174356.00	√	1
USB Interface	174357.00	√	1
WiFi Direct Interface Module	174358.00	√	1
Blank Interface Cover (4-pack)	174359.00	√	1
Remote Keypad Kit	174370.00	√	1



Keypad



WLAN module



USB module

# AC/DC CONTROLS

## ACCESSORIES AND KITS

### ELECTRONIC PROGRAMING UNIT

Electronic Programming Unit allows off-line set-up and replication of the drive's plug-in electronic programming module (shown at right). Excellent for multi-drive applications. Keypad input and alphanumeric display simplify programming. RS-232 serial port allows downloading of configuration files from personal computer.



MODEL / ITEM NO.	STOCK	WT.
KIT A145		2

### EPM BULK PACK

Plug-in electronic programming modules (EPM). Allow off-line set-up and replication of program using Electronic Programming Unit. Set of 12.



DESCRIPTION	MODEL / ITEM NO.	STOCK	WT.
Pack of 12 EPMs, Fit all Platinum series drives	174196.00	√	1
Pack of 12 EPMs, Fit all SM2 and SM4 series drives	174197.00	√	1

### SPEED POTENTIOMETER

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT.
Speed Pot (10k/5w pot, washers & nut)	6708.01		1



### SM4 SPEED POTENTIOMETER

Potentiometer kit takes the place of the up/ down buttons on the drive's keypad gives operators hands-on speed control over the inverter's speed range.

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT.
SM4 Remote potentiometer kit, Drive Width 6.28" to 7.12"	174693.00	√	2
Remote potentiometer kit, Drive Width 8.04" to 9.96"	174697.00	√	2



### REMOTE KEYPAD

Kit includes eight-foot connecting cable and gasket. Mounted in proper enclosure, the keypad kit will provide up to NEMA®\* 4 protection.

DESCRIPTION	MODEL / ITEM NO.	STOCK	WT.
Remote keypad for SM2 series	174150.00	√	2



√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

# AC/DC CONTROLS

## ACCESSORIES AND KITS

### DYNAMIC BRAKING MODULES WITH BUILT-IN DYNAMIC BRAKING RESISTORS(1)

Dynamic braking components are available for the SM2 Vector Series drives as a separate dynamic braking module. 10 HP and lower modules have control electronics and the dynamic braking resistor in one convenient package. Larger units require a separate resistor. The modules can be panel or DIN rail mounted.

### DYNAMIC BRAKING MODULES WITH RESISTORS

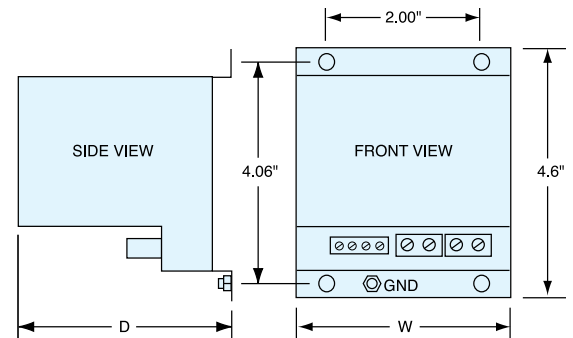
HP	VOLTAGE	MODEL NO.	STOCK	WT.
1/3-1/2	208 - 230V	174157.00	√	2
	400 - 480V	174158.00	√	2
1 - 1 1/2	208 - 230V	174151.00	√	3
	400 - 480V	174152.00	√	3
	480 - 590V	174153.00	√	3
2 - 3	208 - 230V	174154.00	√	4
	400 - 480V	174155.00	√	4
	480 - 590V	174156.00	√	4
5	208 - 230v	174159.00	√	5
	400 - 480V	174160.00	√	5
	480 - 590V	174161.00	√	5
7 1/2	208 - 230V	174162.00	√	6
	400 - 480V	174163.00	√	6
	480 - 590V	174164.00	√	6
10	208 - 230V	174165.00	√	8
	400 - 480V	174166.00	√	8
	480 - 590V	174167.00	√	8

### DYNAMIC BRAKING MODULES WITH RESISTORS

HP	VOLTAGE	MODEL NO.	STOCK	WT.
15-25	480-590V	174419.00		10

### DYNAMIC BRAKING MODULES WITH RESISTORS

HP	VOLTAGE	MODEL NO.	STOCK	WT.
25-30	400-480V	174145.00		1
	480-590V	174140.00		1
40	480-590V	174141.00		1
50-60	480-590V	174142.00		1



marathon®



# THE PERFECT PAIR



**Marathon® Permanent Magnet AC Motor  
and LEESON® Platinum e™ VSD Series**



# MARATHON ELECTRIC HANOVER CANADA FACILITY

**Whether you need a modified stock motor or custom motor built to your specifications, WE CAN HELP!**

## LEVEL OF SERVICE

### Speed of Response

Friendly and knowledgeable on-site staff available to offer quick assistance and provide quotes.

### Speed of Delivery

Standard lead time is approximately 2 weeks, we also offer 3-5 day expedited option. One of the fastest in the custom built market.

### Quality

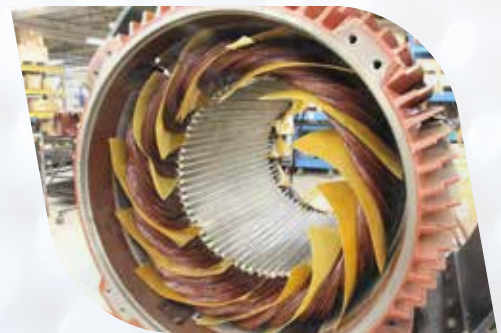
High quality materials used and extensive on-site testing conducted (Winding Resistance, Hipot & Surge), to build long lasting motors.

### Technical Support

On-site staff available to handle unique requirements and find the right custom solution for your application.

### Canada Built Option

One of a kind facility offering "Made in Canada" option for motors.



## MARATHON PLATFORMS OFFERED

- Globetrotter® Motors
- Blue Chip Series® Motors
- IEEE841 Motors
- Marathon Pump Motors
- TerraMAX® IEC®\* Motors
- Washguard® Motors
- Black Max® Motors
- Blue Max® Motors
- Severe Duty Motors
- Fire Pump Motors
- XRI® Motors
- And much more...

\*See back cover page for attribution.

# CUSTOM SOLUTIONS WHEN YOU NEED THEM...



Steel Mill Roller



Custom Brakemotor



Stainless Steel  
Brakemotor



Internal Threaded Shaft  
Severe Duty



Public Transit Special  
Frame



Pulp Dryer



1000V Mine  
Transportation Motor



Double Shaft with D Flange  
& 10' Leads



Custom Flange  
Mounting



NEMA<sup>®</sup>\* to IEC<sup>®</sup>\*



Custom Fabrication



Winding/Bearing RTD's  
w/ Aux. Thermostat Box

## CAPABILITIES

### Custom Winding

- Hand wound motors
- 56 to 215T NEMA frame rolled steel
- 143T to 449T NEMA frame cast iron
- 0.25 to 350 HP, 3 phase AC (TEFC/ODP)
- Single and multi-speed designs
- Constant torque and variable torque designs
- Low speed offering in 8, 10 & 12 pole
- Custom voltage designs

### Stock Modification

- 56 to 449T NEMA frame sizes
- IEC motor modifications
- Severe duty modifications
- Shaft modifications
- Bearing upgrades
- Flanges
- Brakes
- Encoders
- Space heaters
- Thermostats and PTC thermistors
- And much more...

Contact us for more information on our offerings. See backpage for our contact details.

\*See back cover page for attribution.



# **SPECIALS** ARE OUR **SPECIALTY**

## **CUSTOM MOTORS**

Marathon® is a leading designer and manufacturer of application-specific AC and DC motors on integral horsepower sizes. We offer a database of over 5,000 custom designs, experienced application and design engineering teams, to ensure the best, most cost-effective custom motor solution.

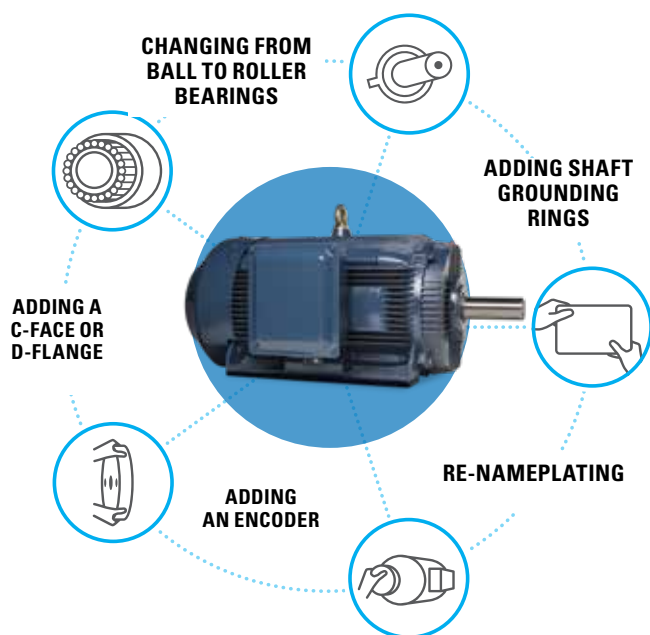
## **CUSTOM MULTI-SPEED & LOW-SPEED MOTORS**

Marathon® utilizes specially designed and standard components to make almost any imaginable NEMA® frame. We pride ourselves on fast turnaround times on highly customized motors.

**marathon®**

# MODIFICATIONS AT THE WAREHOUSE ENSURE CUSTOM SOLUTIONS FASTER.

There is no one size motor that fits all applications. That's why we've expanded our modifications offering on most models. Some modifications can be made and shipped same day while others take a day or two, but the line-ready motor solution you need will be ready to work.



## HOW TO ORDER

First determine whether you need a kit to perform the modification, if you do not need a kit, then refer to the price supplement which includes all supplies needed to perform that modification. If a kit is needed, refer to the price supplement to see what the cost of labor is to install the kit. The kit list price and the motor list price are not included. You must add the net price of the motor and kit to the net price of the modification(s) to calculate the total price of the modified motor.

For example, to add a C-Face kit and thermostats to catalog motor E473A, you would calculate the total price as follows:

	LIST PRICE (USD)	MULT. SYMBOL
B176240.00 (A420)	current list price	S4
Modification MOD2J, add C-Face to 182T-184T frame motor	current list price	S4
Modification MOD14E, add thermostats to 182T-184T frame motor	current list price	S4
<b>TOTAL</b>	<b>TOTAL</b>	

Note: Ask your sales representative for a price supplement.

Take the sum of the kit and modification list prices times your Mod Center multiplier of S4 to find the total net price for the modification. Add your net price of E473A to the net adder for the kit and modifications to get the total modification price.

## MOD CENTRAL

Marathon® offers the capability to modify stock motors in a matter of days to meet our customer's special needs. MOD CENTRAL is centrally located in Marathon Electric distribution center in Indianapolis, Indiana. This state-of-the-art facility stocks a vast array of motors and accessories along with a staff of skilled technicians who provide the highest quality of service. If you need motor modifications on 20 motors or less and want to avoid special engineering and manufacturing schedules, call your local sales representative and take advantage of our MOD CENTRAL Motor Modification Program.

## LEAD-TIME

All lead-times indicated are subject to availability of the stock motors and parts at the time of order placement. If a stock motor is shipped from a remote warehouse to Indianapolis for modification, the cost of the inbound freight will be added to the price of the modified motor and the delivery of the modified motor will be extended by the inbound transit time. (Lead-times in working days are calculated from normal business hours excluding holidays and weekends and do not include the day the purchase order is received.) Large quantities may require additional lead-time.

## MOD CENTRAL HOURS

The Modification Center is open from 7:00 a.m. to 5:00 p.m. CST Monday through Friday.

## FREIGHT TERMS

Standard terms and conditions apply.

## EXCEPTIONS

Some modifications do not apply to explosion proof motors.

## DISCOUNT MULTIPLIER

Discount symbol S4 applies to all list prices, except where noted.

## CANCELLATION POLICY

If a Mod Central order is cancelled after the motor is modified but before it ships, a cancellation charge of double the modification charge will be invoiced to the customer. Any Mod Central order cancelled before modifications are completed is subject to a cancellation charge of 25% of the total modification charges for that item.

**ONCE SHIPPED, MODIFIED MOTORS MAY NOT BE RETURNED FOR CREDIT OR RESTOCKING**

The warranty terms and conditions of sale is available through our websites, please see backcover page for the full link. Please contact the nearest Marathon regional office or applicable Seller product catalog or seller for more information regarding duration of warranty period.

# MOD CENTRAL - MOTOR MODIFICATIONS

MODIFICATION DESCRIPTION	REQUIRES KIT	MODIFICATION	PRODUCT	FRAME	LEAD-TIME**
<b>Altitude/Ambient</b>					
AC motor altitude or ambient re-rating		MOD7	All Non-EXP	182T-449T	2
AC motor altitude or ambient re-rating		MOD7	Explosion Proof	182T-449T	2
<b>Assembly (see Mounting)</b>					
<b>Bearings</b>					
Convert ball to roller (drive end)	Yes	MOD18	DP	284T-449T	3
Convert ball to roller (drive end)	Yes	MOD18	TEFC	213T-449T	3
Convert roller to ball (drive end)	Yes	MOD18	DP	404T-449T	3
Convert roller to ball (drive end)	Yes	MOD18	TEFC	324T-449T	2
Inpro Seal (drive end)		MOD34	TEFC	254T-449T	Call
Sealed bearing		MOD18	All Non-EXP	182T-449T	Call
Insulated bearing(s)		MOD18	Non Div 1 or 2	182T-449T	Call
<b>Blowers</b>					
Axial blower	Yes	MOD19	TEFC	213T-449T	3
<b>Brackets</b>					
C-Face non-explosion proof	Yes	MOD2	All Non-EXP	182T-449T	2
C-Face explosion proof	Yes	MOD2	Explosion Proof	254T-449T	Call
C-Face IEEE 841	Yes	MOD2	All Non-EXP	182T-449T	2
D-Flange	Yes	MOD17	All Non-EXP	182T-449T	2
D-Flange IEEE 841	Yes	MOD17	All Non-EXP	324T-449T	2
P-Base (VHS)	Yes	MOD38	ALL	213TP-449TP	2
B14 FT flange (IEC C-face)	Yes	MOD55	IEC	80-160	2
B5 FF flange (IEC D-flange)	Yes	MOD55	IEC	80-315	2
<b>Brake Motors</b>					
Brake motors-three phase	Yes	MOD3	TEFC	182TC-145TC	3
Brake motors-inverter duty	Yes	MOD3	TENV	182TC-326TC	3
Electrical modifications-brake coil		MOD3	Brake Motors	182TC-256TC	10
Vertical brake mounting (shaft up or shaft down)	Yes	MOD3	All brakes	213T-256T	3
<b>Conduit Box</b>					
Rotate conduit box lead opening		MOD56	All Non-EXP	182T-449T	2
Convert to cast iron	Yes	MOD56	All Non-EXP	182T-326T	2
Conduit box gasket upgrade		MOD56	All Non-EXP	182T-449T	
Auxiliary box (condulet)	Yes	MOD56	All Non-EXP	182T-449T	Call
<b>Connections</b>					
SO cord, plug, and switch-single phase		MOD35	TEFC	182T-215T	Call
<b>Drains</b>					
Condensation drain holes		MOD21	All	182T-449T	2
Brass drain & breather		MOD21	All Non-EXP	182T-449T	2
Stainless steel drain & breather		MOD21	All Non-EXP	182T-449T	2
<b>Drip Covers</b>					
Canopy cover	Yes	MOD4	ODP,TEFC	182T-449T	2
<b>Encoders</b>					
Avtron®* AV56 - Black Max® motor / Blue Max® motor	Yes	MOD22	TENV,TEBC	182T-449T	2
Avtron HS25A & HS35A	Yes	MOD22	TENV, TEBC	182T-449T	2
Avtron M56/M85 - Black Max motor / Blue Max brake motors	Yes	MOD24	TENV	182T-256T	2
Northstar®* SL56 - Black Max motor / Blue Max motor	Yes	MOD22	TENV,TEBC	182T-449T	2
Northstar SL56/SL85 - Blue Max brake motors	Yes	MOD24	TENV	182T-256T	2
Dynapar®* HS20, HS35R, & HSD38 - Black Max motor / Blue Max motor	Yes	MOD22	TENV,TEFC,TEBC	182T-449T	2
BEI®* HS35 - Black Max motor / Blue Max motor	Yes	MOD31	TENV,TEFC,TEBC	182T-449T	2
Stub shaft (XRI®-SD & XRI-841,TEFC motors only)	Yes	MOD42	TEFC	182T-449T	2
<b>Fan &amp; Fan Guard</b>					
Oversized fan (see Inverter Duty modification)		MOD43	TEFC	213T-449T	2
Fan removal		MOD44	All Non-Exp	182T-449T	2
Poly fan guard	Yes	MOD44	All Non-Exp	182T-449T	2
Fan cover		MOD44	All Non-Exp	182T-449T	2
Vane axial		MOD43	All Non-Exp	182T-449T	4
<b>Frequency</b>					
Frequency re-rate 60 Hz to 50 Hz		MOD7	All	182-449T	1
<b>Grease/Fittings</b>					
Grease relief fittings		MOD15	All Non-Exp	182T-449T	2
Zerk fittings (cast iron motors)		MOD15	All Non-Exp	182T-449T	2
Low temperature grease		MOD15	All	182-449T	2
High temperature grease		MOD15	All	182-449T	2

\*\*Lead-time days does not include the day order is received.

\*See back cover page for attribution.

# MOD CENTRAL - MOTOR MODIFICATIONS

MODIFICATION DESCRIPTION	REQUIRES KIT	MODIFICATION	PRODUCT	FRAME	LEAD-TIME**
<b>Grounding</b>					
Conduit box grounding lug		MOD20	All	182T-215T	2
On-frame grounding (cast iron motors)		MOD20	All	182T-449T	2
Shaft grounding ring	Yes	MOD20	Call	182T-449T	2
<b>Inverter Duty Motors</b>					
Variable torque with thermostats (R140)		MOD25	All	182T-449T	2
Constant torque with thermostats (R142)		MOD26	All	182T-449T	2
Constant torque (R164, Oversized Fan)		MOD43	All	182T-449T	2
<b>Leads</b>					
Reconnect leads		MOD9	All Non-Exp	182T-449T	1
Reconnect leads Explosion proof		MOD40	Explosion Proof	182T-449T	1
Terminal lugs		MOD0	All	182T-326T	2
Terminal block		MOD57	All Non-Exp	182T-449T	2
Remark leads		MOD33	All	182T-449T	2
Longer leads - up to 24"		MOD33	All Non-Exp	182T-449T	2
<b>Mounting/Assembly (Example: F1 to F2)</b>					
Convert to floor, top, ceiling, or wall		MOD1	All Non-Exp	182T-449T	2
Convert to floor, top, ceiling, or wall		MOD39	Explosion Proof	182T-449T	2
Adjustable bases	Yes	MOD39	All	182T-449T	2
Transition bases	Yes	MOD39	All	182T-449T	2
Add Stamped Steel Base		MOD32	All Non-Exp	182T-215T	2
<b>Nameplates/Markings</b>					
Additional data on nameplate		MOD7	All	182T-449T	1
CE®* Marking		MOD7	All	182T-326T	2
Private Label		MOD7	All	182T-449T	1
Rotation arrow		MOD7	Single Phase	182T-326T	1
Separate nameplate for customer data		MOD7	All	182T-449T	2
Stainless steel nameplate		MOD7	All	182T-449T	1
Atex Zone 2 Hazardous		MOD60	TEFC	444T-449T	1
<b>Packaging</b>					
Heat treated pallet		MOD29	All	182T-449T	3
Heat treated pallet (IEC)		MOD29	All	80-315	3
<b>Paint</b>					
Repaint to a Marathon® motor stock color		MOD8	All	48-449T	2-3
<b>Screens</b>					
Rodent screens		MOD0	ODP	364T-449T	Call
<b>Service Factor</b>					
AC motor service factor re-rating		MOD7	All Non-EXP	48-449T	1
<b>Severe Duty Construction</b>					
Cast iron fan cover and conduit box		MOD16	All Non-EXP	143T-449T	2
<b>Shaft Grounding Ring (see Grounding)</b>					
<b>Shaft Modifications</b>					
Drill & tap hole		MOD42	All	182T-449T	3
TS shaft		MOD42	All	284T-449T	3
Mill flat on shaft		MOD0	All	182T-184T	3
Steps on shaft		MOD0	All	182T-449T	Call
Remove non-reverse ratchet (VHS)		MOD75	All	213TP-449TP	2
<b>Space Heaters</b>					
Non explosion proof		MOD12	All Non-EXP	182T-449T	2
Explosion proof		MOD41	Explosion Proof	182T-449T	1
IEC®* frames		MOD12	IEC	80-250	2
<b>Terminal Blocks</b>					
Terminal block		MOD0	All Non-EXP	180-449T	Call
<b>Thermal Protection</b>					
Thermostats-windings		MOD14	All	182T-449T	2
Thermostats-windings (IEC)		MOD14	All	90-315	2
Thermistors-windings		MOD14	All	182T-449T	2
Thermistors-windings (IEC)		MOD14	All	90-315	2
Thermistors (including control module)		MOD14	All Non-EXP	182T-449T	2
Thermistors (including control module) (IEC)		MOD14	All	90-315	2
Thermocouples - winding or bearing		MOD0	All Non-EXP	182T-449T	2
RTD's - winding		MOD14	All	182T-449T	3
<b>Tests</b>					
PPa-P-Level 1		MOD90A	All	143T-449T	2
<b>Weatherproofing/Special Service</b>					
Tropical anti-fungus treatment		MOD5	All	48-449T	2
Division 2 motors (CSA certified)		MOD49	Blue Chip®/XRI®	143T-449T	Call

\*\*Lead-time days does not include the day order is received.

# MOD CENTRAL - MOTOR MODIFICATIONS

## ALTITUDE / AMBIENT - MOD7 (MULT. SYMBOL S4)

The rating of standard motors assumes operation at sea level. Listed motors are suitable for operation at altitudes up to 3,300 feet in a maximum ambient temperature of 40°C. The ambient temperature is the temperature of the cooling medium surrounding the motor. All standard motors are suitable for operation over the range of -15°C to 40°C ambient per NEMA® MG-1.

## AC MOTOR ALTITUDE OR AMBIENT RE-RATING

Re-Rating of a non-explosion proof motor can be done by evaluating the performance data and possibly changing the service factor. Contact your local sales representative for motor capabilities prior to motor selection and modification.

## BEARINGS - MOD18 (MULT. SYMBOL S4)

Most standard motors use anti-friction deep groove Conrad type ball bearing, sized for the loads to be expected in industrial applications. Roller bearings are used on the drive end to handle heavy or overhung (radial) shaft loads.

## BALL TO ROLLER BEARING

Roller bearings have the capability to handle higher radial loads than ball bearings, but must have minimum radial loads to operate correctly. They are not suitable for direct-coupled loads. (Marathon recommends that belting data is reviewed by Engineering prior to any motor to roller bearing.) This option includes replacing only the standard drive end bearing with a roller bearing and locking the opposite bearing axially. Available only on TEFC Blue Chip Series® and Blue Chip Series XRI® motors. Lead-time is 3 days.

## ROLLER TO BALL BEARING

Larger horsepower motors are stocked standard with a roller bearing on the drive end. For direct-coupled applications, a ball bearing must be installed on the drive end. Lead-time is 2 days.

## SEALED BEARING

This modification provides the option of replacing the standard bearings in the AC motors with sealed bearings and replacing the grease fitting with plugs. May not be suitable for belted applications. 250-449 frame, 3600RPM, no sealed bearing option. 250-445, 1800RPM and below, non contact sealed only. 48-215, All RPM's are available for sealed bearings. Consult your sales representative for full application details. Call for lead-time.

## INSULATED BEARING

Insulated bearings are used to reduce the transmission of shaft currents. In accordance with NEMA MG1-31.4.4.3, both bearings must be insulated to protect inverter driven motors from inverter-sourced shaft voltages. The connected load must also be insulated from the motor shaft to prevent damage to it's bearings. Per UL, insulated bearings may not be installed in Division 1 or Division 2 hazardous locations. Division 2 will be removed from XRI-Severe Duty and IEEE 841 motors when this modification is performed. Call for lead-time.

## BLOWERS - MOD19 (MULT. SYMBOL S4)

Low rotational speeds, common in many vector drive applications, cause additional heat within the motor. As a result, these motors are designed as TENV or TEBC. The Marathon® brand is available with two types of blower units, depending upon the application requirements. The axial blower is available on XRI® and XRI-Severe Duty motors.

## AXIAL BLOWER

Most TEBC requirements are satisfied with a Marathon® axial blower. The blower motor and fan are in the same (horizontal) plane as the motor drive shaft. Lead-time is 3 days.

## C-FACE BRACKETS - MOD2 (Mult. Symbol S4)

The addition of a C-Face kit to a standard foot mount (rigid base) motor, results in a non-NEMA "BA" dimension in 143-256 Frames due to NEMA's establishment of two distinct "BA" dimensions for each of the affected frame sizes: one for the rigid base motors and another for C-Face/Rigid base motors. No motor manufacturer can meet both prescribed dimensions on reworked motors. The following table identifies the "BA" dimensions (defined as the distance from the center of the front hole to the shaft shoulder) for 143T-256T and TC frames:

NEMA FRAME	FOOT MOUNT*	C-FACE
182T-184T	2.75"	3.50"
213T-215T	3.50"	4.25"
254T-256T	4.25"	4.75"

## D-FLANGE BRACKETS - MOD17 (Mult. Symbol S4)

Add a D-Flange Kit to rigid base, cast iron motor. Available on Blue Chip Series motor 254T-365T and Dripproof 284T-286T ("TTDP" and "TTDC" designs. Addition of D-Flange Kit results in non-NEMA "BA" dimension of 254T-256T. Lead-time is 2 days.

## IEC BRACKETS - MOD55 (Mult. Symbol S4)

### B14 FT FLANGE (IEC C-Face)

IEC mounting arrangement with the motor flange at the drive end similar to a NEMA C-Face motor. Modification includes motor disassembly and installation of a FT Flange to a Globetrotter® motor. Lead-time is 2 days.

### B5 FF FLANGE (IEC D-Flange)

IEC® mounting arrangement with the motor flange at the drive end similar to a D-Flange. Modification includes motor disassembly and installation of a FF Flange to Globetrotter® motor. Lead-time is 2 days.

## BRAKE MOTORS - MOD3 (Mult. Symbol S4)

Spring-set, electrically released mechanical disc brakes are available for stopping and/or holding the load. The Marathon® motor brakes are suitable for any angle mounting. Price of modification includes brake kit and installation.

MOTOR HP	BRAKEMOTOR SHAFT R.P.M.		
	Lb-Ft	Lb-Ft	Lb-Ft
	@ 3600	@ 1800	@ 1200
1 1/2	6	10	10
2	6	10	-

\*\* For normal (140%) torque rating, do not apply on motors larger than 2HP. Reduced braking torque and/or longer stopping times can result from applying an undersized brake on higher HP motors.

## BRAKE ADDITION - TEFC

This modification includes the addition of a 3, 6 or 10 Lb-Ft brake to single or three phase, TEFC motors. Operating voltages are 115/208-230, motors. Operating voltages are 115/208-230, 208-230/460, and 575 volts. Lead-time is 3 days.

## BRAKE ADDITION - INVERTER DUTY

This modification includes the addition of a 6 or 10 Lb-Ft brake to Black Max® or Blue Max® Vector Duty motors. Operating voltages are 115/208-230, 208-230/460 or 575 volts. Lead-time is 3 days.

\*See back cover page for attribution.

# MOD CENTRAL - MOTOR MODIFICATIONS

## BRAKE COIL VOLTAGE (Stearns® brakes only)

Brake coil changes allow for operation of brakes at various voltages on 50 or 60 Hertz AC power supplies. Available coil voltages at 50 HZ are 110, 220, 415 and 110/220 volts. Coil voltages at 60 Hz are 115, 200, 575, and 200/400 volts. Coil voltages at 60/50 HZ are 230/190, 460/380 and 208-230/460-190/380 volts. External brake coil lead connections will be brought out from the brake. Specify brake lead location, brake coil voltage and supply frequency at time of order. Lead-time is 10 days.

MOD NUMBER	BRAKE RATING	BRAKE SERIES
MOD3X	3 Ft/Lb	56,000
	6 Ft/Lb	
	10 Ft/Lb	
	15 Ft/Lb	
254T-256T	25 Ft/Lb	87,000
	35 Ft/Lb	
	50 Ft/Lb	
	75 Ft/Lb	
	105 Ft/Lb	

## VERTICAL MODIFICATION KIT (Stearns 87,000 brake series)

Includes required hardware to accommodate vertical above (shaft down) or vertical below (shaft up) mounting.

TORQUE RATING (Lb/Ft)	MOUNTING	
	SHAFT UP	SHAFT DOWN
25, 35	Not Required	Required
50, 75, 100	Required	Required

## CONDUIT BOX - MOD56 (Mult. Symbol S4)

Standard conduit box construction is based on the individual product description, e.g. severe duty motors always have a cast iron conduit box, while some standard duty motors come with stamped steel and others cast iron. Conduit boxes meet or exceed NEC 430.12 requirements for volume. Termination of protective or monitoring devices can be provided in a separate auxiliary conduit box or conduit. Auxiliary conduit boxes are not available on explosion proof motors.

## ROTATE CONDUIT BOX LEAD OPENING

Standard motors have lead opening facing down toward motor base. Modifications include rotating the conduit box so the lead opening is facing the desired direction. Specify lead opening location facing conduit box. Available on non-explosion proof motors. Lead-time is 2 days.

## CONVERT TO CAST IRON

Replacement of steel conduit box with a cast iron conduit box. This modification is available on non-explosion proof cast iron motors as Marathon's explosion proof integral stock motors come standard with a cast iron conduit box. Lead-time is 2 days.

## AUXILIARY BOX (Condulet)

A condulet can be added to the main motor conduit box for routing of accessory leads. Available on ODP and TEFC (non-explosion proof motors). Call for lead-time.

## CONNECTIONS - MOD0 (Mult. Symbol S4)

Motor connections consist of special cords, plugs, and switches added to a single phase motor.

## DRAINS - MOD21 (Mult. Symbol S4)

Standard duty motors include a weep hole as standard, while severe duty and explosion proof motors include a brass drain/ breather as standard. These are located in the drive end bracket at the lowest point.

## CONDENSATION DRAIN HOLES

Additional drilled holes will be made in both end brackets of TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

## BRASS DRAIN & BREATHER

Combination self-draining and breather plugs are available on TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

## STAINLESS STEEL DRAIN & BREATHER

Combination self-draining and breather plugs are available on TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

## DRIP COVERS - MOD4 (Mult. Symbol S4)

Drip covers can be furnished on standard motors for extra protection from dripping liquids and falling objects when the motor is mounted in the vertical shaft down position. These covers are recommended on all open dripproof and totally enclosed motors for vertical shaft down operation. These covers have no vertical lifting provisions provided.

## CANOPY COVER - MOD4 (OPD and TEFC Motors)

Modification includes installation of a sheet metal drip cover to the motor for vertical shaft down mounting. Available on rolled steel Dripproof motors through 256T frame and select TEFC motors. Lead-time is 2 days.

## ENCODERS - MOD22, AND MOD24 (Mult. Symbol E3)

These electrical devices sense rotor speed and direction providing feedback to a control device. An encoder is a feedback device that translates mechanical motion into electrical signal. A cable is connected from the encoder to the variable frequency drive to provide this feedback. Various mechanical provisions on the motor are required to attach the encoder. These may C-Face on the non-drive end of the motor and special shaft extension. Various resolutions are available. All encoders offered have quadrature signal with line driver output.

Encoders can be mounted on Black Max® and Blue Max® 2000 Vector Duty motors, TENV 56 through 286T Frame, TEFC construction in 284T through 449T Frame.

## STUB SHAFT - MOD42 (Mult. Symbol S4)

Add Stub Shaft to Fan Cooled XRI®-SD, XRI-841 motors (182-449 Frames) to accommodate addition of encoder on opposite drive end of motor. Lead-time is 2 days.

## FAN - MOD43, AND MOD44 (Mult. Symbol S4)

The Marathon® XRI® Severe Duty and IEEE841 motors have non-sparking fans made with, high-temperature, reinforced corrosion resistant plastic that is impervious to chemical attack and has been specially designed for motor applications. All motors utilize bi-directional cooling fans.

## OVERSIZED FAN (Inverter Duty) - See MOD43 Inverter Duty

## FAN REMOVAL - MOD44

TEFC to TEAO. Convert a motor from totally enclosed, fan cooled construction to totally enclosed, air-over by removing fan cover, fan, and cutting off the fan end shaft. The modified motor must be mounted in the air stream of the driven fan for cooling purposes. The customer is responsible for providing adequate airflow over the motor. Lead-time is 2 days.

## VANE AXIAL FAN - MOD43

The modification can be done on rigid or C-Face mount, TEFC, TENV, EPFC, EPNV, or DP enclosures. Motors will be modified for Vane Axial fan applications. All motors will get an additional nameplate and 42" extended leads. TEFC models will have the fan and fan guard removed and enclosure changed to TEAO. A minimum airstream velocity of 3000' per minute is required. Lead-time is 4 days.

## FREQUENCY - MOD7 (Mult. Symbol S4)

Most motors commonly operate on 60 hertz (HZ) within North America. However, 50 hertz systems are common in other countries.

# MOD CENTRAL - MOTOR MODIFICATIONS

## FREQUENCY RE-RATE 60 HZ TO 50 HZ

Marathon® standard motors rated at 60 HZ may be operated at 50 HZ at reduced voltage and horsepower or service factor. A label containing specific re-rating information will be attached to the motor. Frame size is subject to change. Lead-time is 1 day.

## GREASE/FITTINGS - MOD15 (Mult. Symbol S4)

Standard grease is Exxon® Polyrex® EM with a bearing operating temperature range of -30° to +150°C for ball and roller bearings. Devices for installing grease into the motors, such as zerk fittings, are available.

## GREASE RELIEF FITTINGS - MOD15

Install standard grease relief fitting on motor. Grease relief fittings serve as an outlet to equalize pressure in the motor. Not available on explosion proof motors. Lead-time is 2 days.

## ZERK FITTINGS (Cast Iron Motors) - MOD15

Replace standard grease plugs on motors with zerk XRI® Severe Duty and IEE841 motors come with zerk fittings as standard equipment. Not available on explosion proof motors. Lead-time is 2 days.

## LOW TEMPERATURE GREASE WITH SEALED BEARING(S)- MOD15

Bearing grease may be changed to allow for a lower operation range. The motor bearings and end bells are purged and repacked with beacon 325 grease or equivalent with a temperature range of -60°C to +120°C. Call for lead-time.

## HIGH TEMPERATURE GREASE WITH SEALED BEARING(S)- MOD15

Bearing grease may be changed to allow for a higher operating range. The motor bearings and end bells are purged and repacked with Dow Corning® DC44M grease or equivalent with a temperature range of -40° to +204°C. Call for lead-time.

## GROUNDING - MOD20 (Mult. Symbol S4)

All motors 48 to 449T Frame have grounding provisions per NEMA® and NEC Standards. Explosion proof motors are permitted to have a frame ground, but electrical ground in conduit box must also be connected.

## CONDUIT BOX GROUNDING LUG

Add clamp-type grounding lug in the conduit box. Lead-time is 2 days.

## ON-FRAME GROUNDING (Cast Iron Motors)

Addition of drilled and tapped hole on conduit box side of frame with installation of ground lug. Available on non-explosion proof cast iron ratings only. Lead time is 2 days.

## BEARING CURRENT PROTECTION - BCP

BCP is a shaft current mitigation system utilizing shaft ground rings for MODS. They are recommended (NEMA® MG1 31.4.4.3) as an effective means of bearing protection for motors operated from inverter power. One ring is adequate to bleed down inverter-sourced shaft voltages, thereby protecting both bearings for motors as large as 5011 frame. BCP may not be installed on motors used in Division 1 or Division 2 hazardous locations or motors with a modified shaft. Does not fit all motor types. Lead-time is 2 days.

## INVERTER DUTY - MOD25, MOD26, AND MOD43 (Mult. Symbol S4)

"Inverter Duty" describes a class of motors that are capable of operation from a variable frequency drive. Many general purpose motors are suitable for most variable torque and some limited constant torque applications.

These motors do not have provisions for mounting encoders, but are suitable for use with volts/hertz or open loop vector controls. As required under USA Federal law, these motors comply with EPC efficiencies when operating from utility power. Lead-time is 2 days.

## INV. DUTY (LEADTIME 2 DAYS)

MOD #	APPL.	MTR. TYPE	MOD
25	Variable Torque	Any	Add Thermostats, re-nameplate
26	10:1 CT	EPAAct TEFC NEMA	Oversized fan, Add Thermostats, re-nameplate
	20:1 CT	NEMA Premium®** TEFC	
43	10:1 CT	EPAAct TEFC NEMA	Oversized fan, re-nameplate
	20:1 CT	NEMA Premium®** TEFC	

Operation of motor on VFD exempts motor from EPAAct mandated efficiency levels.

## LEADS - MOD9, MOD24, AND MOD33, (Mult. Symbol S4)

All motors are provided with standard leads of ample length for easy connection in the conduit box to the power leads. Lead size and material are dependent upon the class of insulation system in the motor and the current capacity required.

## RECONNECTION - MOD9

Reconnect dual voltage 9-lead or 12-lead motors to a 3-lead single voltage. Connection is made inside the motor frame. Specify desired voltage when ordering. On single phase motors, specify rotation. Lead-time is 1 day.

\*Part Winding Start and Star-delta connections are excluded.

## REMARK LEADS - MOD33

Using cloth markers, remark leads with numbers or letters. Please specify markings. Lead-time is 2 days.

## LONGER LEADS - MOD24

Extend leads up to two feet longer than standard by splicing. Splice will be visible in conduit box. Not available on explosion proof motors. Lead-time is 2 days.

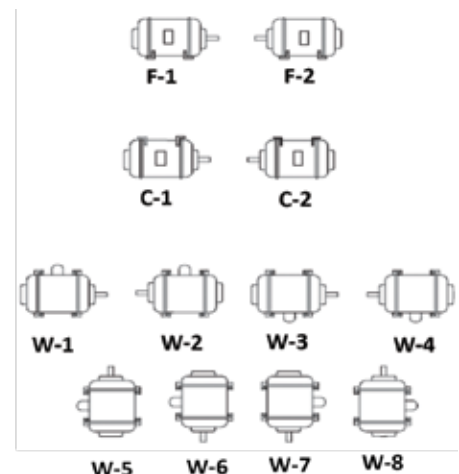
## MOUNTING/ASSEMBLY - MOD1, AND MOD39 (Mult. Symbol S4)

Motors listed are horizontal, foot mounted. Many stock motors can be furnished in assembly positions as illustrated. Modification may include repositioning of vents, baffles, drains, and conduit box. Also end brackets are assembled and grease fittings are properly installed for operation with the motor in the position shown. No attempt is made to locate fittings on any particular side of the motor. Horizontal ball bearing motor assemblies W5, W6, W7, and W8 are not suitable for external thrusts in excess of rotor weight and half-coupling. Cast Iron ODP and TEFC, 360 and larger, are not suitable for vertical operation. Consult Engineering for TEFC Build Up. Lead-time is 2 days.

## CONVERT TO FLOOR, CEILING, OR WALL MOUNT - MOD1

Convert standard F1 mount to F2, W1, W2, W3, W4, W5, W6, W7, W8, C1, or C2 mount. The mounting symbol is required when ordering to indicate the proper mounting. Lead-time is 2 days.

Example: Motor will be modified F1 to wall mounting W3



\*See back cover page for attribution.

# MOD CENTRAL - MOTOR MODIFICATIONS

## ADJUSTABLE MOTOR BASES - MOD39

Adjustable bases are a convenient means for adjusting belt tension or may be used as mounting plates. Adjustable motor bases are bolted to fixed base of motor prior to shipping. NEMA®\*215T and smaller bases feature one adjusting screw. Bases on NEMA 254T and larger feature two adjusting screws. Bases are not suitable for vertical mounting. Lead-time is 2 days.

## NAMEPLATES/MARKINGS - MOD7 (Mult. Symbol S4)

Nameplate material is mylar or stainless steel depending on motor design and enclosure.

## ADDITIONAL DATA ON NAMEPLATE

Motors can be re-nameplated for alternate ratings. Changes in horsepower, altitude, ambient, voltage, frequency, etc. Lead-time is 1 day.

## CE®\* MARK

CE®\* compliant mark can be provided for all non-explosion proof NEMA frame motors. Many stock motors already contain the CE mark. Lead-time is 2 days.

## ROTATION ARROW - MOD7 (Continued)

All motors utilize bi-directional cooling fans. Specify rotation facing shaft extension on order entry form. Available on Single Phase only. Lead-time is 1 day.

## STAINLESS STEEL NAMEPLATE

Replace existing Mylar®\* nameplate with 304 stainless steel nameplate. Lead-time is 1 day.

## SEPARATE NAMEPLATE FOR CUSTOMER DATA

A separate customer nameplate can be furnished. Information contained must be submitted at time of order. These additional nameplates cannot be supplied with CSA®\* or UL®\* Listings unless installed to motor in a Marathon Electric facility. Lead-time is 2 days.

## PACKAGING - MOD29 (MULT. SYMBOL S4)

### HEAT TREATED PALLETS

ISPM-15 requires the use of heat-treated wooden packaging materials when shipping into all foreign countries (a temporary exemption exists for Canada). Modification includes replacement of wooden pallet with heat-treated pallet. Does not include export crating for ocean freight (contact factory for export packaging cost).

## PAINT - MOD8 (MULT. SYMBOL S4)

The standard paint finish is a two-coat paint system. The first coat is a rust-inhibitive primer applied to protect the castings during storage and manufacturing. The second coat is a powder coat on 48-140 frame, enamel on non-severe duty motors, or a 2-part epoxy on severe duty 180-5000 frame motors. Special paints and color options are available if compatible and reviewed by application engineering. Paint chips and material safety data sheets are required.

## REPAINT TO A MARATHON® STOCK MOTOR COLOR

Repaint motor to another Marathon stock motor paint color. Colors include: Marathon Blue Chip Series® blue, PowerWash™ white, farm duty black, Fire Pump red, light gray, or dark gray. Specify color on order. Lead-time on enamel paint is 2 days. Epoxy paint requires a 3 day lead-time.

## SCREENS - MOD0 (MULT. SYMBOL S4)

Corrosion resistant screens can be furnished over the air intake intake and discharge openings of cast iron dripproof motors. Dripproof motors equipped with these screens conform to the dripproof guarded definition appearing in NEMA®\* MG-1, Part 1. Call for lead-time.

## SERVICE FACTOR - MOD7 (MULT. SYMBOL S4)

A multiplier that may be applied to the rated horsepower of a motor, which indicates a permissible horsepower loading at rated voltage and frequency. Lead-time is 1 day.

## AC MOTOR SERVICE FACTOR RE-RATING

When a 1.15 Service Factor or higher is required, please refer to the list adder. Frame size is subject to change. Not available on explosion proof motors. Lead-time is 1 day.

## SEVERE DUTY CONSTRUCTION - MOD16 (Mult. Symbol S4)

This modification starts with a Marathon® Blue Chip Series® motor totally enclosed cast iron frame motor and reworks it to all cast iron construction. With additional enhancements, the motor is prepared for a severe or harsh industrial environment. (USA domestic built product only) Remove polypropylene fan cover and sheet metal conduit box from the motor and replace with cast iron fancover, threaded and gasketed conduit box, apply epoxy finish to motor exterior, and add brass drain and breather. Lead-time is 2 days.

## SHAFT MODIFICATION - MOD0, AND MOD42 (Mult. Symbol S4)

Motors are furnished with a single straight shaft with sled runner keyway and a rectangular key. For motors in frames 143T through 449T, a long shaft for V-Belt drive is supplied. 2-Pole motors in frames 324 through 449 and certain other 4-Pole ratings are furnished with short shafts for direct connections. Modifications are for existing shafts only. Not applicable if a new shaft is required.

## DRILL & TAP HOLE - MOD42

Drilled radially or in the end of the shaft. Drilled and tapped in the end of the shaft. Lead-time is 3 days.

## TS SHAFT - MOD42

Convert "T" frame shaft to a "TS" Frame shaft. Modify motor by reducing the shaft, adding new keyway, and shortening the shaft length to the NEMA "TS" dimension. Lead-time is 3 days.

## MILL FLAT ON SHAFT - MOD0

Mill a flat on the drive end shaft extension. Provide detail of flat with the order. Lead-time is 3 days.

## STEPS ON SHAFT - MOD0

One to three reductions in shaft diameter. Customer to specify number of reductions at time of order. Call for lead-time.

## SPACE HEATERS - MOD12 AND MOD41 (Mult. Symbol S4)

Space heaters are used to prevent the build-up of condensation on the windings of the motor when the motor is not operating. Space heaters are typically installed on the end-turns of the coils.

## SPACE HEATERS - ODP & TEFC - MOD12

Space heaters can be furnished on dripproof and totally enclosed motors. Heater leads are normally brought out to the motor conduit box. Heater voltage is available in three voltages for 60 Hz operation of 115, 230, or 460 volt, single phase. Space heaters are sized per NEMA®\* standards. Lead-time is 2 days.

## SPACE HEATERS - IEC FRAMES - MOD12

Space heaters can be furnished on IEC®\* motors. Heater leads are normally brought out to the main terminal box. Heater voltage is available in two voltages for 50 Hz operation. Lead-time is 2 days.

## SPACE HEATERS - EXPLOSION PROOF - MOD41

Space heaters can be furnished on explosion proof motors. Heater leads are normally brought out to the motor conduit box. Heater voltage is available in three voltages for 60 Hz operation of 115, 230, or 460 volt, single-phase. Space heaters are sized per NEMA standards. Lead-time is 2 days.

## TERMINAL BLOCKS - MOD57 (Mult. Symbol S4)

Conduit box mounted terminal blocks provide for a convenient termination of power leads. The terminal blocks are sized for the proper amperage

\*See back cover page for attribution.

# MOD CENTRAL - MOTOR MODIFICATIONS

and voltage of the motor. The Globetrotter® IEC motor has IEC terminal blocks as standard.

## TERMINAL BLOCK

Install terminal blocks in conduit box of NEMA motor with lead connection. Customer to advise on lead connection. Call for lead-time. Contact factory to verify capability.

## THERMAL PROTECTION - MOD14, MOD37 (Mult. Symbol S4)

Thermal protection are built in protective devices that prevent motor overheating. They work either by interrupting the power supply when the motor overheats or by incorporating a pilot device that opens the holding circuit of a magnetic starter or energizes an alarm bell or warning light.

## THERMOSTATS - WINDINGS - MOD14

Thermostats are mounted on the stator winding and are temperature-sensing only, with normally closed snap action contacts. These devices are installed on the end-turns of the motor winding. Their purpose is to activate a warning device or shut down the motor upon exceeding winding temperatures. The standard arrangement is the 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. Class I Groups C & D/ Class I Groups F & G Explosion Proof motors have hermetically sealed thermostats as standard. Lead-time is 2 days.

## THERMISTORS - WINDING

Thermistors are small, non-linear resistance devices placed on the stator windings. As the critical temperature is reached, the resistance of the thermistor changes radically, causing operation of a control relay. The standard arrangement is Q-3 positive temperature coefficient (PTC) type on winding end-turns with leads brought out to the main motor conduit box. On IEC motors the leads are brought into a condulet adjacent to the main conduit box and includes a terminal block. As standard, 3 Texas Instruments thermistors are furnished, one per phase. Lead-time is 2 days.

## RTDS - WINDINGS

RTDs are precision wire-wound resistors with calibrated temperature-resistance characteristics. The standard arrangement is the addition of a 100 ohm platinum RTD attached to the windings with the leads brought out to the main motor conduit box. These devices are used in conjunction with customer supplied instruments. Lead-time is 3 days.

## WEATHERPROOFING/SPECIAL SERVICE MOD5, MOD49, MOD58

(Mult. Symbol S4)

Weatherproofing or special service provides additional protection to windings and mechanical parts as well as special greases or modifications per industry specifications such as NEMA, IEEE, or automotive. Call for lead-time.

## TROPICAL ANTI-FUNGUS TREATMENT - MOD5

Windings and mechanical parts coated with polyurethane for superior protection to resist tropical environments. Not available on brake motors. Lead-time is 2 days.

## BRAND F EM-1 MOTORS - MOD48

Modify Blue Chip Series® XRI® Severe Duty motor to meet Ford Motor's EM-1 T-Frame automotive specification. Modification requires adding ABMA®\* bearing numbers and plugging second set of mounting holes on applicable frames. Lead-time is 2 days.

## HAZARDOUS DUTY® SERVICE DIVISION 2 HAZARDOUS MOTORS - MOD49

The Division 2 hazardous modification incorporates a new fan, fan guard, and nameplate on most TEFC motors. The nameplate will say "CSA Certified, Group I, Division 2 Groups A, B, C, and D, Temperature Code. XRI-SD and IEEE841 motors have the Division 2 statement on the nameplate as standard. (See chart below) Call for lead-time.

NEMA	SERVICE FACTOR	POWER	FREQUENCY	TEMP
182-449T	1.0	SineWave	50-60Hz	T3
182-449T	1.0	PWM	3-120Hz	T2D
182-449T	1.5	SineWave	60Hz	T2B

\*See back cover page for attribution.



# THE RIGHT PART FOR THE RIGHT MOTOR

We know how important it is to have  
the original parts for your OEM replacement.

# ACCESSORY KITS

Complete kits with hardware necessary for converting Marathon® stock rigid base motors to “C-Face” mounting with rigid base.

**Excludes Blue Chip Series® XRI® Dripproof stock motors, see below**



## C-FACE KITS - DRIPPROOF

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	FOOT NOTES	STOCK
A160	182T-184T	KIT 180TCD-WD	TTDB (2,4 and 6 pole)	14	75	√
A666	182T-184T	KIT 175691	TTDW	14	75	√
A161	213T-215T	KIT 210TCD-WD	TTDB or TTDBD (2, 4 and 6 pole)	22	75	
A602	213T-215T	KIT 175066	U268, U269, U763, U764, U765, and U766	18	75	
A606	213T-215T	KIT 210TCDW	TTDW, TTDWD, TBDW, or TCDW	13	75	
A162	254T-256T	KIT 250TCD2-WD	TTDB (2 pole only)	32	75	
A162A	254T-256T	B176066.00	TTDBD (2 pole only)	32	75	√
A163	254T-256T	KIT 250TCD-WD	TTDB (4 and 6 pole only)	32	75	√
A163A	254T-256T	B176067.00	TTDBD (4 and 6 pole only)	32	75	
A610	284T-286T/TS	KIT 280TCDP	TTDP or TSTD	30	75	
A164	284TS-286TS	KIT 280TCD2-WD	TSTDCA (2 pole only)	38	75	
A164A	284TS-286TS	B176068.00	TSTDBD (2 pole only)	38	75	
A626	284T-286T	KIT 175058	U256, U257, U771, U772, U773, and U774	32	75	
A165	284T-286T	KIT 280TCD-WD	TTDCA (4 and 6 pole only)	38	75	√
A165A	284T-286T	B176069.00	TTDBD (4 and 6 pole only)	38	75	
A213	324-326T/TS	KIT 320TCDR	TTDR (2,4 and 6 pole)	53		
A166	324TS-326TS	KIT 320TCD2-WD	TSTDCA (2 pole only)	45		√
A166A	324TS-326TS	B176070.00	TSTDBD (2 pole only)	45		
A613	324-326T/TS	KIT 320TCDP	TTDC/P or TSTD/C/P	43		√
A167	324T-326T	KIT 320TCD-WD	TTDCA (4 and 6 pole only)	45		
A167A	324T-326T	B176071.00	TTDBD (4 and 6 pole only)	45		
A627	324T-326T	KIT 175059	U775, U776, U777, U778, U798 and U799	39		
A168	364TS-365TS	KIT 360TCD2-WD	TSTDCA (2 pole only)	85		
A168A	364TS-365TS	B176072.00	TSTDBD (2 pole only)	85		
A219	364TS-365TS	KIT 360TSCDS	TSTD/C/S	62		√
A628	364T-365T	KIT 175060	U779, U782, U783, U784, U927, and U928	56		
A169A	364T-365T	B176073.00	TTDBD (4 and 6 pole only)	85		
A225	404TS-405TS	KIT 400TSCDS	U250 and U251	89		√
A414A	404TS-405TS	B176074.00	TSTDCA (2 pole only)	95		
A225	404TS-405TS	KIT 400TSCDS	TSTD/S	89		√
A415A	404T-405T	B176075.00	TTDCA (4 and 6 pole only)	95		
A231	444TS-445TS	KIT 440TSCDS	TSTD/S	119		
A416	444TS-445TS	KIT 444/5TCD2-WD	TSTDCA (2 pole only)	140		
A416A	444TS-449TS	B176076.00	TSTDCA (2 pole only)	140		
A417	444T-445T	KIT 444/5TCD-WD	TTDC (4 and 6 pole only)	140		
A417A	444T-449T	B176077.00	TTDCA (4 and 6 pole only)	143		√
A419	447T-449T	KIT 447/9TCD-WD	TTDC (6 pole only)	140		

# ACCESSORY KITS

Complete kits with hardware necessary for converting Marathon® stock rigid base motors to “C-Face” mounting with rigid base. Includes Globetrotter®, XRI® (AS NOTED), and severe duty motors.



**Excludes Blue Chip Series® XRI® IEEE-841 stock motors, available on the next page.**

## C-FACE KITS - TOTALLY ENCLOSED

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	FOOT NOTES	STOCK
-	140T	WD140TCF	TE or SD models	5	75	√
A170	182T-184T	KIT 180TCF-WD	TTFBA (Globetrotter motor)	14	75	
A420	182T-184T	B176240.00	TTFCD (Globetrotter motor)	14	75	√
A641	182T-184T	KIT 180TCN8.5	TTFN (8-1/2" AK)	14	75	
A644	182T-184T	KIT 180CF8.5-1	TTTL/S, TCFL/R, TTFC/L/R/S or THTS (Standard 8-1/2" AK dim.)	14	75	
A645	182T-184T	KIT 180CF4.5-1	TTFC (Not XRI)/L/R/S (Non-Std. 4-1/2" AK dim.)	14	75	
A666	182T-184T	KIT 175691	TCFW, TBFW, TTFW	14	75	√
A171	213T-215T	KIT 210TCF-WD	TTFBA of TTFBD (Globetrotter motor)	22	75	√
A421	213T-215T	B176229.00	TTFCD (Globetrotter motor)	22	75	√
A206	213T-215T	KIT 210TCFS	TTFC (Not XRI)/S, THFS, TTTS and THTS (except 213/5TTFC4075)	17	75	
A609	213T-215T	KIT 210TCFW	TBFW, TTFW	17	75	
A646	213T-215T	KIT 210TCN	TTFN or TTFND	17	75	√
A652	213T-215T	KIT 175068	Use on models 213TTFC4076 and 215TTFC4076	17	75	
A667	213T-215T	KIT 175844	XRI-NEMA Premium models containing TTFW1	17	75	√
A172	254T-256T	KIT 250TCF2-WD	TTFCA (2 pole only) (Globetrotter motor)	32	75	
A173	254T-256T	KIT 250TCF-WD	TTFCA (4 and 6 pole only) (Globetrotter motor)	32	75	
A173A	254T-256T	B176026.00	TTFCD (Globetrotter motor)	32	75	√
A1209	254T-256T	KIT 250TCFLR	TTFL1 and THTL1 (current frame design) (254TTFL14076)	21	75	
A284	254T-256T	KIT 250TCFNA	TTFNA, and THTNA	35	75	
A175A	284T-286T/TS	B176028.00	TTFCD (Globetrotter motor)	38		√
A615	284T-286T/TS	KIT 280TCFN	TTFN or TSTFN	52		√
A617	284T-286T/TS	KIT 280TCFPA	TTFPA, THFPA, and TSTFPA	45		
A618	284T-286T/TS	KIT 280TCFNA	TTFNA, THFNA, or TSTFNA	55		
A174	284TS-286TS	KIT 280TCF2-WD	TSTFCA (2 pole only)(Globetrotter motor)	38		
A175	284T-286T	KIT 280TCF-WD	TTFC (4 and 6 pole)(Globetrotter motor)	38		
A654	284T-286T	KIT 175061	Use on model numbers 284TTFC4076 and 286TTFC4076	31		
A177A	324T-326T/TS	B176030.00	TTFCD (Globetrotter motor)	45		√
A214	324T-326T/TS	KIT 320TCFS	TTFS, THFS, or TSTFS	90		
A614	324T-326T/TS	KIT 320TCFP	TTFC (Not XRI)/P, THFP, TSTFP or TSTFC	50		
A619	324T-326T/TS	KIT 320TCFPA	TTFPA, THFPA, AND TSTFPA	57		
A176	324TS-326TS	KIT 320TCF2-WD	TSTFCA (2 pole only)(Globetrotter motor)	45		
A177	324T-326T	KIT 320TCF-WD	TTFCA (4 and 6 pole only) (Globetrotter motor)	45		
A179A	364T-365T/TS	B176032.00	TTFCD (Globetrotter motor)	85		√
A178	364TS-365TS	KIT 360TCF2-WD	TSTFCA (2 pole only)(Globetrotter motor)	85		
A396	364TS-365TS	KIT 360TSCFSR	TSTFS or TSHFS	105		
A179	364T-365T	KIT 360TCF-WD	TTFCA (4 and 6 pole only)(Globetrotter motor)	85		
A217	364T-365T	KIT 360TCFS	TTFC (Not XRI)	105		
A395	364T-365T	KIT 360TSCFSR	TTFS or THFS	105		

# ACCESSORY KITS



## C-FACE KITS - TOTALLY ENCLOSED

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	FOOT NOTES	STOCK
A424	404TS-405TS	KIT 400TCF2-WD	TSTFC (2 pole only) (Globetrotter motor)	175		
A424A	404TS-405TS	B176034.00	TSTFCD (2 pole only) (Globetrotter motor)	175		√
A223	404T-405T	KIT 400TCFS	TTFS or THFS	125		
A425	404T-405T	KIT 400TCF-WD	TTFC (4 and 6 pole only) (Globetrotter motor)	175		
A425A	404T-405T	B176035.00	TTFCD (4 and 6 pole only) (Globetrotter motor)	175		√
A426	444TS-445TS	KIT 444/5TCF2-WD	TSTFC (2 pole only) (Globetrotter motor)	225		
A621	444TS-445TS	KIT 440TSCFN	TSTFN or TSHFN	200		
A427	444T-445T	KIT 444/5TCF-WD	TTFC (4 and 6 pole only) (Globetrotter motor)	225		
A620	444T-445T	KIT 440TCFN	TTFN or THFN	205		
A426A	444TS-449TS	B176036.00	TSTFCD (2 pole only) (Globetrotter motor)	250		√
A428	447/9TS	KIT 447/9TCF2-WD	TSTFC (2 pole only) (Globetrotter motor)	250		
A427A	444T-449T	B176037.00	TTFCD (4 and 6 pole only) (Globetrotter motor)	250		√
A623	447/449T	KIT 449TCFS	TTFS or THFS with ball bearings	200		√

Complete kits with hardware and Inpro/Seal®\* necessary for converting Marathon® stock IEEE-841 rigid base motors to "C-Face" mounting with rigid base.



## C-FACE KITS - BLUE CHIP SERIES® XRI® IEEE-841 MOTORS

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	FOOT NOTES	STOCK
A182	182-184T	KIT 180TCFS-841	THTS or THFS	13	75	√
A182A	182-184T	KIT 180TCFN-841	THTN OR THFN	13	75	
A182B	182-184T	KIT 180TCFCD-841	THFCD	15	75	
A183	213-215T	KIT 210TCFS-841	THTS or THFS	16	75	√
A183A	213-215T	KIT 210TCFN-841	THTN OR THFN	16	75	
A183B	213-215T	KIT 210TCFCD-841	THFCD	20	75	
A184	254-256T	KIT 250TCFNA-841	THFNA	35	75	
A184A	254-256T	KIT 250TCFCD-841	THFCD	30	75	
A186A	284-286T/TS	KIT 280TCFCD-841	THFCD	41		
A187	324-326T/TS	KIT 320TCFS-841	THFS	89		
A187A	324-326T/TS	KIT 320TCFCD-841	THFCD	55		
A188	364-365T	KIT 360TCFSR-841	THFS	95		
A188A	364-365T/TS	KIT 360TCFCD-841	THFCD	70		
A190	404-405T	KIT 400TCFS-841	THFS	129		
A190A	404-405T	KIT 400TCFCD-841	THFCD	96		
A191	404-405TS	KIT 400TSCFS-841	TSHFS	118		
A191A	404-405TS	KIT 400TSCFCD-841	THFCD	93		√
A192	444-445T	KIT 440TCFS-841	THFS	175		
A193	444-445TS	KIT 440TSCFS-841	TSHFS	108		
A194	444-445T	KIT 440TCFN-841	THFN	201		
A194A	444-445T	KIT 440TCFCD-841	THFCD	128		
A195	444-445TS	KIT 440TSCFN-841	TSHFN	199		
A195A	444-445TS	KIT 440TSCFCD-841	THFCD	118		√

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ACCESSORY KITS

## D-FLANGE KITS

Complete kits with hardware necessary for converting Marathon® stock rigid base motors to D-Flange mounting with rigid base.



### ODP

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	STOCK
A670	324/326T	B176201.00	TTDBD	98	√
A671	324/326TS	B176202.00	TTDBD	98	√
A672	364/365T	B176203.00	TTDBD	121	√
A673	364/365TS	B176204.00	TTDBD	121	√

### TEFC

CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	FOOT NOTES	STOCK
A541	182-184T	KIT 180TDFCD	GLOBETROTTER® (TTFCD)	22	97	
A542	213-215T	KIT 210TDFCD	GLOBETROTTER (TTFCD)	22	97	
A648	254/256T	KIT 250TDFNA	TTFNA	15	97	
A543	254-256T	KIT 250TDFCD	GLOBETROTTER (TTFCD)	52	97	√
A675	254/256T	B176205.00	XRI-SD (TTFCD)	39	97	√
A656	284/286T	KIT 280TDFNA	TTFNA	60	97	
A651	284/286T/TS	KIT 651R	TTFP, TTFC (EPAAct), TSTFP or TSTFC (EPAAct)	38	97	
A544	284-286T/TS	KIT 280TDFCD	GLOBETROTTER (TTFCD)	58	97	√
A676	284/286T/TS	B176206.00	XRI®-SD (TTFCD)	60	97	√
A658	324/326T/TS	KIT 320TDFS	TTFS, TSTFS	118	97	√
A677	324/326T/TS	B176194.00	TTFCD	98	97	
A475	324/326T/TS	KIT 320TDFCD-841	XRI-841 (FCD)	58	97	√
A678	364/365T/TS	B176207.00	TTFCD	121		
A476	364/365T/TS	KIT 360TDFCD-841	XRI-841 (FCD)	85		√
A679	404-405TS	KIT 400TSDFCD	TTFCD	106		√
A477	404-405TS	KIT 400TSDFCD-841	XRI-841 (FCD)	125		√
A546	404-405T	KIT 400TDFCD	TTFCD	108		
A478	404-405T	KIT 400TDFCD-841	XRI-841 (FCD)	130		√
A547	444-449TS	KIT 440TSDFCD	TTFCD	117		√
A479	444-449TS	KIT 440TSDFCD-841	XRI-841 (FCD)	145		√
A548	444-449T	KIT 440TDFCD	TTFCD	121		
A480	444-449T	KIT 440TDFCD-841	XRI-841 (FCD)	150		√



## C-FACE TO D-FLANGE KITS - TEFC

Complete kits with hardware necessary for converting Marathon stock C-Face rigid base motors to D-Flange mounting with rigid base.



CAT. NO.	FRAME	KIT / ITEM NO.	WHERE USED (MODELS CONTAINING)	WT.	STOCK
A630	182TC-184TC	KIT 180TDFR	TTFR	17	
A632	324TC-326TC	KIT 320TDFP	TTFP	71	√

# ACCESSORY KITS

## IEC® MOUNTING KITS

Complete kits with hardware necessary for converting Marathon® IEC stock motors to B5 or B14 mountings.



### FLANGE MOUNTING KITS FOR CAST IRON FRAME, TERRAMAX® IEC NEMA PREMIUM® (IE3) MOTORS ONLY

FRAME	POLE	FLANGE	CAT. NO.	KIT / ITEM NO.	BOLT CIRCLE "MM"	WT.	STOCK
80	ALL	FF/B5	A571A	KIT B175854	165	15	√
	ALL	FT/B14	A563A	KIT B175855	100	12	√
90	ALL	FF/B5	A572A	KIT B175856	165	18	√
	ALL	FT/B14	A564A	KIT B175857	115	15	√
100	ALL	FF/B5	A554B	KIT B175810	215	11	√
	ALL	FT/B14	A581B	KIT B175817	130	9	√
112	ALL	FF/B5	A555C	KIT B175827	215	20	√
	ALL	FT/B14	A582C	KIT B175832	130	12	√
132	ALL	FF/B5	A550A	KIT B175828	265	52	√
	ALL	FT/B14	A589A	KIT B175833	165	19	√
160	ALL	FF/B5	A551A	KIT B175829	300	37	√
	ALL	FT/B14	A590A	KIT B175834	215	37	√
180	ALL	FF/B5	A552A	KIT B175830	300	46	√
200	ALL	FF/B5	A553A	KIT B175831	350	58	√
225	ALL	FF/B5	A580A	KIT B175995	400	64	√
250	ALL	FF/B5	A594A	KIT B175619	400	101	√
280	2	FF/B5	A595	KIT B175839	500	109	√
	4 & 6	FF/B5	A596A	KIT B175835	500	109	√
315	2	FF/B5	A597	KIT B175837	600	129	
	4 & 6	FF/B5	A598A	KIT B175836	600	129	√



### FLANGE MOUNTING KITS FOR CAST IRON FRAME, GLOBETROTTER® IEC NEMA PREMIUM (IE3) MOTORS ONLY

FRAME	POLE	FLANGE	CAT. NO.	KIT / ITEM NO.	BOLT CIRCLE "MM"	WT.	STOCK
100	ALL	FF/B5	A554A	KIT 175810	215	16	√
	ALL	FT/B14	A581A	KIT 175817	130	10	√
112		FT/B14	A582B	KIT 175832	130	13	√
	6	FF/B5	A554A	KIT 175810	215	33	√
		FT/B14	A581A	KIT 175817	130	13	√
132	2	FF/B5	A550	KIT 175828	265	20	√
		FT/B14	A589	KIT 175833	165	16	
	4 & 6	FF/B5	A556A	KIT 175812	265	20	
160		FT/B14	A583A	KIT 175819	165	16	
	2	FF/B5	A551	KIT 175829	300	33	
		FT/B14	A590	KIT 175834	215	30	
	4 & 6	FF/B5	A557	KIT 175990	300	33	
180		FT/B14	A584	KIT 175991	215	30	√
	2	FF/B5	A552	KIT 175830	300	41	√
	4 & 6		A558	KIT 175890	300	41	
200	2	FF/B5	A553	KIT 175831	350	61	
	4 & 6		A559	KIT 175994	350	61	
225	ALL	FF/B5	A580	KIT 175995	400	59	
	ALL	FF/B5	A580	KIT 175995	400	76	
250	ALL	FF/B5	A594	KIT 175619	400	165	



### B14 METRIC FLANGES TO REDUCE DIAMETER FOR ALUMINUM FRAME MOTORS ONLY

FRAME	NEW FRAME DIAMETER	CAT. NO.	KIT / ITEM NO.	WT.	STOCK
63	56	A585	KIT 175900	5	√
71	63	A586	KIT 175901	5	√
80	71	A587	KIT 175902	8	√
90	80	A588	KIT 175903	8	√

### IEC BRAKE MOTOR FLANGES

FRAME	FLANGE	CAT. NO.	KIT / ITEM NO.	WT.	STOCK
80M	B5 "FF" (D-Flange)	-	176177.00		√
	B14 "FT" (C-Face)	-	176181.00		√
90S&L	B5 "FF" (D-Flange)	-	176178.00		√
	B14 "FT" (C-Face)	-	176182.00		√
100L	B5 "FF" (D-Flange)	-	176179.00		√
	B14 "FT" (C-Face)	-	176183.00		√
112M	B5 "FF" (D-Flange)	-	176180.00		√
	B14 "FT" (C-Face)	-	176184.00		√

These flange kits can only be used with the IEC brakemotors

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ACCESSORY KITS

## STEARNS 56,000 SERIES BRAKE KITS

These kits include a brake mounted to an external cast aluminum fan guard. Designed for easy field installation on Marathon® 4-In-1® motors, 56, 143, and 145 frames only. SL56 encoder to make a closed loop inverter brake motor.



MOTOR HP	BRAKEMOTOR SHAFT RPM		
	LB-FT @ 3600	LB-FT @ 1800	LB-FT @ 1200
1/4	-	-	3
1/3	-	3	3
1/2	3	3	3
3/4	3	6	6
1	3	6	6
1 1/2	6	10	10
2	6	10	15
3	10	15	25
5	15	25	35
7 1/2	25	35	50
10	25	50	70
15	35	75	105
20	50	105	-

TORQUE RATING (Lb/Ft)	115/208-230 VOLT			208-230/460 VOLT			575 VOLT			WT. ALL
	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	
3	A306	KIT 3BRK1	√	A301	KIT 3BRK3	√	A297	KIT 3BRK3A	√	10
6	A307	KIT 6BRK1	√	A302	KIT 6BRK3	√	A298	KIT 6BRK3A	√	11
10	---	---	---	A303	KIT 10BRK	√	A299	KIT 10BRKA	√	10
15	---	---	---	---	175696.00	√	---	175698.00	√	12
25	---	---	---	---	175697.00		---	175699.00	√	12

## STEARNS 56,000 SERIES BRAKE KITS - INVERTER DUTY TENV BLACK MAX® AND BLUE MAX® MOTORS

For normal (140%) torque rating, do not apply on motors larger than 2 HP. Reduced braking torque and/or longer stopping times can result from applying an undersized brake on higher HP motors.



These brake kits fit on both the Black Max and Blue Max TENV motors. These can also be used together with the Double C-Face SL56 encoder to make a closed loop inverter brake motor.

TORQUE RATING (Lb/Ft)	115/208-230 VOLT			208-230/460 VOLT			575 VOLT			WT. ALL
	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	
6	A317	KIT BM6BRK115	√	A312	KIT BM6BRK	√	A315	KIT BM6BRK575	√	7
10	A318	KIT BM10BRK115	√	A313	KIT BM10BRK	√	A316	KIT BM10BRK575	√	7

## VERTICAL MODIFICATION KIT (STEARNS 87,000 SERIES)

Includes required hardware to accommodate vertical above (shaft down) or vertical below (shaft up) mounting.



TORQUE RATING (Lb/Ft)	MOUNTING		CAT. NO.	STOCK	KIT NO.	WT. ALL
	SHAFT UP	SHAFT DOWN				
25,35	Not required	Required	A157	√	KIT VRT87BRK	3
50,75,105	Required	Required				

## DOUBLE C-FACE COUPLER BRAKES

Includes a 5/8" sleeve



TORQUE RATING (Lb/Ft)	ENCLOSURE NEMA 2, IP-23 208-230/460V			ENCLOSURE NEMA 4, IP-54 208-230/460V			ENCLOSURE NEMA 4X, IP-55 208-230/460V			WT. ALL
	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	CAT. NO.	KIT NO.	STOCK	
3	A903	KIT 903	√	A906	KIT 906		A909	KIT 909	√	12
6	A904	KIT 904	√	A907	KIT 907	√	A910	KIT 910	√	12
10	A905	KIT 905	√	A908	KIT 908	√	A911	KIT 911	√	12
15	---	175581.00	√	---	---	---	---	---	---	16
15	---	175583.00	√	---	---	---	---	---	---	58
25	---	175585.00	√	---	---	---	---	---	---	58
35	---	175587.00		---	---	---	---	---	---	60
50	---	175589.00	√	---	---	---	---	---	---	62

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

# ACCESSORY KITS

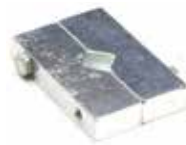
## SHAFT ADAPTER SLEEVE

Used to increase the diameter of a shaft to a larger size. Available sizes include converting from a 1/2" dia. shaft with flat to a 5/8" dia. with key and from a 5/8" dia. with key to a 3/4" dia. with key. Kit includes adapter sleeve and key.

CAT. NO.	KIT / ITEM NO.	STOCK	TO CHANGE SHAFT	WT.
A105	KIT 105		1/2" to 5/8"	3
A106	KIT 106		5/8" to 3/4"	3

## SHAFT LOCK DEVICE

Used as a pry point for prying the blade off. Instructions included.



CAT. NO.	KIT / ITEM NO.	STOCK	WT.
A257	KIT 257		2

## BRASS PUNCH

Used for placing between your hammer and the motor shaft or bearing. 3/4" diameter x 6" length.



CAT. NO.	KIT / ITEM NO.	STOCK	WT.
A261	KIT 261		6

## FAN GUARD KITS

Fits standard Globetrotter motors. Mounts with four screws into the end bracket. Kit includes: fan guard, mounting screws, washers, and instructions.



CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	WT.
A972	B176237.00	√	182/184T	TTFCD	3
A973	B176238.00	√	213/215T	TTFCD	3
A974	B176239.00	√	254/256T	TTFCD	3
A976	B176243.00	√	182/184T	TTFCD	20
A977	B176273.00	√	213/215T	TTFCD	25
A978	B176274.00	√	254/256T	TTFCD	38
A979	B176275.00	√	284/286T/TS	TTFCD	40
A980	B176196.00		324/326T/TS	TTFCD	55
A981	B176197.00		364/365T/TS	TTFCD	105
A982	B176198.00		404/405T/TS	TTFCD	175
A983	B176199.00	√	444/445T/TS	TTFCD	225
A984	B176200.00	√	447/449T/TS	TTFCD	250

## TAPERED FORK

Used for prying off pulleys, fan blades, etc., from any shaft 5/8" diameter or smaller. Long 16" handle gives good leverage. Instructions included.



CAT. NO.	KIT / ITEM NO.	STOCK	WT.
A258	KIT 258		4

## TOGGLE SWITCH

Starts switches for single-phase open dripproof motors only in ratings one horsepower and smaller. Switch is mounted on the motor terminal box cover.



CAT. NO.	KIT / ITEM NO.	STOCK	WT.	NO. OF POLES	FRAME SIZE
AG228	112A515AKG4		2	Single (SPST)	30
AG229	112A515ASG2		2	Single (SPST)	40

## BLOWER WHEEL REMOVER

Used to pull off corroded, rusted, stubborn blower wheels from 5/8" diameter shafts and smaller. Comes with complete instructions.



CAT. NO.	KIT / ITEM NO.	WT.
A256	KIT 256	2

# ACCESSORY KITS



## DRIP COVER KITS

Mounts with two screws into the end bracket. Kit includes: drip cover, mounting screws, washers, and instructions. Contact Marathon Electric to determine compatibility with motor. For vertical shaft down applications.

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	WT.
A201	KIT 201	√	182/184T	ODP	3
A662	KIT 175614		182/184T	ODP (TTDW)	15
A081	B176277.00		182/184T	ODP (TTDBD)	3
A198	KIT 198		213/215T	ODP (TTDW)	5
A082	B176222.00		213/215T	ODP (TTDBD)	5
-	175305.00		213/215T	LEESON® ROLLED STEEL 2 POLE motors only	5
A311	KIT 311	√	254/256T	ODP (TTDX) Rigid Base	5
A083	B176223.00	√	254/256T	ODP (TTDBD)	5
A084	B176224.00	√	284/286T/TS	ODP (TTDBD)	8
A085	B176225.00	√	324/326T/TS	ODP (TTDBD)	8
A086	B176226.00	√	364/365T/TS	ODP (TTDBD)	15
A087	B176227.00	√	404/405T/TS	ODP (TTDBD)	18
A088	B176228.00	√	444/449T/TS	ODP (TTDBD)	18
A197	KIT 197		182/184T	TEFC (4-IN-1)	3
A091	B176241.00		182/184T	TEFC (TTFBD & TTFCD)	3
A199	KIT 199		213/215T	TEFC (4-IN-1)	5
A092	B176214.00		213/215T	TEFC (TTFBD & TTFCD)	5
A093	B176215.00		254/256T	TEFC (TTFCD)	5
A095	B176217.00		324/326T/TS	TEFC (TTFCD)	8
A096	B176218.00		364/365T/TS	TEFC (TTFCD)	15
A097	B176219.00	√	404/405T/TS	TEFC (TTFCD)	18
A098	B176220.00		444/445T/TS	TEFC (TTFCD)	18
A099	B176221.00	√	447/449T/TS	TEFC (TTFCD)	18

Note: Kit 234, the mounting holes have a 4.80 bolt circle.

## LINT-COVER / DRIP-COVER KIT

Fits standard Globetrotter® and Blue Chip Series® motors. Threaded conduit box and gaskets.

### TEFC MOTORS - LEESON® MOTORS ONLY

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WHERE USED (MODELS CONTAINING)	WT.
-	175695.00	√	182-215T	ALSO ON S213T SKUS's WITH CAT #'s 131454 AND HIGHER OR WITH A G PREFIX	3
-	176044.60	√	213/215T	Wattsaver® and "G15" Series Motors	3
-	176046.60	√	284/286T/TS	Wattsaver® and "G15" Series Motors	12

# ACCESSORY KITS

## CONDUIT BOX KITS

Fits standard Globetrotter® and Blue Chip Series® motors. Threaded conduit box and gaskets.



### CAST IRON

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	WT.
A720	KIT 180/210CB		182-215T	TTFS, TTFN or TTFND	
A933	B176242.00	√	182/184T	TTFCD	
A934	B176276.00	√	213/215T	TTFCD	
A935	B176209.00	√	254/256T	TTFCD	
A936	B176210.00	√	284/286T/TS	TTFCD	
A730	KIT 320CB		324/326T/TS	TTFS, TTFN, TTFP, or TTFPA	
A937	B176211.00	√	324/326T/TS	TTFCD	
A119	KIT 364-445CB		364/445T/TS	TTFS, TTFN	
A938	B176212.00	√	364/365T/TS	TTFCD	
A939	B176213.00	√	404/449T/TS	TTFCD	

Includes conduit box, plug, cover, gaskets and mounting hardware.

Two 1/2-NPT tapped lead holes, one hole is plugged, LEESON models.

### CAST ALUMINUM

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	WT.
-	175847.00		213/215T	Motors with the letter "M" after the date code	11

## Q-CAR™ REPLACEMENT KITS

Fits Extreme Duck® Ultra Motors. Used to change out the Rotor and Shaft assemblies with FRESH Bearings. The Q-Car rotor cartridge kit makes replacing worn bearings ultra simple.

Allows for quick access to the motor interior.



CAT. NO.	KIT / ITEM NO.	STOCK	FITS EXTREME DUCK® ULTRA SKU	WT.
-	176332.00	√	132646.00	36
-	176333.00	√	132647.00	28
-	176334.00	√	132648.00	37
-	176335.00	√	132649.00	30
-	176336.00	√	141409.00	28
-	176337.00	√	141410.00	55
-	176338.00	√	141411.00	50
-	176339.00	√	141412.00	60

## TERMINAL BLOCK KITS

Terminal blocks provide for a convenient termination for power leads, and are sized for the proper amperage and voltage of the motor. These kits fit NEMA®\* TEFC, TENV, and ODP motors equipped with cast iron conduit boxes. Available on 182 to 449 frames.



FRAME	CAT. NO.	KIT / ITEM NO.	STOCK	WHERE USED	WT.	FIGURE
180-210	A1000	KIT 180-210 TERM BLK		DOMESTIC MODELS	2	1
180-210	-	175668.60	√	LEESON SERIES 15 / 17 MODELS	2	2
180-210	A1193	KIT B175668	√	TEFC FCD MODELS	2	2
250-320	A1001	KIT 250-320 TERM BLK		DOMESTIC MODELS	3	1
250-280	-	175667.60		LEESON SERIES 15 / 17 MODELS	3	2
250-280	A1194	KIT B175667	√	TEFC FCD MODELS	3	2
320-360	A1195	KIT B175666	√	TEFC FCD MODELS	4	2
360	A1002	KIT 360 TERM BLK		DOMESTIC MODELS	5	1
404/405	A1196	KIT B175665	√	TEFC FCD MODELS	5	2
404-445	A1003	KIT 400-445 TERM BLK		DOMESTIC MODELS	7	1
400/440	-	175665.60		LEESON SERIES 15 / 17 MODELS	5	2
447/449	A1004	KIT 447/9 TERM BLK		DOMESTIC MODELS	10	1
444/449	A1197	KIT B175629	√	TEFC FCD MODELS	5	2

√: Available

¶: Stocked components, Ready To Built

Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ACCESSORY KITS



## SEVERE DUTY - UPGRADE TO CAST IRON FAN COVER / CONDUIT BOX

Fits standard Blue Chip Series® motors to achieve all cast iron construction.

Components include fan guard and threaded conduit box.

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WHERE USED	WT.
A715	KIT 140CB		143T-145T	TTTN	4
A721	KIT 210R		213T-215T	THFS, THTS, TTFC (Not XRI), TTFS, TTTS	19
A724	KIT 250RFNA		254T-256T	TFNA, TFCA (Not XRI), THTNA, or THFNA	34

## ROLLER BEARING CONVERSION KITS

For conversion of ball bearing on drive end to roller bearing (for belted applications)..

**CONFIRM KIT SELECTION WITH CUSTOMER SERVICE/ENGINEERING**



CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	BEARING SIZE	WHERE USED (MODELS CONTAINING)	WT.
A1052	KIT 280BRDCD-NU311	√	284-6T	ODP	311	TTDBD	12
A1053	KIT 320BRDCD-NU312	√	324-6T	ODP	312	TTDBD	18
A1054	KIT 360BRDCD-NU314	√	364-5T	ODP	314	TTDBD	21
A1055	KIT 400BRDCD-NU316		404-5T	ODP	316	TTDCD	26
A1056	KIT 440BRDCD-NU319		444-9T	ODP	319	TTDCD	29
A1060	KIT 210BRFGT-NU308	√	213-5T	TEFC	308	TTFCD - GT CAT NUMBERS ONLY	10
A1061	KIT 250BRFGT-NU309	√	254-6T	TEFC	309	TTFCD - GT CAT NUMBERS ONLY	12
A1062	KIT 280BRFGT-NU311	√	284-6T	TEFC	311	TTFCD - GT CAT NUMBERS ONLY	16
A1070	KIT 210BRFCD-NU308		213-5T	TEFC	308	TTFCD - SD & 841 CAT NUMBERS ONLY	10
A1071	KIT 250BRFCD-NU309		254-6T	TEFC	309	TTFCD - SD & 841 CAT NUMBERS ONLY	12
A1072	KIT 280BRFCD-NU311		284-6T	TEFC	311	TTFCD - SD & 841 CAT NUMBERS ONLY	16
A1073	KIT 320BRFCD-NU312		324-6T	TEFC	312	TTFCD - ALL CAT NUMBERS ONLY	20
A1074	KIT 360BRFCD-NU313		364-5T	TEFC	313	TTFCD - ALL CAT NUMBERS ONLY	25
A755	KIT 360BRFSR-314		364T-365T	TEFC & TEBC	314	TTFS, THFS	14
A756	KIT 400BRFS-316		404T-405T	TEFC & TEBC	316	TTFS, THFS	19
A759	KIT 440BRFN		444T-445T	TEFC & TEBC	318	TTFN, THFN	13
A758	KIT 449BRFS		447T-449T	TEFC & TEBC	319	TTFS, THFS	20

## BALL BEARING CONVERSION KITS

For conversion of roller bearing on drive end to ball bearing (for direct-coupled applications).

**CONFIRM KIT SELECTION WITH CUSTOMER SERVICE/ENGINEERING**



CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	ENCLOSURE	WHERE USED (MODELS CONTAINING)	WT.
A1085	KIT 400RBDCD-NU316	√	404-5T	ODP	TTDCD	30
A1086	KIT 440RBDCD-NU319	√	444-9T	ODP	TTDCD	35
A1093	KIT 320RBFCD-NU312	√	324-6T	TEFC	TTFCD - ALL CAT NUMBERS ONLY	20
A1094	KIT 360RBFCD-NU313	√	364-5T	TEFC	TTFCD - ALL CAT NUMBERS ONLY	25
A1095	KIT 400RBFCD-NU316	√	404-5T	TEFC	TTFCD - ALL CAT NUMBERS ONLY	30
A1096	KIT 440RBFCD-NU319	√	444-9T	TEFC	TTFCD - ALL CAT NUMBERS ONLY	35
A760	KIT 440BBFN		444T-445T	TEFC	TTFN, THFN	160
A795	KIT L449BBFS-322		L447T-L449T	TEFC	TTFS	190

# ACCESSORY KITS

## AXIAL BLOWER KITS

For installation on Marathon Blue Chip Series® XRI® Totally Enclosed and Severe Duty motors (excluding Explosion Proof).



CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WT.	BLOWER VOLTS AND PHASE	WHERE USED (MODELS CONTAINING)
A680	4900030		1HP Motor Only	56	230/460V, 3Ø	Replacement motor for TEBC blower unit
A681A	4900670		2HP Motor Only	57	230/460V, 3Ø	Replacement motor for TEBC blower unit
A695	KIT 32TEBC		324T/TS-326T/TS	200	230/460V, 3Ø	TTFS
A697	KIT 40TEBC		404T/TS-405T/TS	242	230/460V, 3Ø	TTFS
A698	KIT 44TEBC-313		444TS-449TS	401	230/460V, 3Ø	A 6313 bearing on opposite shaft end
A699	KIT 44TEBC-316		444T-449T	401	230/460V, 3Ø	A 6316 bearing on opposite shaft end (excludes roller bearing)
A700	KIT 44TEBC-318	√	444T-449T	401	230/460V, 3Ø	A 6318 bearing on opposite shaft end (excludes roller bearing)
A796	KIT L449TEBC		L447T-L449T	272	230/460V, 3Ø	With L447/449 Frames

These kits are used for converting LEESON® motors to totally enclosed blower cooled motors. Cooling per MG1.6 (IC46). The kits are designed for inverter and vector drive applications where continuous cooling is required regardless of motor shaft speed. The kit is mounted on the back of the motor after removing the fan guard and fan. Modifying the shaft is not required.



CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WT.	BLOWER VOLTS AND PHASE	WHERE USED (MODELS CONTAINING)
-	175895.00	√	182T-184T	4	115V, 1Ø	Rolled steel, TEFC motors with the letter "M" after the date code
-	175674.00		182T-184T	10	115V, 1Ø	Cast iron, TEFC models with 150, G150 & 170 Series numbers
-	175676.00		254T-256T	17	115V, 1Ø	Cast iron, TEFC models with 150, G150 & 170 Series numbers
-	175677.00	√	284T/TS-286T/TS	24	115V, 1Ø	Cast iron, TEFC models with 150, G150 & 170 Series numbers
-	175678.00		324T/TS-326T/TS	28	115V, 1Ø	Cast iron, TEFC models with 150, G150 & 170 Series numbers
-	175879.00		364T/TS-365T/TS	35	230/460V, 3Ø	Cast iron, TEFC models with 150, G150 & 170 Series numbers

## SHAFT GROUNDING ACCESSORIES

Shaft grounding: Shaft grounding is recommended (NEMA®\* MG1 31.4.4.3) as an effective means of bearing protection for motors operated from inverter power. One grounding device is adequate to bleed down inverter-sourced shaft voltages, thereby protecting both bearings for motors as large as 6085 frame.

## FILAMENT BRUSH

Add to existing ODP or TEFC models

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WT.	COMMENTS
A103	KIT 103		182-449T/TS	1	Drive end mount
A116	KIT 116		182-449T/TS	1	Non-drive end mount
A109	KIT 109	√	182-449T/TS	1	Replacement brush



## SILVER GRAPHITE BRUSH

Add to existing TEFC models

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WT.	COMMENTS
A123	KIT BCP-HC22	√	182-449T/TS	5	Requires stub shaft kit -TEFC only

## STUB SHAFT KITS

Fits TEFC motors to allow the addition of 1" bore hollow shaft encoders or BCP grounding, to the motor opposite drive end.

CAT. NO.	KIT / ITEM NO.	STOCK	FRAME	WT.	WHERE USED (MODELS CONTAINING)
A121	KIT STUBSHFT 140-280		143T-286T/TS	3	GLOBETROTTER FBD & FCD
A122	KIT STUBSHFT 320-500		324T/TS-449T/TS	3	GLOBETROTTER FBD & FCD
A798	KIT STBSHFT 1X.37IN	√	182T-449T/TS	3	TEFC SEVERE DUTY AND IEEE-841, FOR BCP ADDITION
A807	KIT STUBSHAFT 1IN		182T-449T/TS	3	FAN COOLED SEVERE DUTY AND IEEE-841



### WARNING:

Encoders to be used in Division 1 or Division 2 Hazardous (Classified) Locations shall have agency certifications equivalent to the motor and be nameplated for the Class(es), Group(s), and Temperature Code required for the application. Motor modifications using a stub shaft may result in removal of Div 2 classification

√: Available    1- Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ACCESSORY KITS

## BCP KIT:

Kit includes grounding ring, adhesive mounting hardware and instructions (for domestic produced products only).



## BCP UNIVERSAL KIT:

Kit includes grounding ring, all mounting hardware needed to mount to any standard drive end bracket and instructions.

## BCP UNIVERSAL SPLIT RING KIT

Kit is designed to allow BCP mounting without uncoupling the motor. Kit includes grounding ring, all mounting hardware needed to mount to any standard drive end bracket and instructions. Shaft ground rings fit these NEMA®\* frame shaft extensions listed below, they are designed to mount on the shaft end. For larger frames, please contact Marathon® Motors.

## NEMA®\* RINGS

BCP KIT				BCP UNIVERSAL KIT				BCP UNIVERSAL SPLIT RING KIT			
FRAME	CAT. NO.	STOCK	WT.	KIT / ITEM NO.	CAT. NO.	STOCK	WT.	KIT / ITEM NO.	CAT. NO.	STOCK	WT.
48	A500-5		1	—	—		—	—	—	—	—
56	A500-8		1	KIT SGR-0.625-UK	A499-1	√	5	KIT SGR-0.625-1A4-UK	A495-1	√	5
143-145T	A500-14		1	KIT SGR-0.875-UK	A499-2	√	5	KIT SGR-0.875-1A4-UK	A495-2	√	5
182-184T	A500-20		1	KIT SGR-1.125-UK	A499-3	√	5	KIT SGR-1.125-1A4-UK	A495-3	√	5
180JM/JP	A500-23		1	—	—		—	—	—	—	—
213-215T	A500-26		1	KIT SGR-1.375-UK	A499-4	√	5	KIT SGR-1.375-1A4-UK	A495-4	√	5
254-256T	A500-32		1	KIT SGR-1.625-UK	A499-5	√	5	KIT SGR-1.625-1A4-UK	A495-5	√	5
250JM/JP			—	—	—		—	—	—	—	—
284-286T	A500-38		1	KIT SGR-1.875-UK	A499-6	√	5	KIT SGR-1.875-1A4-UK	A495-6	√	5
284-286TS	A500-32		1	KIT SGR-1.625-UK	A499-5	√	5	KIT SGR-1.625-1A4-UK	A495-5	√	5
324-326T	A500-44		1	KIT SGR-2.125-UK	A499-7	√	7	KIT SGR-2.125-1A4-UK	A495-7	√	7
324-326TS	A500-38		1	KIT SGR-1.875-UK	A499-6	√	5	KIT SGR-1.875-1A4-UK	A495-6	√	5
320JM/JP	A500-50		1	—	—		—	—	—	—	—
364-365T	A500-50		1	KIT SGR-2.375-UK	A499-8	√	7	KIT SGR-2.375-1A4-UK	A495-8	√	7
364-365TS	A500-38		1	KIT SGR-1.875-UK	A499-6	√	5	KIT SGR-1.875-1A4-UK	A495-6	√	5
360JP	A500-53		1	—	—		—	—	—	—	—
404-405T	A500-62		1	KIT SGR-2.875-UK	A499-9	√	7	KIT SGR-2.875-1A4-UK	A495-9	√	7
404-405TS	A500-44		1	KIT SGR-2.125-UK	A499-7	√	7	KIT SGR-2.125-1A4-UK	A495-7	√	7
444-445T	A500-74		1	KIT SGR-3.375-UK	A499-10	√	7	KIT SGR-3.375-1A4-UK	A495-10	√	7
444-445TS	A500-50		1	KIT SGR-2.375-UK	A499-8	√	7	KIT SGR-2.375-1A4-UK	A495-8	√	7
447/449T	A500-74		1	KIT SGR-3.375-UK	A499-10	√	7	KIT SGR-3.375-1A4-UK	A495-10	√	7
447/449TS	A500-50		1	KIT SGR-2.375-UK	A499-8	√	7	KIT SGR-2.375-1A4-UK	A495-8	√	7
5000LS	A500-62		1	—	—		—	KIT SGR-4.875-1A4-UK	A495-14	√	7

## IEC®\* RINGS

BCP UNIVERSAL RING KIT				
FRAME	KIT / ITEM NO.	CAT. NO.	STOCK	WT.
100L, 112M	KIT BCP-28-UK	A498-1	√	5
132S, 132M	KIT BCP-38-UK	A498-2	√	5
160M, 160L	KIT BCP-42-UK	A498-3	√	5
180M, 180L	KIT BCP-48-UK	A498-4	√	5
200L	KIT BCP-55-UK	A498-5	√	7
225S, 225M	KIT BCP-60-UK	A498-6	√	7
250M	KIT BCP-65-UK	A498-7	√	7
70 mm Shaft Dia.	KIT BCP-70-UK	A498-8	√	7
280S, 280M	KIT BCP-75-UK	A498-9	√	7
315S, 315M, 315L	KIT BCP-80-UK	A498-10	√	7
85 mm Shaft Dia.	KIT BCP-85-UK	A498-11	√	10
90 mm Shaft Dia.	KIT BCP-90-UK	A498-12	√	10
335L/M, 355L/M	KIT BCP-95-UK	A498-13	√	10
100 mm Shaft Dia.	KIT BCP-100-UK	A498-14	√	10
110 mm Shaft Dia.	KIT BCP-110-UK	A498-15	√	10
120 mm Shaft Dia.	KIT BCP-120-UK	A498-16	√	10

# ACCESSORY KITS

## ENCODER KITS AND ACCESSORIES FOR BLACK MAX®, BLUE MAX®, GLOBETROTTER®, XRI®-SD AND XRI-841 MOTORS



Installation of encoder kits on Globetrotter, XRI Severe Duty or XRI IEEE-841 TEFC motors requires installation of a stub shaft kit.

ENCL.	FRAME	BRAND / MODEL	PPR	CAT. NO.	KIT / ITEM NO.	STOCK	WT.	NOTES
TENV (5/8" bore)	56-286	Avtron®* HS25A	1024	A746	KIT HS25A1024-NV	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
			2048	A747	KIT HS25A2048-NV	√		
		Avtron AV32	1024	A1010	KIT AV321024-NV	√	1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate
				A1012	KIT AV32B1024-NV	√		Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)
			2048	A1011	KIT AV322048-NV	√	1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate
				A1013	KIT AV32B2048-NV	√		Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)
		Avtron HS35A	1024	A736	KIT HS35A1024-NV	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
				A779A	KIT HS35A/B1024-NV	√		Shaft Mount, 5-26 VDC, with 10 pin connector/mate (REPLACES BEI A779)
			2048	A739	KIT HS35A2048-NV	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
		A780A		KIT HS35A/B2048-NV	√	Shaft Mount, 5-26 VDC, with 10 pin connector/mate (REPLACES BEI A780)		
		Avtron HS35M	1024	A742	KIT HS35M1024	√	4	Shaft Mount, 5-24 VDC, with EPIC connector/mate
		Avtron HS45	1024	A753	KIT HS451024-NV	√	10	Shaft Mount, 5-24 VDC, with EPIC connector/mate
		Avtron AV56	512	A713	KIT AV56512-NV	√	5	Modular Mount, 5-24 VDC, with EPIC connector/mate, Double C-Face
			1024	A793	KIT AV561024-NV	√		Modular Mount, 5-24 VDC, with EPIC connector/mate, Double C-Face
		BEI** HS35	1024	A779	KIT HS35B1024-NV	√	3	Shaft Mount, 5-28 VDC, with 10 pin connector/mate
		Dynapar** HS20	1024	A687	KIT HS201024-NV	√	3	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
		Dynapar HS35R	1024	A772	KIT HS351024-NV	√	3	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
			2048	A776	KIT HS352048-NV	√		
		NorthStar** HSD35	1024	A711	KIT HSD351024-NV	√	4	Shaft Mount, 5-26 VDC, with EPIC connector/mate
				512	A785	KIT LKSR512		√
1024	A763			KIT LKSR02	√	Modular Mount, 5-15 VDC, with EPIC connector/mate		
NorthStar ST56	1024	A786	KIT LKSR-CFACE	√	5	Modular Mount, 5-15 VDC, with EPIC connector/mate, Double C-Face		
		A1014	KIT AV321024-FC	√		1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate	
		A1016	KIT AV32B1024-FC	√			Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)	
Avtron AV32	2048	A1015	KIT AV322048-FC	√	1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate		
		A1017	KIT AV32B2048-FC	√		Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)		
	1024	A737	KIT HS35A1024-FC	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate		
		A783A	KIT HS35A/B1024-FC	√		Shaft Mount, 5-26 VDC, with 10 pin connector/mate (REPLACE BEI A783)		
Avtron HS35A	2048	A740	KIT HS35A2048-FC	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate		
		A784A	KIT HS35A/B2048-FC	√		Shaft Mount, 5-26 VDC, with 10 pin connector/mate (REPLACE BEI A784)		
	1024	A742	KIT HS35M1024	√	4	Shaft Mount, 5-24 VDC, with EPIC connector/mate		
2048	A744	KIT HS35M2048	√	Shaft Mount, 5-24 VDC, with EPIC connector/mate				
Avtron HS45	1024	A754	KIT HS451024-FC	√	10	Shaft Mount, 5-24 VDC, with EPIC connector/mate		
Dynapar HS35R	1024	A774	KIT HS351024-FC	√	3	Shaft Mount, 5-26 VDC, with 10 pin connector/mate		
	2048	A777	KIT HS352048-FC	√				
NorthStar HSD35	1024	A712	KIT HSD351024-FC	√	4	Shaft Mount, 5-26 VDC, with EPIC connector/mate		
TEFC (1" bore)	182-449	Avtron AV32	1024	A1014	KIT AV321024-FC	√	1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate
			2048	A1016	KIT AV32B1024-FC	√		Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)
		Avtron HS35A	1024	A1015	KIT AV322048-FC	√	1	Shaft Mount, 5-24 VDC, with 10 pin connector/mate
				A1017	KIT AV32B2048-FC	√		Shaft Mount, 5-24 VDC, with 10 pin connector/mate (BEI Phased)
			2048	A737	KIT HS35A1024-FC	√	4	Shaft Mount, 5-26 VDC, with 10 pin connector/mate
A783A	KIT HS35A/B1024-FC	√		Shaft Mount, 5-26 VDC, with 10 pin connector/mate (REPLACE BEI A783)				
Avtron HS35M	1024	A742	KIT HS35M1024	√	4	Shaft Mount, 5-24 VDC, with EPIC connector/mate		
2048	A744	KIT HS35M2048	√	Shaft Mount, 5-24 VDC, with EPIC connector/mate				
Avtron HS45	1024	A754	KIT HS451024-FC	√	10	Shaft Mount, 5-24 VDC, with EPIC connector/mate		
Dynapar HS35R	1024	A774	KIT HS351024-FC	√	3	Shaft Mount, 5-26 VDC, with 10 pin connector/mate		
	2048	A777	KIT HS352048-FC	√				
NorthStar HSD35	1024	A712	KIT HSD351024-FC	√	4	Shaft Mount, 5-26 VDC, with EPIC connector/mate		
TEBC (1" bore)	284-449	Avtron HS35A	1024	A738	KIT HS35A1024-BC	√	3	Shaft Mount, 5-26 VDC
			Avtron AV56	1024	A794	KIT AV561024-BC		√
		Dynapar HS35R	1024	A775	KIT HS351024-BC	√	3	Shaft Mount, 5-26 VDC
			2048	A778	KIT HS352048-BC	√		Shaft Mount, 5-26 VDC
		NorthStar ST56	1024	A764	KIT LKSR03	√	5	Modular Mount, 5-15 VDC
A801	KIT ENCB0X			√	Encoder Conduit Box (required for all TEBC encoders)			
TENV BRAKE MOTORS	143-256	Avtron AV56	1024	A748A	KIT AV561024BRK-140	√	4	Fits Blue Max Brakemotors (Y986, Y987)
				A749A	KIT AV561024BRK-182	√		Fits Blue Max Brakemotors (Y988)
		Avtron AV85	1024	A750A	KIT AV851024BRK-184	√	8	Fits Blue Max Brakemotors (Y989)
				A751A	KIT AV851024BRK-210	√		Fits Blue Max Brakemotors (Y990, Y991)
				A752A	KIT AV851024BRK-250	√		Fits Blue Max Brakemotors (Y992, Y993)
		NorthStar ST56	1024	A786	KIT LKSR-CFACE	√	5	Fits Blue Max Brakemotors (Y986, Y987)
				A789A	KIT ST561024-182NV	√		Fits Blue Max Brakemotors (Y988)
		NorthStar ST85	1024	A790A	KIT ST851024-184NV	√	8	Fits Blue Max Brakemotors (Y989)
				A791A	KIT ST851024-210NV	√		Fits Blue Max Brakemotors (Y990, Y991)
				A792A	KIT ST851024-250NV	√		Fits Blue Max Brakemotors (Y992, Y993)
CABLE KITS	56-449	Danaher** Controls	---	A688-10	KIT A688-10	√	3	10' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-20	KIT A688-20	√		20' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-25	KIT A688-25	√		25' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-30	KIT A688-30	√		30' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-50	KIT A688-50	√		50' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-60	KIT A688-60	√		60' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A688-100	KIT A688-100	√		100' cable and pre-wired 10-pin connector for all 10 pin (MS) connectors
				A690-15	KIT A690-15	√		3

√: Available    ¶: Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# ACCESSORY KITS

## TRANSITION BASES

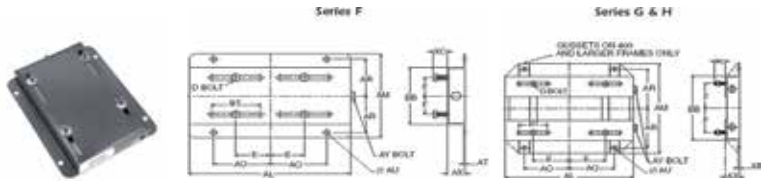
Convert "T" frame ratings to "U" frame based dimensions and shaft heights. Shaft dimensions may vary from actual "U" frame specifications.



CAT. NO.	KIT NO.	STOCK	CONVERTS		A	B	HGT	C	D	E	F	G	H	J	K	L	M	N (THREAD)	WT.
			FROM	TO															
1814T	KIT 180U	√	143/5T	182/4	2 1/4	7 1/2	1	4	5	4 1/2	5 1/2	1/2	3 3/4	1	7/16	1/2	1	5/16-8	2
2118T	KIT 210U	√	182/4T	213/5	1 3/4	9 1/2	3/4	4 1/2	5 1/2	5 1/2	7	1	4 1/4	1	7/16	7/16	1/2	3/8-16	3
25U21T	KIT 250U	√	213/5T	254/6U	2 7/16	12 3/4	1	5 1/2	7	8 1/4	10	1 1/8	5	1	9/16	5/8	3/4	3/8-16	5
28U25T	KIT 280U	√	254/6T	284/6U	2 3/4	14 1/4	3/4	8 1/4	10	9 1/2	11	1 3/8	5 1/2	1 1/4	9/16	15/16	1/2	1/2-13	8
32U28T	KIT 320U	√	284/6T	324/6U	3 1/4	15 3/4	1	9 1/2	11	10 1/2	12	1 1/2	6 1/4	1 1/2	11/16	15/16	3/4	1/2-13	10
36U32T	KIT 360U	√	324/6T	364/5U	3 11/16	16 1/2	1	10 1/2	12	11 1/4	12 1/4	1 3/4	7	1 3/4	11/16	1 3/16	3/4	5/8-11	13
40U36T	KIT 400U	√	364/5T	404/5U	4 1/4	18 5/8	1	11 1/4	12 1/4	12 1/4	13 3/4	2	8	2	13/16	1 1/4	1	5/8-11	22
44U40T	KIT 440U	√	404/5T	444/5U	4 1/4	21 5/8	1	12 1/4	13 3/4	14 1/2	16 1/2	2 1/4	9	2	13/16	1 1/4	1	3/4-10	24

## ADJUSTABLE MOTOR BASES (SLIDE BASES)

Used to adjust tension during motor installation. Made with heavy duty steel construction with single screw adjustment for 143T-215T Frame and double screw adjustment for 254T Frame and larger.



SERIES	FRAME	CAT. NO.	KIT NO.	STOCK	AL	AM	AX	BB	E	F	AO	AR	AU	BT	AT	XC	D BOLT	AY BOLT	WT.
F	48	48A	175032		98	10	6 1/4	1 1/8	2 1/8	1 3/8	3 1/2	2 3/4	3/8	3	.08	7/8	5/16x1	3/8x4	2
F	56	56A	KIT 56SB		98	10 5/8	6 1/2	1 1/8	2 7/16	1 1/2	3 13/16	2 7/8	3/8	3	.08	7/8	5/16x1	3/8x4	3
F	143	143A	KIT 143SB	√	10 1/2	7 1/2	1 1/8	5 1/2	2 3/4	2	3 3/4	3 3/8	3/8	3	0.119	13/16	5/16 x1	3/8x4	5
F	145	145A	KIT 145SB	√	10 1/2	8 1/2	1 1/8	6 1/2	2 3/4	2 1/2	3 3/4	3 7/8	3/8	3	0.119	13/16	5/16x1	3/8x4	6
F	182	182A	KIT 182SB	√	12 3/4	9 1/2	1 1/2	6 1/2	3 3/4	2 1/4	4 1/2	4 1/4	1 1/2	3	0.134	1 1/2	3/8x1 3/4	1/2x6	9
G	182	182B2	41018202		12 3/4	9 1/2	1 1/2	6 1/2	3 3/4	2 1/4	4 1/2	4 1/4	1 1/2	3	0.134	1 1/2	3/8x1 3/4	1/2x6	9
F	184	184A	KIT 184SB	√	12 3/4	10 1/2	1 1/2	7 1/2	3 3/4	2 3/4	4 1/2	4 3/4	1/2	3	0.134	1 1/2	3/8s 1 3/4	1/2x6	9
G	184	184B2	41018402		12 3/4	10 1/2	1 1/2	7 1/2	3 3/4	2 3/4	4 1/2	4 3/4	1/2	3	0.134	1 1/2	3/8s 1 3/4	1/2x6	9
F	213	213A	KIT 213SB	√	15	11	1 3/4	7 1/2	4 1/4	2 3/4	5 1/4	4 3/4	1/2	3 1/2	0.164	1 1/2	3/8x1 3/4	1/2x6	13
G	213	213B2	41021302		15	11	1 3/4	7 1/2	4 1/4	2 3/4	5 1/4	4 3/4	1/2	3 1/2	0.164	1 1/2	3/8x1 3/4	1/2x6	13
F	215	215A	KIT 215SB	√	15	12 1/2	1 3/4	9	4 1/4	3 1/2	5 1/4	5 1/2	1/2	3 1/2	0.164	1 1/2	3/8x1 3/4	1/2x6	15
G	215	215B2	41021502		15	12 1/2	1 3/4	9	4 1/4	3 1/2	5 1/4	5 1/2	1/2	3 1/2	0.164	1 1/2	3/8x1 3/4	1/2x6	15
G	254	254B2	KIT 254SB	√	17 3/4	15 1/8	2	10 3/4	5	4 1/8	6 1/4	6 5/8	5/8	4	3/16	1 7/16	1/2x1 3/4	5/8x6	17
G	256	256B2	KIT 256SB	√	17 3/4	16 7/8	2	12 1/2	5	5	6 1/4	7 1/2	5/8	4	3/16	1 7/16	1/2x1 3/4	5/8x6	18
G	284	284B2	KIT 284SB	√	19 3/4	16 7/8	2	12 1/2	5 1/2	4 3/4	7	7 1/2	5/8	4 1/2	3/16	2 1/2	1/2x2	5/8x6	21
G	286	286B2	KIT 286SB	√	19 3/4	18 3/8	2	14	5 1/2	5 1/2	7	8 1/4	5/8	4 1/2	3/16	2 1/2	1/2x2	5/8x6	22
G	324	324B2	KIT 324SB	√	22 3/4	19 1/4	2 1/2	14	6 1/4	5 1/4	8	8 1/2	3/4	5 1/4	3/16	2 3/16	5/8x2 1/2	3/4x9	31
G	326	326B2	KIT 326SB	√	22 3/4	20 3/4	2 1/2	15 1/2	6 1/4	6	8	9 1/4	3/4	5 1/4	3/16	2 3/16	5/8x2 1/2	3/4x9	32
G	364	364B2	KIT 364SB	√	25 1/2	20 1/2	2 1/2	15 1/2	7	5 5/8	9	9 1/8	3/4	6	1/4	2 1/16	5/8x2 1/2	3/4x9	44
G	365	365B2	KIT 365SB	√	25 1/2	21 1/2	2 1/2	16 1/2	7	6 1/8	9	9 5/8	3/4	6	1/4	2 1/16	5/8x2 1/2	3/4 x9	45
H	404	404B2	KIT 404SB	√	28 3/4	22 3/8	3	16 1/2	8	6 1/8	10	9 7/8	7/8	7	1/4	2 1/2	3/4x3	3/4x11	60
H	405	405B2	KIT 405SB	√	28 3/4	23 7/8	3	18	8	6 7/8	10	10 5/8	7/8	7	1/4	2 1/2	3/4x3	3/4x11	61
H	444	444B2	KIT 444SB	√	31 1/4	24 5/8	3	19 1/4	9	7 1/4	11	11	7/8	7 1/2	1/4	2 1/2	3/4x3	3/4x11	67
H	445	445B2	KIT 445SB	√	31 1/4	26 5/8	3	21 1/4	9	8 1/4	11	12	7/8	7 1/2	1/4	2 1/2	3/4x3	3/4x11	69
H	447	447B2	KIT 447SB	√	31 1/4	30 1/8	3	24 3/4	9	10	11	13 3/4	7/8	7 1/2	5/16	3	3/4x3 1/2	3/4x11	92
H	449	449B2	KIT 449SB	√	31 1/4	35 1/8	3	29 3/4	9	12 1/2	11	16 1/4	7/8	7 1/2	5/16	3	3/4x3 1/2	3/4x11	95

√ Available    ¶ Stocked components, Ready To Built    Blank: Build Up rating, subject to lead time

\*See back cover page for attribution.

# FOOTNOTES

1	Capacitor start/capacitor run design for reduced amperage
2	Capacitor start induction run design
3	Split phase design
4	Sleeve bearing
5	56H, 143T, and 145T combination base with 12 mounting holes
6	Bolt-on removable base for footless mounting option
7	Shaft extension 1-1/2" long by 1/2" diameter
8	Shaft extension 1-7/8" long by 1/2" diameter
9	Shaft extension 2-1/4" long by 1/2" diameter
10	Shaft extension 2-1/4" long by 5/8" diameter
11	Shaft extension 2-1/4" long by 7/8" diameter
12	With rigid base
13	F1 Mounting only, cannot reassemble to F2
14	Will accept flange kit, see accessory section
15	Fixed CW rotation, viewing opposite shaft (or lead end) of motor
16	Fixed CCW rotation, viewing opposite shaft (or lead end) of motor
17	1.0 service factor
18	1.15 service factor
19	1.25 service factor
20	1.35 service factor
21	Double shaft extension 1-1/2" L by 1/2" dia with flat each end
22	Double shaft extension 1-7/8" L by 5/8" dia each end
23	Shaft extension 3/8" diameter
24	Motor will NOT accept a brake kit
25	Motor will NOT accept C-face kit
26	5/8" shaft adapter included
27	Drip cover included
28	Steel endshields
29	End bracket weep holes with removable plugs, remove bottom plug after installation
30	Resilient ring mount, base not included
31	5/8" thru-bolts, shaft end
32	3/4" thru bolts, shaft end
33	Shaft ext 6" L by 5/8" diameter with full flat and key 90° apart
34	1" thru-bolts, shaft end
35	1-1/8" thru-bolts, shaft end
36	1-1/4" thru-bolts, shaft end
37	1-1/2" thru-bolts, shaft end
38	2" thru-bolts, shaft end
39	No thru-bolts, shaft end
40	Space heaters and 100 ohm platinum stator RTDs included
41	1/2" thru-bolts, opposite shaft end
42	3/4" thru-bolts, opposite shaft end
43	2-1/2" resilient rings included
44	1" thru-bolts, opposite shaft end
45	60° C ambient
46	65° C ambient
47	Connected for CCW rotation (U.S. standard) facing opposite shaft end. Reversible by reconnection of leads
48	Connected for CW rotation (Canadian standard) facing opposite shaft end. Reversible by reconnection of leads
49	Shaft ext 1-13/16" L by 1/2" dia., & 6-3/8" mounting flange

50	Designed for 50 Hz operation
51	Resilient rings not included, see accessory section
52	1/2" x 1-7/8" shaft with 1-5/8" flat
53	1/2" shaft with 5/8" adapter and key
54	30 minute duty cycle, not rated for continuous duty
55	Shaft ext 3-13/16" L by 5/8" dia., 3.5" keyway
56	1-5/8" thru-bolts, shaft end
57	Open construction
58	Capacitor supplied with motor
59	TEAO construction
60	Foot locating set screws on frame, 90° apart
61	10" Leads
62	43" Leads
63	1-1/2" Thru-bolts, opposite shaft end
64	50" Leads
65	Mounting accessories and DE resilient ring not included. Use kit 161L131AB1 for resilient ring mounting.
66	Sealed switch design
67	Capacitor not included, see accessory section
68	Rated 60/50 hertz, 190/380 or 380 volt at next lower horsepower
69	50°C Ambient
70	Not nameplated 50 hz
71	Includes length adapter bracket
72	Usable on 200/208 volts at 1.0 service factor
73	No hubs
74	Split phase/capacitor run electrical design
75	C-Face addition may result in non-NEMA "BA" dim. For new "BA" dim consult chart found in modification section
76	C-Face addition results in non-NEMA "AH" dim (+1.2" than NEMA).
77	Frame is drilled with 3 sets of footholes, 5010, 5011, and 5012 as standard. 5009 frame drilling available as build-up
78	Frame is drilled with two sets of footholes, 5012 and 5013 standard
79	Ball bearings on both ends suitable for direct connection. For belted applications, refer to customer service
80	Rolled steel fan guard on 143T-145T
81	24" long #18 SO 2-conductor cord exit at 11 o'clock position
82	Welded rigid base
83	Shaft ext 1-7/8" long by 5/8" dia with 6-3/8" flange
84	NEMA 145T C-face mounting with removable 182T rigid base
85	Not tach adaptable
86	2:1 constant torque speed range; RTM for greater torque capability
87	10:1 constant torque available as build-up, RTM for price and availability
88	182T base and shaft height, 145TC mounting face and shaft dim
89	Threaded NPT opening in conduit box
90	Not UL Recognized
91	Suitable for use on VFD at 208 volt
92	7/8" thru-bolts, shaft end
93	Permanent split capacitor-switchless
94	1/2" Thru -bolts, shaft end
95	Will not accept drip cover kit
96	3 lead reversible, with single pole, double throw switch
97	D-Flange addition results in non-NEMA® "BA" dim (+1/2" than NEMA) & non-NEMA shaft ext (-1/2" than NEMA).

# FOOTNOTES

98	Not UL Listed for fire pump applications
99	Suitable for 2:1 CT operation
100	6" shaft ext with 2 flats 90° apart
101	Rain shield included
102	5/8" extended thru bolts, 1 7/8" shaft length and 1/2" shaft dia.
103	48/56 FR = 1/2" X 1 1/2" shaft with 5/8" shaft adapter - 48/56 slotted 3" height base
104	Shaft N-W = 2.50" with 5/8" diameter and keyway
105	Includes split bushing and key for 5/8" shafts. 3 thru bolts on a 4.42" dia. bolt circle
106	5/8" dia. keyed and flatted shaft, 6" long
107	5/8" keyed shaft with flat
108	5/8" keyed shaft
109	48Z = 5/8" dia. X 2" shaft, with 3" height
110	1.20 service factor
111	1.30 service factor
112	1.40 service factor
113	1.50 service factor
114	1.60 service factor
115	1.75 service factor
116	1-3/4" thru-bolt extension on shaft-end
117	48-56 frame mounting - 3" shaft height, sleeve and key adapter to 5/8" shaft
118	48-56 frame mounting - 3 1/2" shaft height, sleeve and key adapter to 5/8" shaft
119	56Z = 1/2" shaft with flat, 1 5/8" long
120	5/8" diameter shaft - 2.37" long.
121	5/8" diameter shaft - 3.88" long
122	5/8" keyed shaft 2.31" long
123	56Z = 5/8" diameter keyed shaft, 2 1/8" long
124	2 1/4" X 7/8" keyed shaft
125	56Y = 7/8" diameter keyed shaft, 2.25" long
126	1.0 service factor at 50 HZ
127	Shaft diameter is 1/2"; N=1 15/16" with .04" deep flat
128	1/2" dia. shaft - single flat
129	56Z = 1/2" flat X 1 1/2" shaft, 3 1/2" shaft height
130	56Z = 1/2" flat X 1.62" shaft, with 56 FR. base
131	48Z = 1/2" flat X 1 7/8" shaft, with 48 FR base
132	184T base, 4.5" shaft height
133	15" leads
134	115 volt tap off main winding to power gear drive unit
135	Open shaft end bracket
136	No keyway, double flat
137	Includes 6' cord and switch
137	Cord, plug and pull chain
138	Equipped with rotation switch for easy reversibility
139	Equipped with provisions for mounting 4" X 4" conduit box
140	Quick connect design bracket, auto overload protector
141	Includes base
142	Proofing switch included

143	303 stainless steel shaft
144	Open dripproof
145	Includes 6' cord and switch
2:1	Suitable for 2:1 CT operation; consult "R164 rework" table for fan change pricing to upgrade to 10:1 CT
A	NEMA® design A
B	NEMA design B
C	NEMA design C
d	Will become build-up item when current stock is gone
E	Design incorporates electronic switch
F	Class F Insulation
H	Class H insulation
I	Reduced HP @ 120 HZ
N	Totally enclosed, non-ventilated
P	BCP (Bearing Current Protection)
Q	"Quick connect" terminal board
S	Steel frame construction
V	Suitable for 10:1 CT 60 minute duty, otherwise 2:1 CT
X	XRI® motor, ultra high efficiency design
Z	56HZ with 7/8" shaft dia., 3-1/2" shaft height, and slotted 56 frame base
AH	Conforms to GM 7EH and satisfies Ford® EM-1 and GM 7EQ
AI	Class A insulation
AL	Aluminum frame construction
AQ	Conforms to GM 7EQ and satisfies Fiat Chrysler® NPEM-100, and Ford EM-1
BI	Class B insulation
BP	Separate power supply required for blower motor
CD	Suitable for Group C
CF	Consult factory for accessory kit and/or modification selection
CT	Suitable for 20:1 CT on vector drive, continuous duty or 2000:1
ES	Energy saver design
F2	F2 conduit box location
FN	Drive has cooling fan
NE	Exempt from NEMA Premium® efficiency requirement
NP	Does not meet NEMA Premium efficiency
NS	Single shielded ball bearings
PW	Part winding start capability
RB	Roller bearing on shaft end for belted load only
SH	Space heaters
SL	Sound level exceeds standard
TS	Normally closed thermostats installed
VB	Vibration not met
VC	Voltage change device feature for quick voltage changes
YD	12 Leads for WYE-DELTA, part winding on low voltage, or across-the-line starting

# WARNINGS AND CAUTIONS - ELECTRICAL

## SAFETY

Safety is emphasized throughout this catalog. These are safety alert symbols and signal words. They alert the user to potential personal injury hazards. Obey all safety messages to avoid possible injury, death, or damage to equipment and other property.

**⚠ WARNING** WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. Failure to follow the instructions and precautions listed below could result in personal injury or damage to equipment.

**⚠ CAUTION** CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. Failure to follow the instructions and precautions listed below could result in personal injury or damage to equipment.

## IMPORTANT INFORMATION. PLEASE READ CAREFULLY.

This catalog is not intended to provide operational instructions. Appropriate instructions provided with the motor and precautions attached to the motor should be read carefully prior to installation, operation and/or maintenance of the equipment. Injury to personnel or motor failure may be caused by improper installation, maintenance or operation.

The following **WARNING** and **CAUTION** information is supplied to you for your protection and to provide you with many years of trouble free and safe operation of your Marathon® product:

## WARNING!

- Disconnect power and lock out driven equipment before working on a motor.
- Keep hands and clothing away from moving parts.
- The lifting support on the motor is not to be used to lift the entire machine. Only the motor attached directly to the support may be safely lifted by the support.
- Install and ground per local and national codes.
- Discharge all capacitors before servicing a single phase motor.
- Misapplication of a motor in hazardous environments can cause fire or an explosion and result in serious injury. Only the end user, local authority having jurisdiction, and/or insurance underwriter are qualified to identify the appropriate class(es), group(s), division(s), and temperature code(s) that applies(y) in a hazardous environment. Our personnel cannot evaluate or recommend what motors may be suitable for use in hazardous environments. If a motor is name plated for hazardous locations, do not operate the motor without all of the grease and drain plugs installed.
- Never attempt to measure the temperature rise of a motor by touch. Temperature rise must be measured by thermometer, resistance, imbedded detector or thermocouple.
- Motors with automatic reset thermal protectors will automatically restart when the protector temperature drops sufficiently. Do not use motors with automatic reset thermal protectors in applications where automatic restart will be hazardous to personnel or equipment.
- Motors with manual reset thermal protectors may start unexpectedly after the protector trips when the surrounding air is at +20° Fahrenheit or lower. If the manual reset protector trips, disconnect motor from its power supply. After the protector cools (five minutes or more), it can be reset and power may be applied to the motor.
- Connect all protective device leads, marked P1, P2, etc., per instructions supplied with the motor.
- Operation of a motor at other than its nameplate rating may result in fire, damage to equipment or serious injury to personnel.
- For safety, buyer or user should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The user is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.

# WARNINGS AND CAUTIONS - ELECTRICAL

## CAUTION!

- Consult qualified personnel with questions and all electrical repairs must be performed by trained and qualified personnel only.
- For motors nameplated as “belted duty only,” do not operate the motor without belts properly installed.
- Motors and/or driven equipment should not be operated faster than their rated speed.
- For inverter applications, follow the inverter manufacturer’s installation guidelines.

Make sure the motor is properly secured and aligned before operation.

In the event of the resale of any of the goods, in whatever form, Resellers/Buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

THE MANUFACTURER MAKES NO WARRANTY OR REPRESENTATIONS, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE GOODS SOLD HEREUNDER. BUYER ACKNOWLEDGESTHAT IT ALONE HAS DETERMINEDTHATTHE GOODS PURCHASED HEREUNDERWILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. IN NO EVENT WILL THE MANUFACTURER BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES. Even if the repair or replacement remedy shall be deemed to have failed of its essential purpose under section 2-719 of the uniform commercial code, the manufacturer shall have no liability to Buyer for consequential damages.

Resellers/Buyers agree to also include this entire document, including the warnings and cautions above, in a conspicuous place and in a conspicuous manner in writing to instruct users on the safe usage of the product. This information should be read together with all other printed information supplied by Marathon® Motors.

For more information contact: See back cover for the contact of details.

# WARNINGS AND CAUTIONS - MECHANICAL

**⚠️ WARNING** WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. Failure to follow the instructions and precautions listed below could result in personal injury or damage to equipment.

**⚠️ CAUTION** CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. Failure to follow the instructions and precautions listed below could result in personal injury or damage to equipment.

## IMPORTANT INFORMATION. PLEASE READ CAREFULLY.

The following information is supplied to you for your protection and to provide you with many years of trouble free and safe operation of your product:

Read ALL instructions prior to operating reducer. Injury to personnel or reducer failure may be caused by improper installation, maintenance or operation.

### WARNING!

- Written authorization from Marathon is required to operate or use reducers in man lift or people moving devices.
- Check to make certain application does not exceed the allowable load capacities published in the current catalog.
- Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which buyer shall apply the product. The application by buyer shall not be subject to any implied warranty of fitness for a particular purpose.
- For safety, buyer or user should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.
- Hot oil and reducers can cause severe burns. Use extreme care when removing lubrication plugs and vents.
- Make certain that the power supply is disconnected before attempting to service or remove any components. Lock out the power supply and tag it to prevent unexpected application of power.
- Reducers are not to be considered fail safe or self-locking devices. If these features are required, a properly sized, independent holding device should be utilized. Reducers should not be used as a brake.
- Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way so as to not subject the reducer to loads beyond the catalog rating.
- Lifting supports including eyebolts are to be used for vertically lifting the gearbox only and no other associated attachments or motors.
- Use of an oil with an EP additive on units with backstops may prevent proper operation of the backstop. Injury to personnel, damage to the reducer or other equipment may result.
- Overhung loads subject shaft bearings and shafts to stress which may cause premature bearing failure and/or shaft breakage from bending fatigue, if not sized properly.

### CAUTION!

- Test run unit to verify operation. If the unit tested is a prototype, that unit must be of current production.
- If the speed reducer cannot be located in a clear and dry area with access to adequate cooling air supply, then precautions must be taken to avoid the ingestion of contaminants such as water and the reduction in cooling ability due to exterior contaminants.
- Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

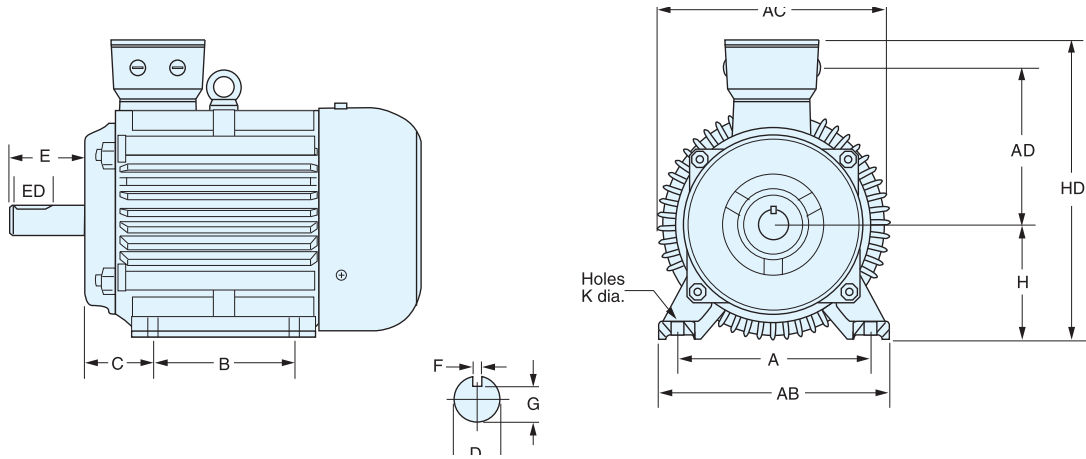
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THE MANUFACTURER MAKES NO WARRANTY OR REPRESENTATIONS, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE GOODS SOLD HEREUNDER. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE GOODS PURCHASED HEREUNDER WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. IN NO EVENT WILL THE MANUFACTURER BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES. Even if the repair or replacement remedy shall be deemed to have failed of its essential purpose under section 2-719 of the uniform commercial code, the manufacturer shall have no liability to Buyer for consequential damages.

Resellers/Buyers agree to also include this entire document, including the warnings and cautions above, in a conspicuous place and in a conspicuous manner in writing to instruct users on the safe usage of the product. This information should be read together with all other printed information supplied by Marathon.

# DIMENSIONAL DRAWINGS

## AC METRIC (IEC®\*) MOTORS B3 FOOT-MOUNTED

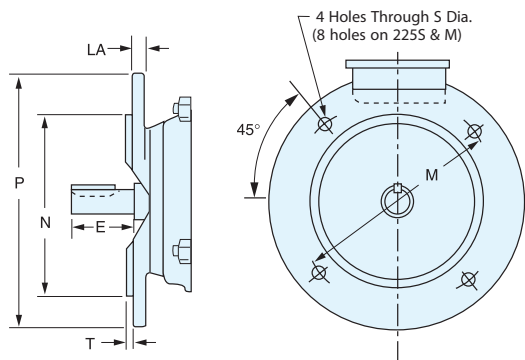


### METRIC (IEC) FRAME DIMENSIONS (MILLIMETERS)

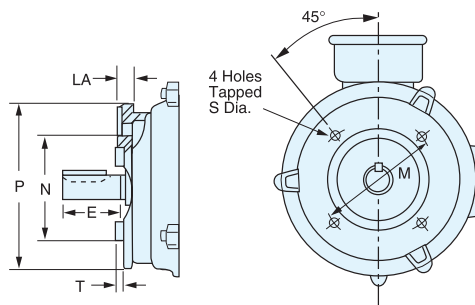
FRAME	MOUNTING						SHAFT						GENERAL			B5 (FF) FLANGE						B14 (FT) FACE					
	A	B	C	H	AB	K	D	E	F	G	ED	DH	AC	AD	HD	M	N	P	S	T	LA	M	N	P	S	T	LA
D56	90	71	36	56	107	6	9	20	3	7.5	8	M3 x 8	-	-	-	100	80	120	7	2.5	7	65	50	80	M5	2.5	7
D63	100	80	40	63	122	7	11	23	4	8.5	10	M4 x 10	126	84	171	115	95	140	10	3.0	7	75	60	90	M5	2.5	7
D71	112	90	45	71	136	7	14	30	5	11.0	20	M5 x 12.5	141	94	191	130	110	160	10	3.5	7	85	70	105	M6	2.5	9
D80	125	100	50	80	154	10	19	40	6	15.5	25	M6 x 16	159	102	206	165	130	200	12	3.5	12	100	80	120	M6	3.0	9
D90S	140	100	56	90	172	10	24	50	8	20.0	32	M8 x 19	180	112	229	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
D90L	140	125	56	90	172	10	24	50	8	20.0	32	M8 x 19	180	112	229	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
DF100L	160	140	63	100	205	12	28	60	8	24.0	40	M10 x 22	205	130	270	215	180	250	15	4.0	11	130	110	160	M8	3.5	14
DF112M	190	140	70	112	230	12	28	60	8	24.0	40	M10 x 22	240	150	300	215	180	250	15	4.0	12	130	110	160	M8	3.5	11
DF132S	216	140	89	132	270	12	38	80	10	33.0	56	M12 x 28	275	180	345	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
DF132M	216	178	89	132	270	12	38	80	10	33.0	56	M12 x 28	275	180	345	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
DF160M	254	210	108	160	320	15	42	110	12	37.0	80	M16 x 36	330	210	420	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
DF160L	254	254	108	160	320	15	42	110	12	37.0	80	M16 x 36	330	210	420	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
DF180M	279	241	121	180	355	15	48	110	14	42.5	80	M16 x 36	360	236	455	300	250	350	19	5.0	15	-	-	-	-	-	-
DF180L	279	279	121	180	355	15	48	110	14	42.5	80	M16 x 36	360	236	455	300	250	350	19	5.0	15	-	-	-	-	-	-
DF200L	318	305	133	200	395	19	55	110	16	49.0	100	M20 x 42	420	260	505	350	300	400	19	5.0	18	-	-	-	-	-	-
DF225S	356	286	149	225	435	19	55•/60	110•/140	16•/18	49•/53	100•/125	M20 x 42	450	275	580	400	350	450	19	5.0	18	-	-	-	-	-	-
DF225M	356	311	149	225	435	19	55•/60	110•/140	16•/18	49•/53	100•/125	M20 x 42	450	275	580	400	350	450	19	5.0	18	-	-	-	-	-	-
DF250M	406	349	168	250		24	60•/65	140•/140	18•/18	53•/58	125•/125	M20 x 42	508	300	625	-	-	-	-	-	-	-	-	-	-	-	-

\* 2 Pole Dimensions

For overall length dimensions for our IEC motors, please refer to our IEC motor section of this catalog. Frames DF100L through DF132M, conduit box is located in the center of the frame.



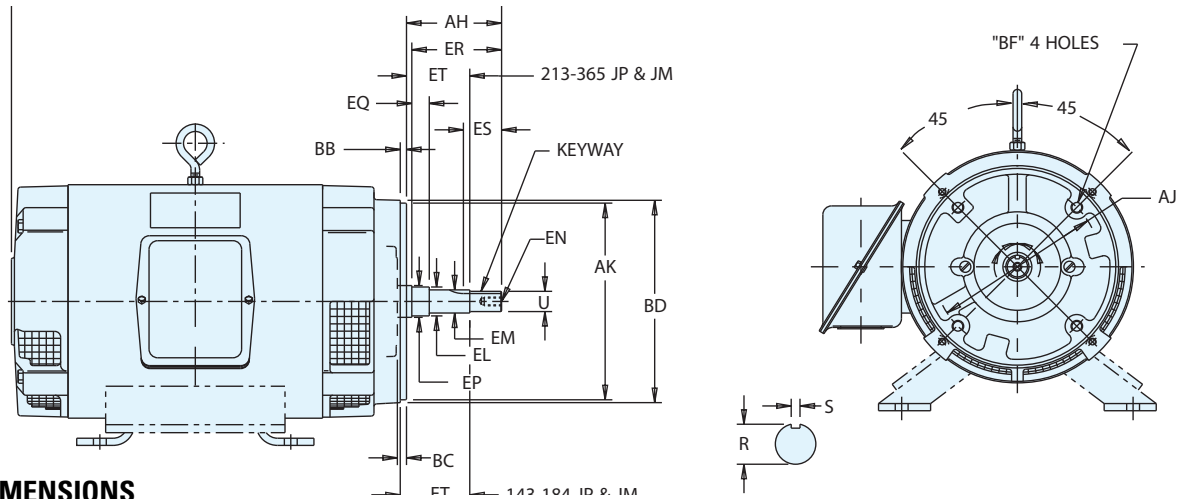
B5 FLANGE



B14 FLANGE

# DIMENSIONAL DRAWINGS

## DEFINITE PURPOSE - CLOSE COUPLED PUMP MOTORS



**TYPE JM DIMENSIONS**

FRAME	U	AH	AJ	AK	BB	BD Max.	BF			EL	EM	Tap Size	EN Tap Drill Depth Max.	Bolt Pen. Allow.	EP Min.	EQ	ER Min.	Keyseat		S	ET
							No.	BF Tap Size	Bolt Pen. Allow.									R	ES Min.		
143	0.8745	4.15	5.890	4.500	0.150	6.62	4	3/8-16	0.56	1.156	1.0000	3/8-16	1.12	0.75	1.156	0.640	4.25	0.771	1.65	0.190	2.890
145JM	0.8740	4.10	5.860	4.497	0.10					1.154	0.9995										
182	0.8745	4.13	5.89	4.500	0.16	6.62	4	3/8-16	0.56	1.250	1.0000	3/8-16	1.12	0.75	1.250	0.640	4.25	0.771	1.65	0.190	2.890
184JM	0.8740	4.09	5.86	4.497	0.125					1.248	0.9995										
213	0.8750	4.25	7.265	8.500	0.312	9.00	4	1/2-13	0.75	1.250	1.0000	3/8-16	1.12	0.75	1.750	0.640	4.25	0.771	1.65	0.190	2.890
215JM	0.8745		7.235	8.497	0.250					1.248	0.9995										
254	1.2495	5.25	7.250	8.500	0.312	10.00	4	1/2-13	0.75	1.750	1.3750	1/2-13	1.50	1.00	1.750	0.640	5.25	1.112	2.53	0.252	3.015
256JM	1.2490			8.497	0.250					1.748	1.3745										
284	1.2495	5.281	11.00	12.500	0.312	14.00	4	5/8-11	0.94	1.750	1.3750	1/2-13	1.50	1.00	2.125	0.645	5.25	1.112	2.53	0.252	3.020
286JM	1.2490	5.219		12.495	0.250					1.748	1.3745										
324	1.2495	5.281	11.00	12.500	0.312	14.00	4	5/8-11	0.94	1.750	1.3750	1/2-13	1.50	1.00	2.125	0.645	5.25	1.112	2.53	0.252	3.020
326JM	1.2490	5.219		12.495	0.250					1.478	1.3745										

**TYPE JM DIMENSIONS**

FRAME	U	AH	AJ	AK	BB	BD Max.	BF			EL	EM	Tap Size	EN Tap Drill Depth Max.	Bolt Pen. Allow.	EP Min.	EQ	ER Min.	Keyseat		S	ET
							No.	BF Tap Size	Bolt Pen. Allow.									R	ES Min.		
143	0.8745	7.19	5.890	4.500	0.156	6.62	4	3/8-16	0.56	1.156	1.0000	3/8-16	1.12	0.75	1.156	1.578	7.312	0.771	1.65	0.190	5.952
145JP	0.8740	7.15	5.860	4.497	0.125					1.154	0.9995										
182	0.8745	7.21	5.890	4.500	0.156	6.62	4	3/8-16	0.56	1.250	1.0000	3/8-16	1.12	0.75	1.250	1.578	7.312	0.771	1.65	0.190	5.952
184JP	0.8740	7.15	5.860	4.497	0.100					1.248	0.9995										
213	1.2495	8.12	7.250	8.500	0.312	9.00	4	1/2-13	0.75	1.750	1.3750	1/2-13	1.50	1.00	1.750	2.390	8.125	1.112	2.53	0.252	5.890
215JP	1.2490			8.497	0.250					1.748	1.3745										
254	1.2495	8.156	7.250	8.500	0.312	10.00	4	1/2-13	0.75	1.750	1.3750	1/2-13	1.50	1.00	1.750	2.390	8.125	1.112	2.53	0.252	5.890
256JP	1.2490	8.094		8.497	0.250					1.748	1.3745										
284	1.2495	8.156	11.00	12.500	0.312	14.00	4	5/8-11	0.94	1.750	1.3750	1/2-13	1.50	1.00	2.125	2.390	8.125	1.112	2.53	0.252	5.895
286JP	1.2490	8.094		12.495	0.250					1.748	1.3745										
324JP	1.2495	8.12	11.00	12.500	0.312	14.00	4	5/8-11	0.94	1.750	1.3750	1/2-13	1.50	1.00	2.125	2.395	8.125	1.112	2.53	0.252	5.895
326JP	1.2490			12.495	0.250					1.748	1.3745										
364JP	1.6245	8.12	11.00	12.500	0.312	14.00	4	5/8-11	0.94	2.125	1.7500	1/2-13	1.50	1.00	2.500	2.395	8.125	1.416	2.53	0.377	5.895
365JP	1.6240			12.495	0.250					2.13	1.7495										

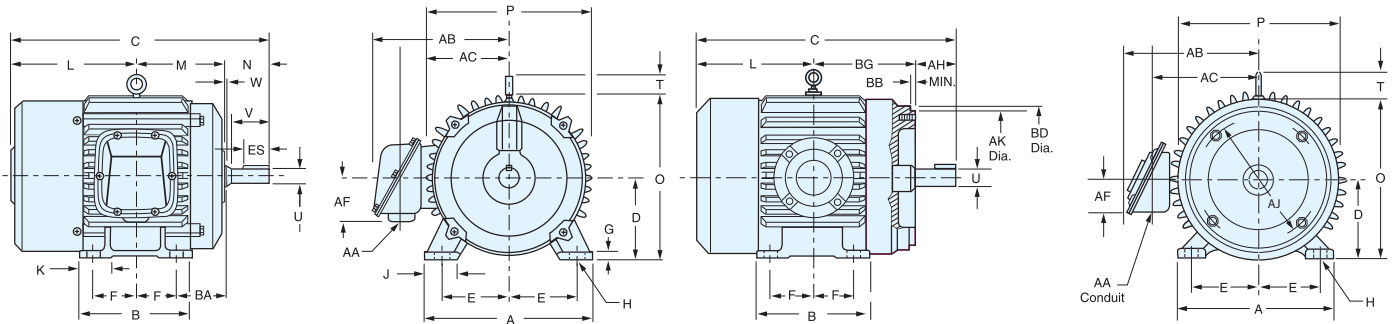
All dimensions are measured in inches. For "C" dimensions, refer to the appropriate catalog page. Certified drawings are available upon request, contact Marathon Electric for details.

# DIMENSIONAL DRAWINGS

## NEMA®\* EXPLOSION PROOF - 158 SERIES

### RIGID MOUNT 158 SERIES

### C FACE 158 SERIES



### NEMA EXPLOSION-PROOF, 158 SERIES, RIGID MOUNT DIMENSIONS (INCHES)

FRAME	A	B	D	E	F	G	H	J	K	L	M	N	O	P	T	U	V	N-W	ES	AA	AB	AC	AF	BA	KEY
182T	9	6	4 1/2	3 3/4	2 1/4	7/16	7/16	1 3/4	1 1/8	6 13/16	4 15/16	2 13/16	9 3/8	9 1/4	-	1.125	2 1/2	2 3/4	1 7/8	3/4	7 13/16	6 9/16	3 1/8	2 3/4	
184T		7			2 3/4					2 15/16															
213T	10 1/2	7	5 3/4	4 1/4	2 3/4	7/16	7/16	2	1 7/8	8 3/8	6 3/16	3 7/16	10 1/2	10 1/2	2 5/16	1.375	3 3/8	3 3/4	2 7/16	1	9 3/4	7 7/8	3 1/2	3 1/2	5/16
215T		8 1/2			3 1/2					8 7/8	6 15/16														
254T	12 1/2	10 1/4	6 3/4	5	4 3/8	5/8	9/16	2 1/2	2 5/8	10 3/8	8 5/16	4 1/16	12 1/2	12 1/2	2 5/16	1.625	3 3/4	3 7/8	2 15/16	1 3/4	10 3/4	8 7/8	3 7/8	4 1/4	
256T		12			5					11 1/4	9 3/16														
284T	13 3/4	11 1/2	7	5 1/2	4 3/4	5/8	9/16	2 1/2	2 3/4	11 13/16	9 7/16	41 1/16	14	14	2 7/16	1.875	4 3/8	4 1/2	3 3/4	1 1/2	12 1/8	10	4 7/16	4 3/4	1/2
284TS					3 5/16							1.625				3	3 3/8	1 15/16	3/8						
286T					4 11/16							1.875				4 3/8	4 1/2	3 3/4	1/2						
286TS					3 5/16							1.625				3	3 3/8	1 15/16	3/8						
324T	15 1/2	13 3/4	8	6 3/4	5 3/4	5/8	11/16	2 3/4	3 3/8	13 3/16	10 7/16	5 5/16	16	16	2 5/8	2.125	5	5 1/8	4	2	14 3/8	11 3/4	5 3/8	5 3/4	
324TS					3 3/16							1.875				3 1/2	3 3/8	2							
326T					5 5/16							2.125				5	5 1/8	3							
326TS					3 13/16							1.875				3 1/2	3 3/8	2 1/16							
364T	17	15	9	7	5 5/8	7/8	11/16	2 3/4	3 7/8	16 1/16	11 3/8	6	18 1/2	19	12 7/8	2.375	5 5/8	5 3/4	4 1/2	3	16 1/16	13 5/16	6 7/8	5 7/8	5/8
364TS					3 7/8							1.875				3 1/2	3 3/8	2 1/16	1/2						
365T					6							2.375				5 5/8	5 3/4	4 1/2	5/8						
365TS					3 3/4							1.875				3 1/2	3 3/8	2 1/16	1/2						
405T	19	16	10	8	6 7/8	1 1/8	13/16	3 1/4	3 1/4	17 1/16	13 3/4	7 5/8	21 5/16	22 5/16	2 15/16	2.875	7	7 7/8	5 11/16	4	16 3/8	13 3/4	7 1/2	6 5/8	3/4
405T					4 5/8							2.125				4	4 1/8	2 7/8	1/2						

### NEMA EXPLOSION-PROOF, 158 SERIES, C FACE DIMENSIONS (INCHES)

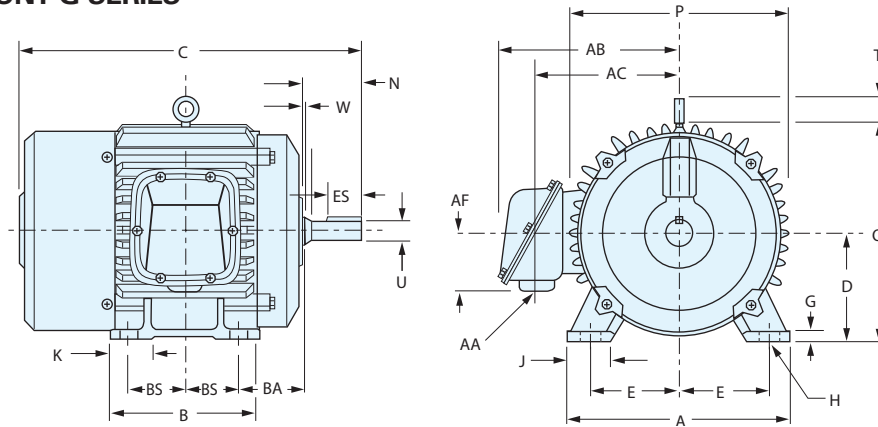
FRAME	A	B	D	E	F	H	L	D	P	T	U	V	AH	AJ		BB	AK	BD	BG	AA	AB	AC	AF	KEYWAY
														DIA.	BARR.									
182T	9	6	4 1/2	3 3/4	2 1/4	7/16	6 5/8	9 1/4	9 3/8	-	1.125	2 1/2	2 5/8	7 1/4	4	9/32	8.500	8 3/4	5 7/8	3/4	9 3/8	7 1/8	2 1/2	1/4
184T		7			2 3/4		7 1/8																	

The condensed dimensions shown on these pages are for general reference only and are not for construction. The overall length or "C" dimension for each catalog item is included in this catalog. Certified drawings of all ratings are available for construction purposes.

# DIMENSIONAL DRAWINGS

## NEMA®\* EXPLOSION PROOF

### RIGID MOUNT G-SERIES



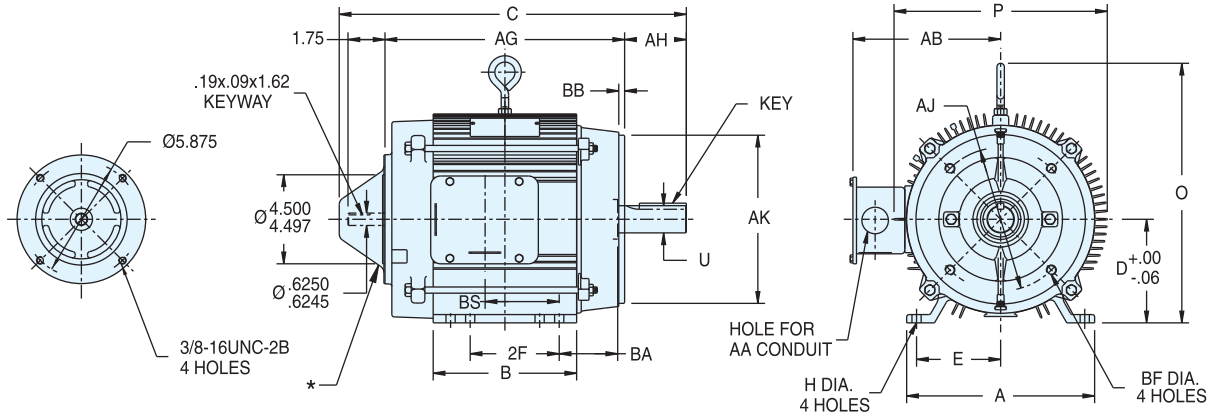
### NEMA EXPLOSION-PROOF, RIGID MOUNT DIMENSIONS (INCHES)

FRAME	A	B	D	E	2F <sup>◆</sup>	G	H	J	K	N	O	P	T	U	N-W	ES	AA	AB	AC	AF	BA	BS	KEY	C Dim
182T	8.88	7.75	—	3.75	6.75	0.45	0.41-0.46	1.56	—	2.78	9.36	9.76	2.62	1.125	2.75	1.75	0.75	9.73	7.13	—	2.75	3.37	0.25	17.12
184T																								
213T	10.38	8.50	5.19	4.25	7.00	0.60	0.44	1.87	—	3.41	10.60	11.50	2.62	1.375	3.38	2.38	0.75	10.94	8.32	2.55	3.50	3.50	0.31	20.18
215T			5.25																					
254T	12.12	10.25	6.19	5.00	8.25	0.55	0.53-0.58	2.08	—	4.19	14.07	14.12	—	1.625	4.00	2.88	1.25	13.67	10.65	3.12	4.25	4.12	0.38	23.52
256T			6.25		10.00																	5.00		25.27
284T		11.50	6.94		9.50					4.81				1.875		3.25						4.75	0.50	26.30
284TS	13.00			5.50		0.88	0.53-0.58	2.50	2.50	3.44	14.74	15.50	3.25	1.625	4.62	1.88	1.50	15.33	11.44	5.38	4.75	0.38	24.94	
286T		13.00	7.00		11.00					4.81				1.875		3.25						5.50	0.50	27.80
286TS										3.44				1.625		1.88						0.38	26.44	
324T		13.00	7.94		10.50					5.50				2.125	5.25	3.88						5.25	0.50	28.87
324TS	15.75			6.25		0.86	0.66-0.71	3.50	—	4.00	17.10	16.00	3.25	1.875	3.75	2.00	2.00	16.50	12.64	5.38	5.25	0.50	27.37	
326T		14.50	8.00		12.00					5.50				2.125	5.25	3.88						6.00	0.50	30.37
326TS										4.00				1.875	3.75	2.00								28.87
364T		13.25	8.94		11.25					6.12				2.375	5.88							5.62	0.62	31.50
364TS	17.75			7.00		1.12	0.66-0.71	4.00	3.25	4.00	19.00	20.00	3.62	1.875	3.75	4.24	2.50	19.75	14.50	5.38	5.88	0.62	29.38	
365T		14.25	9.00		12.25					6.12				2.375	5.88							6.12	0.62	32.50
365TS										4.00				1.875	3.75									30.38
405T	19.25	16.25	—	8.00	13.75	1.12	0.81-0.86	4.25	3.75	7.50	20.87	21.75	3.62	2.875	7.25	5.62	2.50	21.50	16.38	5.38	6.62	6.88	0.75	37.12
405TS										4.50				2.125	4.25	2.75							0.50	34.12
444T		18.00	10.94		14.50	1.25			4.50	8.75	23.12	24.25	3.62	3.375	8.50	6.88	2.50	22.75	17.50	5.38		7.25	0.88	41.25
444TS										5.00				2.375	4.75	3.00						0.62	37.50	
445T	21.50	19.75		9.00	16.50	1.22	0.81-0.86	3.75	5.12	8.75	24.11	26.31	2.44	3.375	8.50	6.88						8.25	0.88	43.19
445TS			11.00							5.00				2.375	4.75	3.00	3.00	27.24	20.06	6.18		0.62	39.44	
449T		28.25			25.00	1.25			9.88	8.75	24.19	26.31	0.77	3.375	8.50	6.88						1.78	0.88	51.69
449TS										5.00				2.375	4.75	3.00		26.09	18.88				0.62	47.97

◆ 182-4T and 213-5T frames have eight-hole bases. 449T and TS frames have six-hole bases. Others have four-hole bases.

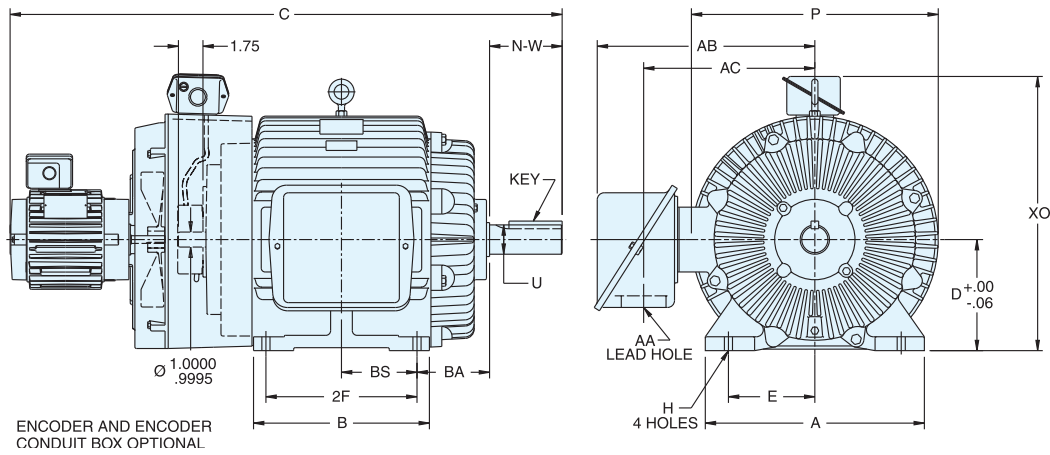
# DIMENSIONAL DRAWINGS

## SPEEDMASTER® INVERTER DUTY MOTORS



### TENV, C-FACE, RIGID BASE DIMENSIONS (INCHES)

FRAME	D	E	2F	H	O MAX.	P MAX	U	AA	AB MAX	AG MAX	AH	AJ	AK	BA	BB	BF	BS	KEY
143TC	3.50	2.75	4.00	.38	7.45	7.98	.875	1.09	7.04	9.25	2.12	5.875	4.50	2.62	.13	3/8-16	2.81	.19 x .19 x 1.38
145TC	3.50	2.75	5.00	.35	7.45	7.98	.875	1.09	7.04	10.25	2.12	5.875	4.50	2.62	.13	3/8-16	3.81	.19 x .19 x 1.38
182TC	4.50	3.75	4.50	.41	9.36	9.76	1.125	1.09	8.08	11.75	2.62	7.250	8.50	3.50	.27	1/2-13	2.25	.25 x .25 x 1.75
184TC	4.50	3.75	5.50	.41	9.36	9.76	1.125	1.09	8.08	12.75	2.62	7.250	8.50	3.50	.27	1/2-13	2.75	.25 x .25 x 1.75
213TC	5.25	4.25	5.50	.44	10.97	11.50	1.375	1.09	9.31	15.12	3.12	7.250	8.50	4.25	.27	1/2-13	3.50	.31 x .31 x 2.38
215TC	5.25	4.25	7.00	.44	10.97	11.50	1.375	1.09	9.31	17.31	3.12	7.250	8.50	4.25	.27	1/2-13	6.18	.31 x .31 x 2.38
254TC	6.25	5.00	8.25	.53	14.09	14.27	1.625	1.25	9.83	19.06	3.75	7.250	8.50	4.75	.27	1/2-13	6.31	.38 x .38 x 2.88
256TC	6.25	5.00	10.00	.56	14.09	14.27	1.625	1.25	11.08	18.82	3.75	7.250	8.50	4.75	.27	1/2-13	5.00	.38 x .38 x 2.88
284TC	7.00	5.50	9.50	0.56	14.16	14.32	1.875	1.50	12.31	20.57	4.38	9.000	10.50	4.75	0.27	1/2-13	5.50	.50 x .50 x 3.25



ENCODER AND ENCODER CONDUIT BOX OPTIONAL

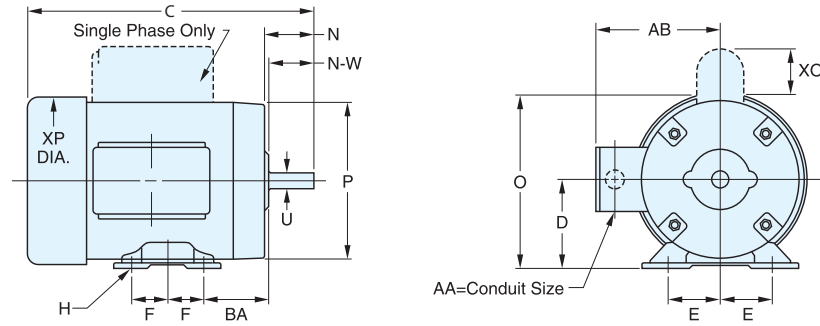
### TBEC, TOTALLY ENCLOSED BLOWER COOLED, RIGID BASE DIMENSIONS (INCHES)

FRAME	D	E	2F	H	O MAX.	P MAX	U	AA	AB MAX	AC MAX	BA	BS	FU	N-W	KEY
325T	8.00	6.25	10.50	0.66	16.00	15.88	2.12	2.00	13.69	10.69	5.25	5.25	1.00	5.25	.50 x .50 x 3.88
326T	8.00	6.25	12.00	0.66	16.00	15.88	2.12	2.00	13.69	10.69	5.25	6.00	1.00	5.25	.50 x .50 x 3.88
364T	9.00	7.00	11.25	0.66	19.00	20.00	2.38	3.62	17.85	14.56	5.88	5.62	1.00	5.88	.62 x .62 x 4.25
365T	9.00	7.00	12.25	0.66	19.00	20.00	2.38	3.62	17.85	14.56	5.88	6.12	1.00	5.88	.62 x .62 x 4.25
404T	10.00	8.00	12.25	0.81	20.88	21.75	2.88	3.62	18.75	14.75	6.62	6.12	1.00	7.25	.75 x .75 x 5.62
405T	10.00	8.00	13.75	0.81	20.88	21.75	2.88	3.62	19.75	16.25	6.62	6.88	1.00	7.25	.75 x .75 x 5.62
444T	11.00	9.00	14.50	0.81	24.19	25.31	3.38	3.62	20.94	17.38	7.50	7.25	1.00	8.50	.88 x .88 x 6.88
445T	11.00	9.00	16.50	0.81	24.19	26.31	3.38	3.62	20.94	17.38	7.50	8.25	1.00	8.50	.88 x .88 x 6.88
449T	11.00	9.00	25.00	0.81	24.22	26.31	3.38	4.62	25.90	19.31	7.50	1.78	1.00	8.50	.88 x .88 x 6.88

# DIMENSIONAL DRAWINGS

## NEMA® STEEL FRAME MOTORS

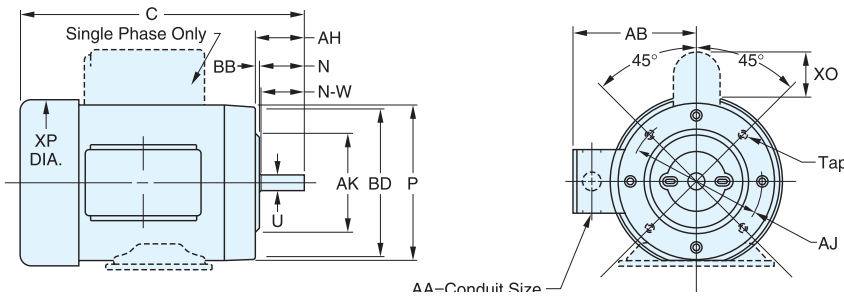
### RIGID MOUNT



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Certified drawings of all ratings are available for construction purposes.

### C - FACE



### NEMA SHAFT AND KEYWAY DIMENSIONS\* (INCHES)

NEMA SHAFT (U)	KEYWAY DIMENSIONS		NEMA SHAFT (U)	KEYWAY DIMENSIONS	
	(R)	(S)		(R)	(S)
3/8	23/64	FLAT	1-7/8	1-19/32	1/2
1/2	29/64	FLAT	2-1/8	1-27/32	1/2
5/8	33/64	3/16	2-3/8	2-3/64	5/8
7/8	49/64	3/16	2-1/2	2-3/16	5/8
1-1/8	63/64	1/4	2-7/8	2-29/64	3/4
1-3/8	1-13/64	5/16	3-3/8	2-7/8	7/8
1-5/8	1-13/32	3/8	3-7/8	3-5/16	1

◆ S is keyway width.  
U minus R is keyway depth.

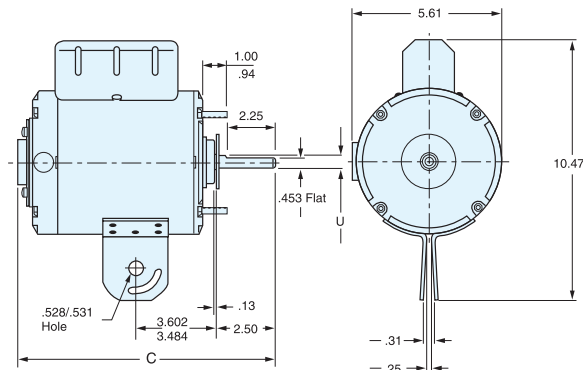
### NEMA STEEL FRAME DIMENSIONS (INCHES)

Frame	D	E	F	H	N	O	P	U	N-W	AA	AB	AH	AJ	AK	BA	BB	BD	XO	XP	TAP **	KEY
42	2 3/8	1 3/4	27/32	9/32 Slot	13/16	5 1/16	4 7/8	3/8	1 1/8	3/8	4 1/2	1 1/16	3 3/4	3	2 1/16	1/8	4 7/8	1 5/8	5 1/8	3/4 - 20	3/64 Flat
48	3	2 1/8	1 3/8	11/32 Slot	1 9/16	5 19/32	5 19/32	1/2	1 1/2	1/2	4 7/8	1 11/16	3 3/4	3	2 1/2	1/8	5	2 1/4	5 7/8	3/4 - 20	3/64 Flat
S56 56	3 1/2	2 7/16	1 1/2	11/32 Slot	1 15/16	6 5/16 6 19/32	5 19/32 6 19/32	5/8	1 7/8	1/2	4 7/8 5 1/16	2 1/16	5 7/8	4 1/2	2 3/4	1/8	6 1/2	2 1/4	5 7/8 7 7/32	3/8 - 16	3/16
143T 145T	3 1/2	2 3/4	2 2 1/2	11/32	2 3/8	6 13/16	6 19/32	7/8	2 1/4	3/4	5 5/16	2 1/8	5 7/8	4 1/2	2 1/4	1/8	6 1/2	2 1/4	7 7/32	3/8 - 16	3/16
182T 184T	4 1/2	3 3/4	2 3/4 2 3/4	1 3/32	2 7/8	8 3/4	8 13/32	1 1/8	2 3/4	3/4	6 7/16	2 5/8	7 1/4	8 1/2	2 3/4	1/4	8 7/8	2 1/4	9 7/32	1/2 - 13	1/4
S213T 213T 215T	5 1/4	4 1/4	2 3/4 2 3/4 3 1/2	13/32	3 1/2	9 27/32	8 13/32	1 3/8	3 3/8	3/4	7 19/32	3 1/8	7 1/4	8 1/2	3 1/2	1/4	8 7/8	2 1/4	9 7/32 10 13/16	1/2 - 13	3/16

■ 143-5TC NEMA C face BA dimension is 2 3/4". 182-4TC NEMA C face BA dimension is 3 1/2". 213-5TC NEMA C face BA dimension is 4 1/4".  
\*\*326TC and smaller have 4 mounting holes in NEMA C face, 364TC and larger have 8 mounting holes.  
Blue shading denotes dimensions established by NEMA standard MG1, others are unique to LEESON, and will vary with each manufacturer.

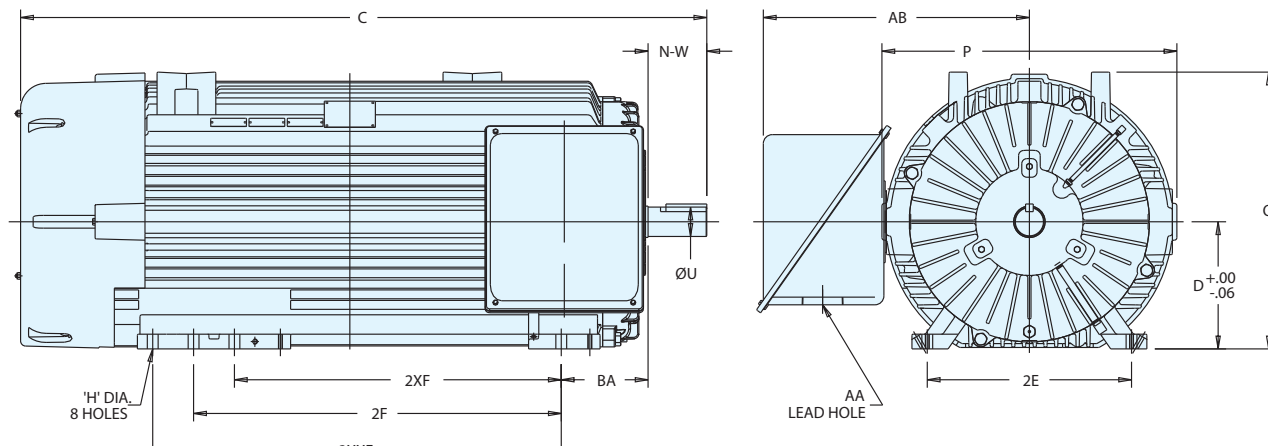
### PEDESTAL FAN MOTORS

Note: Motors with U = .625 have a 3/16" keyway.



# DIMENSIONAL DRAWINGS

## 5000 FRAME MOTORS

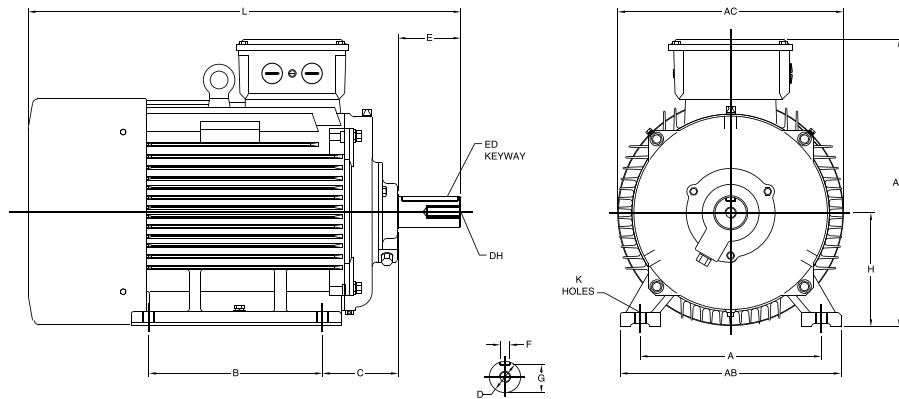


FRAME	H	BA	2XF	2F	2XXF	N-W	U	AB (MAX.)	P (MAX.)	O (MAX.)	D	2E	AA
5010LS	1.062	8.50	32.00	—	—	5.75	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5011LS	1.062	8.50	—	36.00	—	5.75	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5012LS	1.062	8.50	—	—	40.00	5.75	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5013LS	1.062	8.50	45.00	—	—	5.75	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5010LX	1.062	8.50	32.00	—	—	12.00	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5011LX	1.062	8.50	—	36.00	—	12.00	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5012LX	1.062	8.50	—	—	40.00	12.00	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5013LX	1.062	8.50	45.00	—	—	12.00	2.875	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						12.410						
5010L	1.062	8.50	32.00	—	—	9.50	4.000	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						3.999				12.410		
5011L	1.062	8.50	—	36.00	—	9.50	4.000	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						3.999				12.410		
5012L	1.062	8.50	—	—	40.00	9.50	4.000	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						3.999				12.410		
5013L	1.062	8.50	45.00	—	—	9.50	4.000	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						3.999				12.410		
5010S	1.062	8.50	32.00	—	—	5.75	2.625	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						2.624				12.410		
5011S	1.062	8.50	—	36.00	—	5.75	2.625	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						2.624				12.410		
5012S	1.062	8.50	—	—	40.00	5.75	2.625	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						2.624				12.410		
5013S	1.062	8.50	45.00	—	—	5.75	2.625	26.05	28.88	27.08	12.470	20.00	4.00 NPT
	1.077						2.624				12.410		

All dimensions are measured in inches. For "C" dimensions, refer to the appropriate catalog page. Certified drawings are available upon request - contact Regal® for details.

# IEC®\* QUICK REFERENCE DIMENSIONAL CHART

## B3 FOOT-MOUNTED (RIDGE BASE)

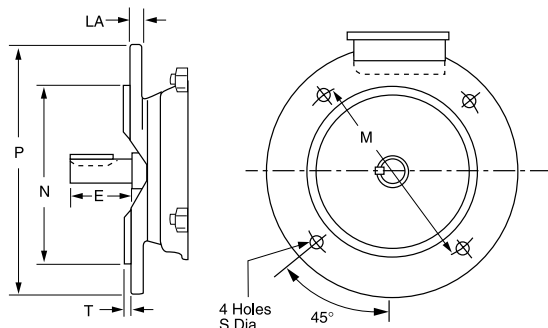


### IEC FRAME DIMENSIONS (MILLIMETERS)

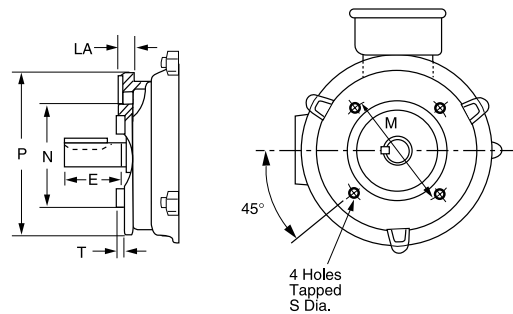
FRAME	MOUNTING						SHAFT						GENERAL			B5 (FF) FLANGE						B14 (FT) FACE					
	A	B	C	H	AB	K	D	E	F	G	ED	DH	AC	AD	HD	M	N	P	S	T	LA	M	N	P	S	T	LA
63	100	80	40	63	119	7	11	23	4	8.5	10	M4 x 10	126	-	169	115	95	140	10	3.0	7	75	60	90	M5	2.5	7
71	112	90	45	71	131	7	14	30	5	11.0	20	M5 x 12.5	140	-	186	130	110	160	10	3.5	7	85	70	105	M6	2.5	9
80	125	100	50	80	157	10	19	40	6	15.5	25	M6 x 16	158	132	212	165	130	200	12	3.5	12	100	80	120	M6	3.0	9
90S	140	100	56	90	174	10	24	50	8	20.0	32	M8 x 19	178	140	230	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
90L	140	125	56	90	174	10	24	50	8	20.0	32	M8 x 19	178	140	230	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
100L	160	140	63	100	205	12	28	60	8	24.0	40	M10 x 22	215	178	278	215	180	250	15	4.0	11	130	110	160	M8	3.5	14
112M	190	140	70	112	245	12	28	60	8	24.0	40	M10 x 22	220	190	302	215	180	250	15	4.0	12	130	110	160	M8	3.5	11
132S	216	140	89	132	280	12	38	80	10	33.0	56	M12 x 28	275	210	342	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
132M	216	178	89	132	280	12	38	80	10	33.0	56	M12 x 28	275	210	342	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
160M	254	210	108	160	325	15	42	110	12	37.0	80	M16 x 36	325	254	414	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
160L	254	254	108	160	325	15	42	110	12	37.0	80	M16 x 36	325	254	414	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
180M	279	241	121	180	335	15	48	110	14	42.5	80	M16 x 36	360	310	490	300	250	350	19	5.0	15	<b>NOT DEFINED BY IEC 72</b>					
180L	279	279	121	180	335	15	48	110	14	42.5	80	M16 x 36	360	310	490	300	250	350	19	5.0	15						
200L	318	305	133	200	395	19	55	110	16	49.0	100	M20 x 42	400	340	540	350	300	400	19	5.0	19.5						
225S 2P	356	286	149	225	435	19	55*	110*	16*	49*	100*	M20 x 42	445	414	639	400	350	450	19	5.0	21.0						
225S 4,6P	356	286	149	225	435	19	60	140	18	53	125	M20 x 42	445	414	639	400	350	450	19	5.0	21.0						
225M 2P	356	311	149	225	435	19	55*	110*	16*	49*	100*	M20 x 42	445	414	639	400	350	450	19	5.0	21.0						
225M 4,6P	356	311	149	225	435	19	60	140	18	53	125	M20 x 42	445	414	639	400	350	450	19	5.0	21.0						
250M 2P	406	349	168	250	490	24	60*	140	18	53*	125	M20 x 42	500	440	690	400	350	450	19	5.0	21.0						
250M 4,6P	406	349	168	250	490	24	65	140	18	58	125	M20 x 42	500	440	690	400	350	450	19	5.0	21.0						

\* 2 Pole Dimensions

1mm = .03937", 1" = 25.4mm



FF Flange B5 Mount

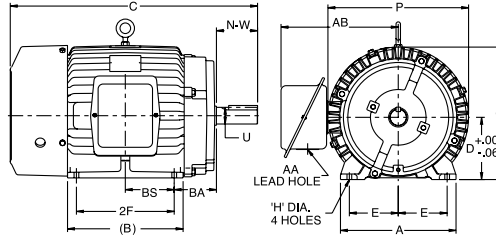
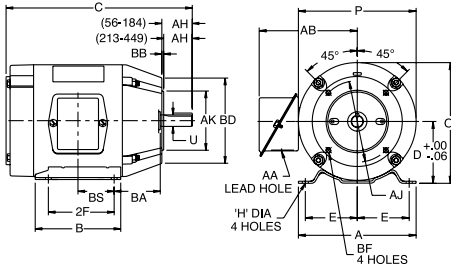


FT Face B14 Mount

\*See back cover page for attribution.

# NEMA®\* QUICK REFERENCE DIMENSIONAL CHART

## Typical Rigid Base Motor



Contact your Marathon sales rep.  
for "AB", "O", & "P" Dim.

Refer to your Marathon catalog for "C" Dim.

NEMA C-Face	BA Dim.
143-5TC	2-3/4
182-4TC	3-1/2
213-5TC	4-1/4
254-6TC	4-3/4

FRAME	D	E	2F	H	U	N-W	AA	AH	AJ	AK	BA	BB (MIN)	BD (MAX)	BF
48	3.00	2.12	2.75	.34 SLOT	.5000	1.50	1/2	1.69	3.750	3.000	2.50	.13	5.62	1/4-20
56	3.50	2.44	3.00	.34 SLOT	.6250	1.88	1/2	2.06	5.875	4.500	2.75	.13	6.50	3/8-16
56H	3.50	2.44	5.00	.34 SLOT	.6250	1.88	1/2	2.06	5.875	4.500	2.75	.13	6.50	3/8-16
143T	3.50	2.75	4.00	.34	.8750	2.25	3/4	2.12	5.875	4.500	2.25	.13	6.50	3/8-16
145T	3.50	2.75	5.00	.34	.8750	2.25	3/4	2.12	5.875	4.500	2.25	.13	6.50	3/8-16
182	4.50	3.75	4.50	.41	.8750	2.25	3/4	2.12	5.875	4.500	2.75	.13	6.50	3/8-16
184	4.50	3.75	5.50	.41	.8750	2.25	3/4	2.12	5.875	4.500	2.75	.13	6.50	3/8-16
182T	4.50	3.75	4.50	.41	1.125	2.75	3/4	2.62	7.250	8.500	2.75	.25	9.00	1/2-13
184T	4.50	3.75	5.50	.41	1.125	2.75	3/4	2.62	7.250	8.500	2.75	.25	9.00	1/2-13
213	5.25	4.25	5.50	.41	1.125	3.00	1	2.75	7.250	8.500	3.50	.25	9.00	1/2-13
215	5.25	4.25	7.00	.41	1.125	3.00	1	2.75	7.250	8.500	3.50	.25	9.00	1/2-13
213T	5.25	4.25	5.50	.41	1.375	3.38	1	3.12	7.250	8.500	3.50	.25	9.00	1/2-13
215T	5.25	4.25	7.00	.41	1.375	3.38	1	3.12	7.250	8.500	3.50	.25	9.00	1/2-13
254U	6.25	5.00	8.25	.53	1.375	3.75	1-1/4	3.50	7.250	8.500	4.25	.25	10.00	1/2-13
256U	6.25	5.00	10.00	.53	1.375	3.75	1-1/4	3.50	7.250	8.500	4.25	.25	10.00	1/2-13
254T	6.25	5.00	8.25	.53	1.625	4.00	1-1/4	3.75	7.250	8.500	4.25	.25	10.00	1/2-13
256T	6.25	5.00	10.00	.53	1.625	4.00	1-1/4	3.75	7.250	8.500	4.25	.25	10.00	1/2-13
284U	7.00	5.50	9.50	.53	1.625	4.88	1-1/2	4.62	9.000	10.500	4.75	.25	11.25	1/2-13
286U	7.00	5.50	11.00	.53	1.625	4.88	1-1/2	4.62	9.000	10.500	4.75	.25	11.25	1/2-13
284T	7.00	5.50	9.50	.53	1.875	4.62	1-1/2	4.38	9.000	10.500	4.75	.25	11.25	1/2-13
286T	7.00	5.50	11.00	.53	1.875	4.62	1-1/2	4.38	9.000	10.500	4.75	.25	11.25	1/2-13
284TS	7.00	5.50	9.50	.53	1.625	3.25	1-1/2	3.00	9.000	10.500	4.75	.25	11.25	1/2-13
286TS	7.00	5.50	11.00	.53	1.625	3.25	1-1/2	3.00	9.000	10.500	4.75	.25	11.25	1/2-13
324U	8.00	6.25	10.50	.66	1.875	5.62	2	5.38	11.000	12.500	5.25	.25	14.00	5/8-11
326U	8.00	6.25	12.00	.66	1.875	5.62	2	5.38	11.000	12.500	5.25	.25	14.00	5/8-11
324T	8.00	6.25	10.50	.66	2.125	5.25	2	5.00	11.000	12.500	5.25	.25	14.00	5/8-11
326T	8.00	6.25	12.00	.66	2.125	5.25	2	5.00	11.000	12.500	5.25	.25	14.00	5/8-11
324TS	8.00	6.25	10.50	.66	1.875	3.75	2	3.50	11.000	12.500	5.25	.25	14.00	5/8-11
326TS	8.00	6.25	12.00	.66	1.875	3.75	2	3.50	11.000	12.500	5.25	.25	14.00	5/8-11
364U	9.00	7.00	11.25	.66	2.125	6.38	2-1/2	6.12	11.000	12.500	5.88	.25	14.00	5/8-11
365U	9.00	7.00	12.25	.66	2.125	6.38	2-1/2	6.12	11.000	12.500	5.88	.25	14.00	5/8-11
364T	9.00	7.00	11.25	.66	2.375	5.88	2-1/2	5.62	11.000	12.500	5.88	.25	14.00	5/8-11
365T	9.00	7.00	12.25	.66	2.375	5.88	2-1/2	5.62	11.000	12.500	5.88	.25	14.00	5/8-11
364TS	9.00	7.00	11.25	.66	1.875	3.75	2-1/2	3.50	11.000	12.500	5.88	.25	14.00	5/8-11
365TS	9.00	7.00	12.25	.66	1.875	3.75	2-1/2	3.50	11.000	12.500	5.88	.25	14.00	5/8-11
404U	10.00	8.00	12.25	.81	2.375	7.12	3	6.88	11.000	12.500	6.62	.25	15.50	5/8-11
405U	10.00	8.00	13.75	.81	2.375	7.12	3	6.88	11.000	12.500	6.62	.25	15.50	5/8-11
404T	10.00	8.00	12.25	.81	2.875	7.25	3	7.00	11.000	12.500	6.62	.25	15.50	5/8-11
405T	10.00	8.00	13.75	.81	2.875	7.25	3	7.00	11.000	12.500	6.62	.25	15.50	5/8-11
404TS	10.00	8.00	12.25	.81	2.125	4.25	3	4.00	11.000	12.500	6.62	.25	15.50	5/8-11
405TS	10.00	8.00	13.75	.81	2.125	4.25	3	4.00	11.000	12.500	6.62	.25	15.50	5/8-11
444U	11.00	9.00	14.50	.81	2.875	8.62	3	8.38	14.000	16.000	7.50	.25	18.00	5/8-11
445U	11.00	9.00	16.50	.81	2.875	8.62	3	8.38	14.000	16.000	7.50	.25	18.00	5/8-11
444T	11.00	9.00	14.50	.81	3.375	8.50	3	8.25	14.000	16.000	7.50	.25	18.00	5/8-11
445T	11.00	9.00	16.50	.81	3.375	8.50	3	8.25	14.000	16.000	7.50	.25	18.00	5/8-11
444TS	11.00	9.00	14.50	.81	2.375	4.75	3	4.50	14.000	16.000	7.50	.25	18.00	5/8-11
445TS	11.00	9.00	16.50	.81	2.375	4.75	3	4.50	14.000	16.000	7.50	.25	18.00	5/8-11
447T	11.00	9.00	20.00	.81	3.375	8.50	3	8.25	14.000	16.000	7.50	.25	18.00	5/8-11
449T	11.00	9.00	25.00	.81	3.375	8.50	3	8.25	14.000	16.000	7.50	.25	18.00	5/8-11
447TS	11.00	9.00	20.00	.81	2.375	4.75	4 NPT	4.50	14.000	16.000	7.50	.25	18.00	5/8-11
449TS	11.00	9.00	25.00	.81	2.375	4.75	4 NPT	4.50	14.000	16.000	7.50	.25	18.00	5/8-11

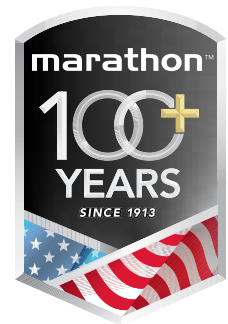


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