

## DURA-TEK® 3.0 Inch Brushless DC Motor 40,000 Hour Design Life

### Features

**Brushless Motor**—Electronically Commutated DC (ECDC™) motor eliminates “brush” motor failures while offering extended life

**Life Cycle Cost Savings**—Motor design life of 40,000 hours eliminates additional motor cost and labor intensive maintenance expense of brush motor designs

**Interchangeable**—3.0 inch outside motor diameter and standard 2-wire electrical hook-up allows complete interchangeability with brush motor counterparts

**Rugged**—Environmentally resistant design offers protection from hot-water spray, rain, humidity, salt, fog, shock, and vibration

**“Smart” Motor Controls**—Advanced electronic design offers enhanced features including:

- Multi-speed Operation
- Current Limit
- Locked-rotor Protection
- Reverse Polarity Protection
- Over Temperature Shut-off
- Transient Over-voltage Protection

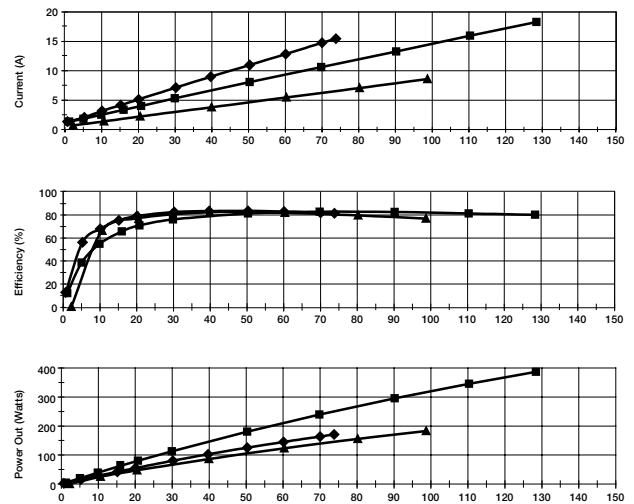
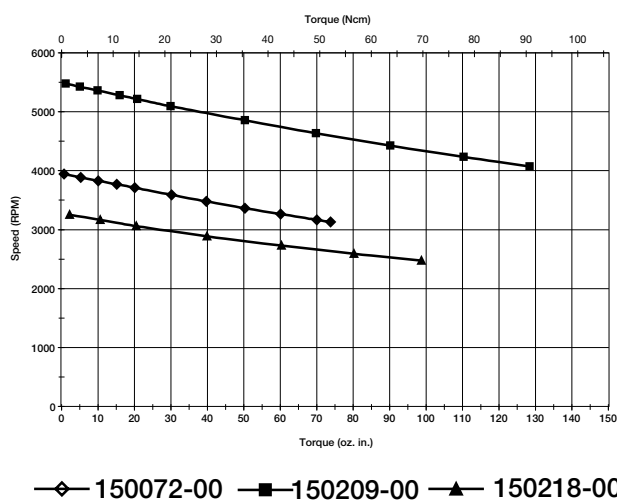


### Multi-Purpose Use

#### Applications include:

- A/C Evaporator and Condenser Motors and Blowers
- Heater Motors and Blowers
- Defroster Motors and Blowers
- Coolant Pumps
- Radiator Cooling Fans

### Performance





# Driver's Booster Blower Motor

## 1.7 Inch Brushless DC Motor

### Features

**Brushless Motor**— Electronically Commutated DC (ECDC™) motor eliminates “brush” motor failures while offering extended life

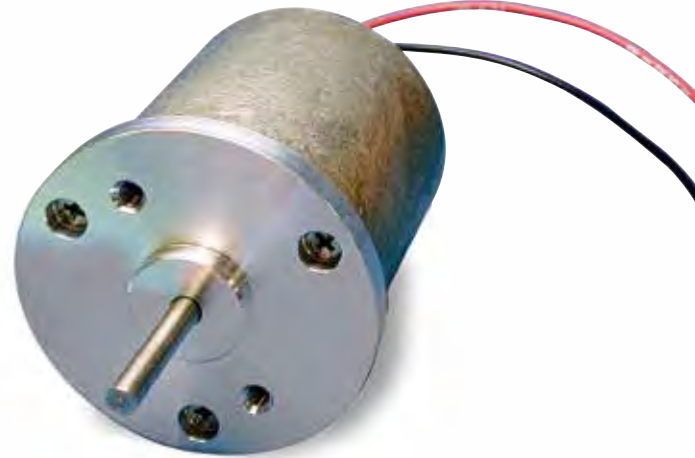
**Life Cycle Cost Savings**— Brushless motor design life eliminates additional motor cost and labor intensive maintenance expense of brush motor designs

**Interchangeable**— Motor diameter and standard 2-wire electrical hook-up allows complete interchangeability with brush motor counterparts

**Rugged**— Environmentally resistant design offers protection from hot-water spray, rain, humidity, salt, fog, shock, and vibration

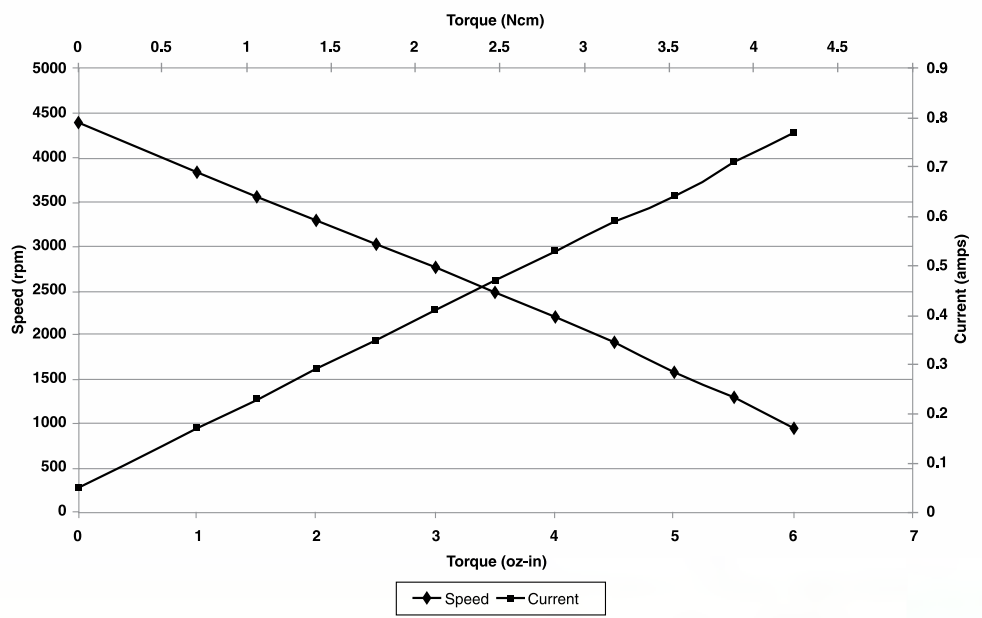
### Drop-in replacement for these applications:

- New Flyer Driver's Booster Blower
- Neoplan Driver's Booster Blower



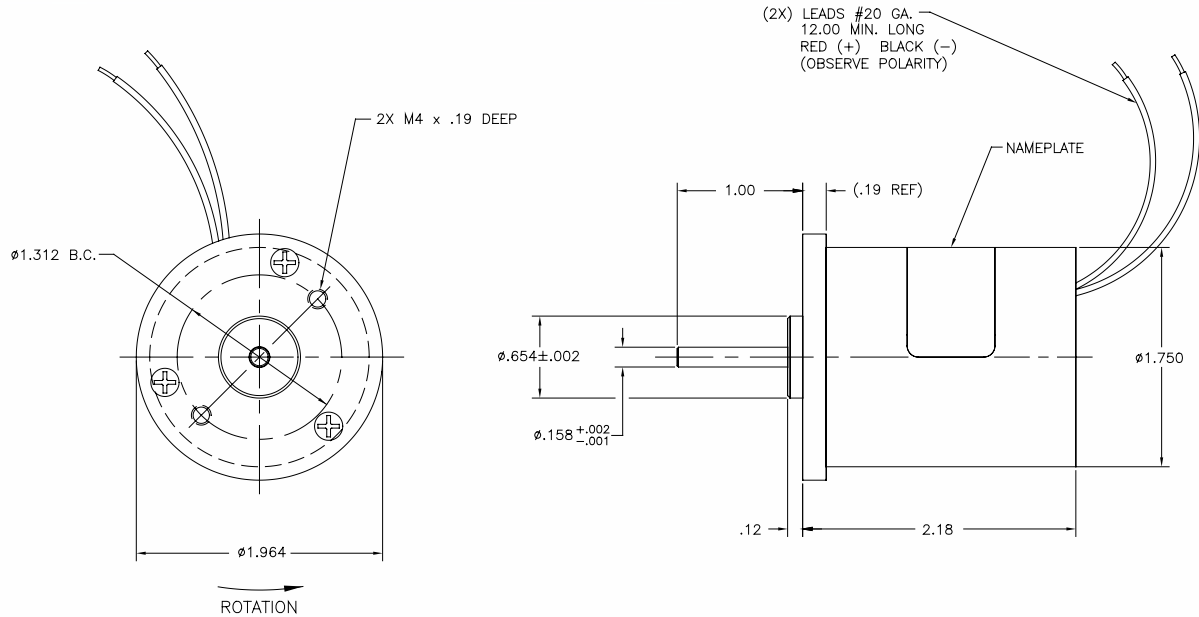
### Performance

**Speed and Current vs. Torque**



## Driver's Booster Blower Motor 1.7 Inch Brushless DC Motor

### Dimensions



| Model   | Voltage  | Current          | Speed            | Ambient Temperature Range | Weight   |
|---|----------|------------------|------------------|---------------------------|----------|
| 1.7 Inch Brushless DC Motor, 24 Volt (with a 3 oz. — in load) | 27.6 VDC | 0.41 A (nominal) | 28 RPM (nominal) | 40°C (maximum)            | 0.50 lb. |

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## 47 Frame Brushless DC Motor 60,000 Hour Design Life

The 47 Frame, Electronically Commutated DC (ECDC™) motor series is a long-life brushless DC motor system for fans, blowers, pumps, and compressors up to .5 horsepower.

### Features

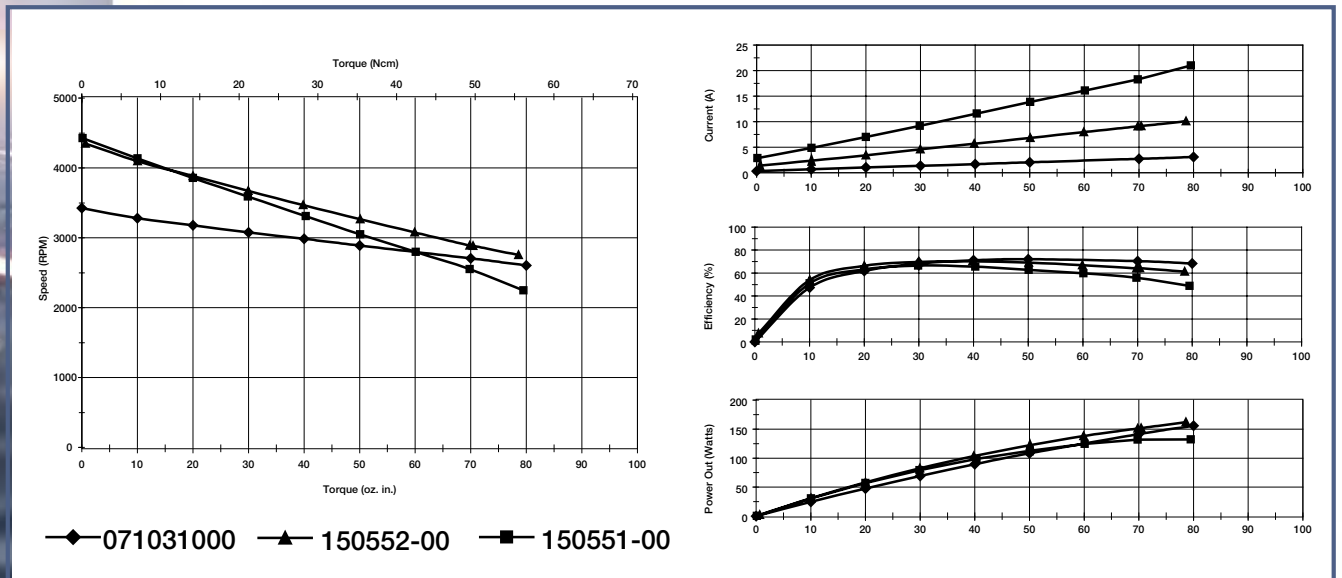
- ECDC motor design provides maintenance free operation by eliminating brush motor failures and, brush and commutator maintenance
- Rare-earth magnets provide high torque/weight ratio
- Integral electronics provides simple 2 wire, DC operation (reverse polarity protected)
- Wide range of voltage inputs of 12, 24, 37, 74, 90, and 110 VDC
- 4H system for standard performance
- 3F system for high performance in a small package



### Options

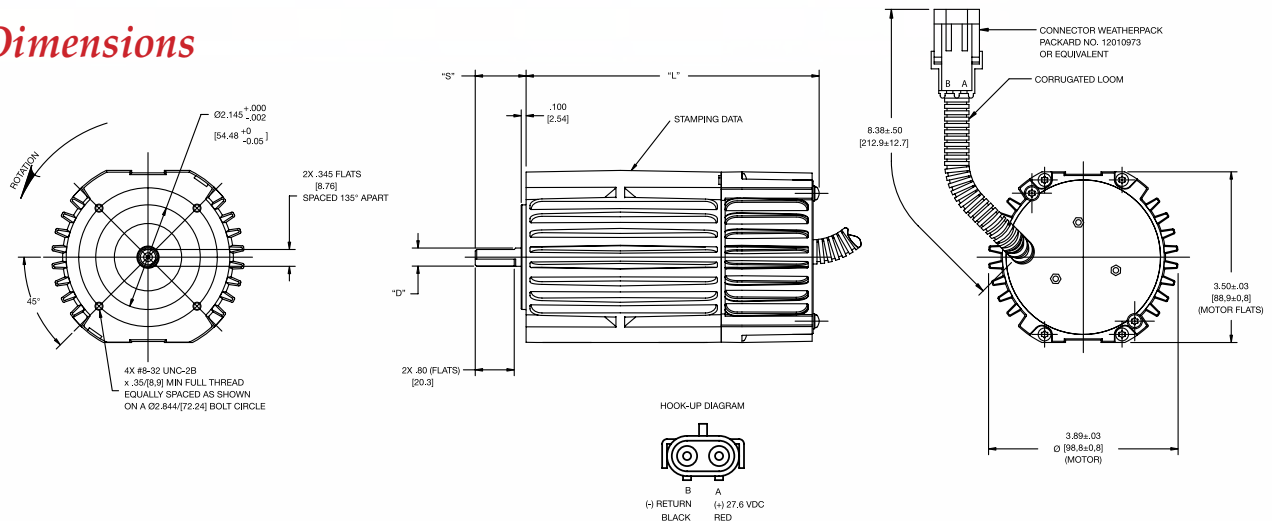
- Custom shaft and mounting configurations (foot and face)
- "O" ring sealed motor for harsh operating environments
- MS connectors
- Winding variations to meet exact speed/torque/voltage point
- Bi-directional operation
- Speeds up to 10,000 rpm

### Performance



## 47 Frame Brushless DC Motor 60,000 Hour Design Life

### Dimensions



| Motor Data                 | Unit of Measure      | Part Numbers |           |           |
|----------------------------|----------------------|--------------|-----------|-----------|
|                            |                      | 150551-00    | 150552-00 | 071031000 |
| Voltage Input              | Volts DC             | 13.8         | 27.6      | 74        |
| Voltage Range              | Volts DC             | 9-16         | 18-32     | 50-80     |
| No Load Speed, Nominal     | RPM                  | 4425         | 4350      | 3425      |
| No Load Current, Nominal   | Amps                 | 2.5          | 1.4       | 0.3       |
| Stall Torque, Theoretical  | Oz.-In.              | 160          | 210       | 334       |
|                            | Ncm                  | 113          | 148       | 236       |
| Continuous Torque          | Oz.-In.              | 30           | 30        | 50        |
|                            | Ncm                  | 21           | 21        | 35        |
| Speed @ Torque, Nominal    | RPM                  | 3575         | 3675      | 2900      |
| Current @ Torque, Nominal  | Amps                 | 9.5          | 4.5       | 2.0       |
| Continuous Power, Max.     | Watts Out            | 80           | 82        | 108       |
|                            | Horsepower           | 0.11         | 0.11      | 0.14      |
| Torque Constant            | Oz. - in. / Amp      | 4.41         | 8.58      | 29.21     |
|                            | Ncm / Amp            | 3.11         | 6.06      | 19.1      |
| Voltage Constant           | V / k RPM            | 3.12         | 6.34      | 21.61     |
|                            | V / rad / sec        | 0.0298       | 0.0606    | 0.2063    |
| Ambient Temperature, Max.  | Degrees C            | 85           | 85        | 55        |
| Motor Length, ("L" above)  | Inches               | 6.00         | 6.00      | 6.68      |
|                            | mm                   | 152,40       | 152,40    | 169,67    |
| Weight                     | Lbs.                 | 7.3          | 7.3       | 8         |
|                            | kg                   | 3.3          | 3.3       | 3.6       |
| Shaft Length ("S" above)   | Inches               | 1            | 1         | 1.65      |
|                            | mm                   | 25,4         | 25,4      | 41,91     |
| Shaft Diameter ("D" above) | Inches               | 0.375        | 0.375     | 0.312     |
|                            | mm                   | 9,52         | 9,52      | 7,925     |
| Shaft Configuration        |                      | Single       | Single    | Single    |
| Rotation                   | Viewed Lead Exit End | CW           | CW        | CCW       |
| Speeds                     |                      | 1            | 1         | 1         |

### NOTES

- \* Motor design characteristics are based on an operating environment of 85°C.
- \* Nominal and maximum performance figures are based on a winding temperature of 105°C.
- \* This product is designed for heavy-duty harsh environment applications such as construction and transportation applications.
- \* This product is environmentally resistant to hot-water spray, rain, humidity, salt, fog, shock, and vibration associated with vehicle applications.

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# 64 Frame Evaporator Motors for Coach A/C Systems

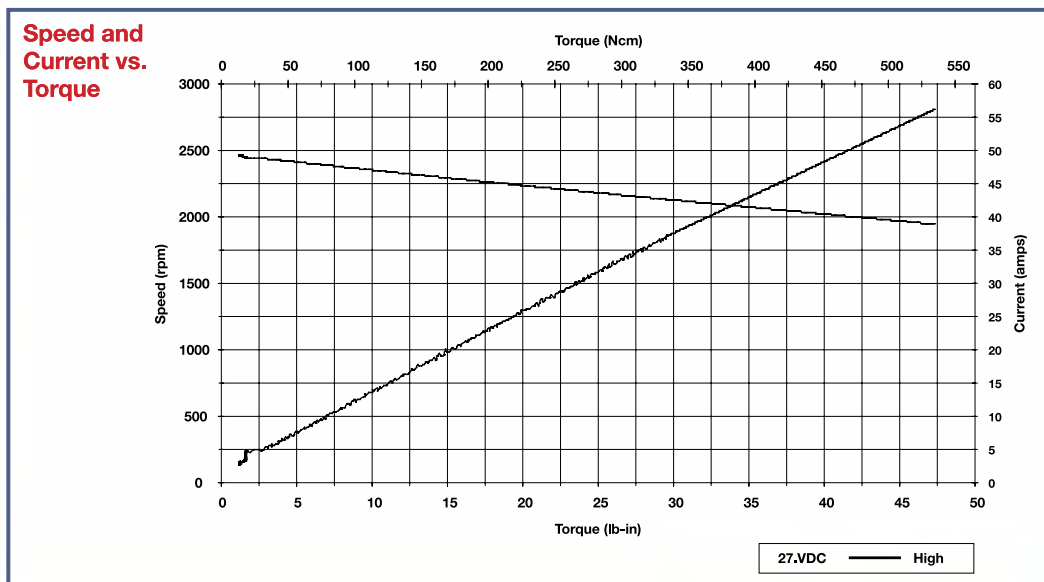
**60,000 Hour Brushless DC Motors for OEM  
and Field Upgrade Applications**

Ametek's 64 frame brushless DC motors are designed for 60,000 hour operating life and have been built to meet the original OEM specifications for new and existing coach field replacement applications. All Coach AC motors include a 4.5 year warranty. These motors are designed to directly replace OEM brush motors."



## Features

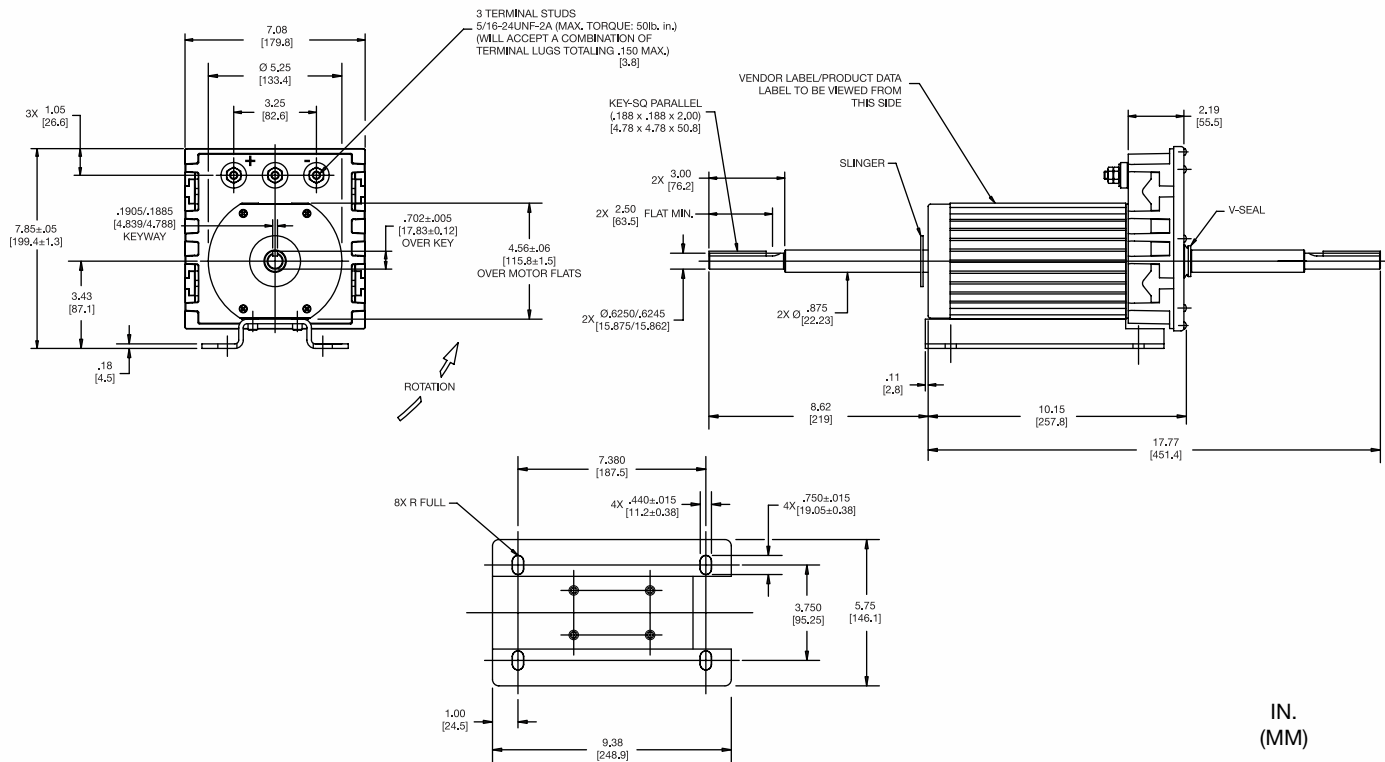
- 27.6 VDC Brushless DC Microprocessor Controlled Design
- Field proven and Qualified in OEM applications
- Drop-in replacement for most existing brush motor applications, up to 2.2 HP
- Environmentally Sealed design with O-rings and shaft seals for harsh Environments
- Electronically protected design includes:
  - Current limiting soft start
  - Reverse polarity protection
  - Locked rotor (stall) protection
  - Over temperature protection
  - 4.5 Year Warranty
- Custom Shaft and mounting Configurations available
- Custom Motor performance design variations available to meet existing or new design applications.
- Complete Field replacement/upgrade kits are available from Coach manufacturers.



## 64 Frame Evaporator Motors for Coach A/C Systems

### 60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

### Dimensions



| Motor Data          | Unit of Measure | Part Numbers         |
|---------------------|-----------------|----------------------|
|                     |                 | 150355-00            |
| Voltage Input       | Volts DC        | 27.6                 |
| Voltage Range       | Volts DC        | 18-32                |
| Speed(s)            | #               | 2                    |
| Torque              | In.-Lbs.        | 32/21                |
| Speed               | RPM             | 2800/2340            |
| Rotation            | CCW/CW.         | CW (Electronics End) |
| Current             | Amps            | 45/25                |
| Weight              | Lbs./Kg         | 28.8/13.1            |
| Ambient Temperature | C               | -40 to -65           |

#### NOTES:

- \* Motor design characteristics are based on an operating environment of 65°C.
- \* Nominal and maximum performance figures are based on a winding temperature of 105°C.
- \* This product is designed for heavy-duty harsh environment applications such as construction and transportation applications.
- \* This product is environmentally resistant to hot-water spray, rain, humidity, salt, fog, shock, and vibration associated with vehicle applications.

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**AMETEK®**  
PRECISION MOTION CONTROL

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... We're BIG ON BRUSHLESS®

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# 64 Frame Evaporator Motors for Coach A/C Systems

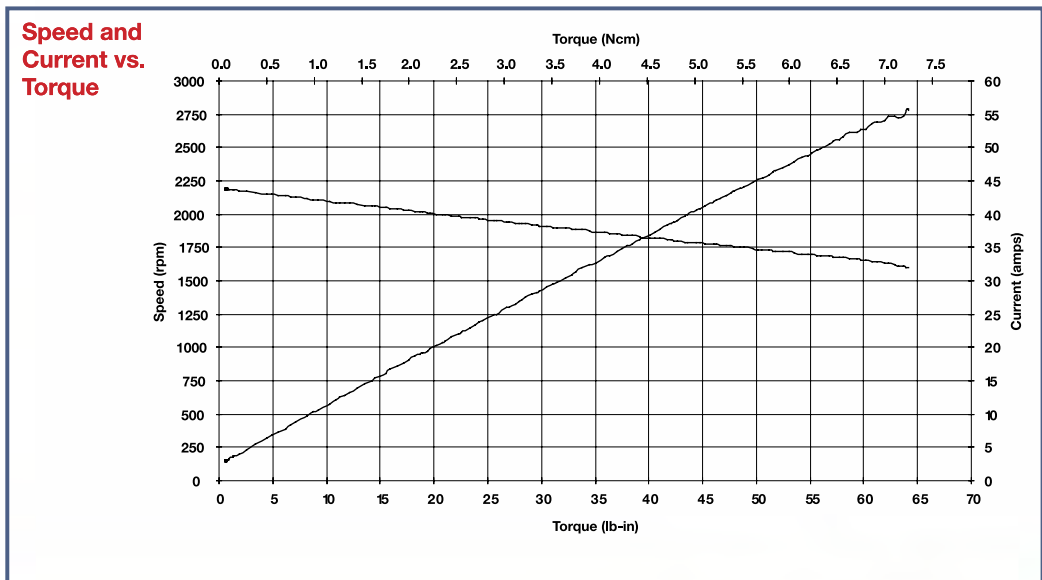
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and Field Upgrade Applications**

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## Features

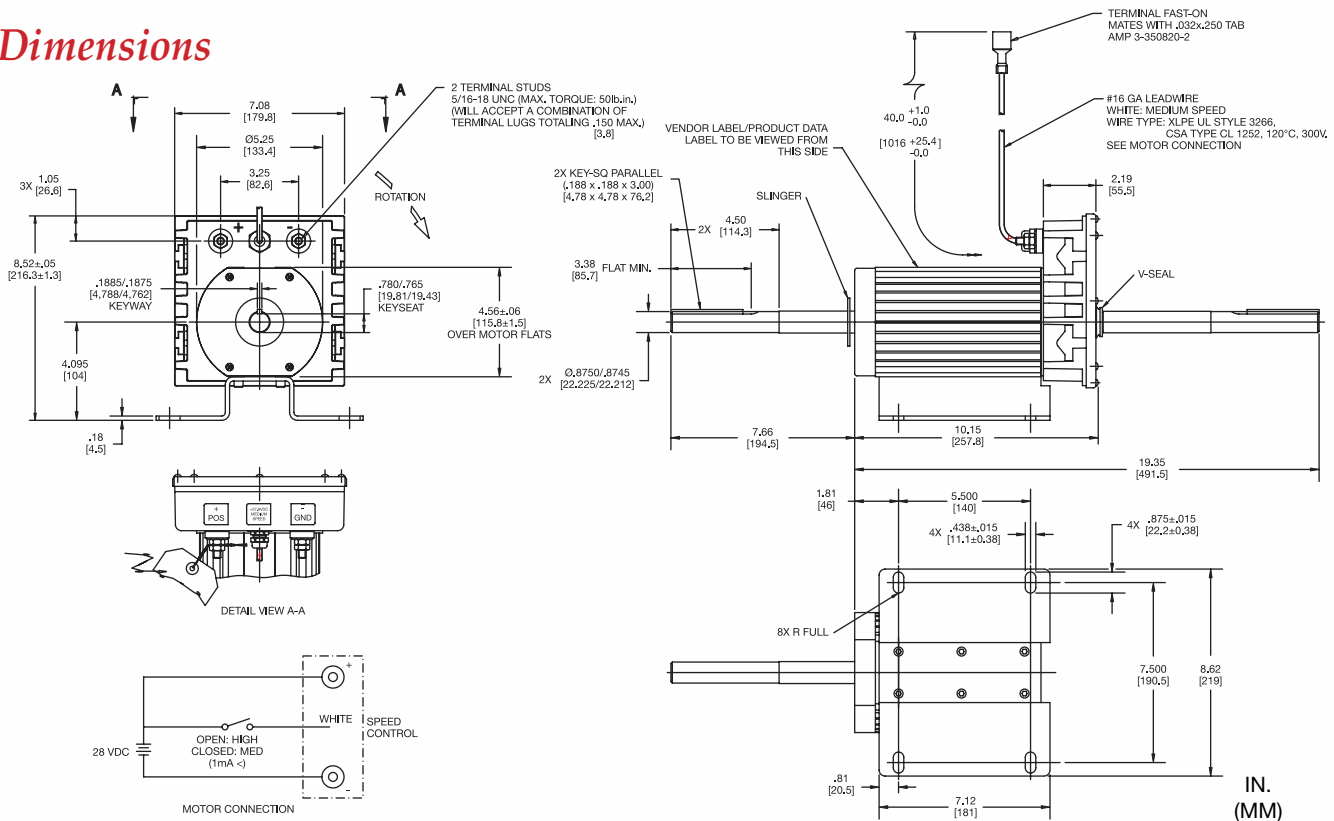
- 27.6 VDC Brushless DC Microprocessor Controlled Design
- Field proven and Qualified in OEM applications
- Drop-in replacement for most existing brush motor applications, up to 2.2 HP
- Environmentally Sealed design with O-rings and shaft seals for harsh Environments
- Electronically protected design includes:
  - Current limiting soft start
  - Reverse polarity protection
  - Locked rotor (stall) protection
  - Over temperature protection
  - 4.5 Year Warranty
- Custom Shaft and mounting Configurations available
- Custom Motor performance design variations available to meet existing or new design applications.
- Complete Field replacement/upgrade kits are available from Coach manufacturers.



## 64 Frame Evaporator Motors for Coach A/C Systems

### 60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

### Dimensions



| Motor Data          | Unit of Measure | Part Numbers         |
|---------------------|-----------------|----------------------|
|                     |                 | 150215-00            |
| Voltage Input       | Volts DC        | 27.6                 |
| Voltage Range       | Volts DC        | 18-32                |
| Speed(s)            | #               | 2                    |
| Torque              | In.-Lbs.        | 54/36                |
| Speed               | RPM             | 1700/1400            |
| Rotation            | CCW/CW.         | CW (Electronics End) |
| Current             | Amps            | 52/26.5              |
| Weight              | Lbs./Kg         | 29.6/13.5            |
| Ambient Temperature | C               | -40 to -65           |

#### NOTES:

- \* Motor design characteristics are based on an operating environment of 65°C.
- \* Nominal and maximum performance figures are based on a winding temperature of 105°C.
- \* This product is designed for heavy-duty harsh environment applications such as construction and transportation applications.
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# 64 Frame Condenser Motors for Coach A/C Systems

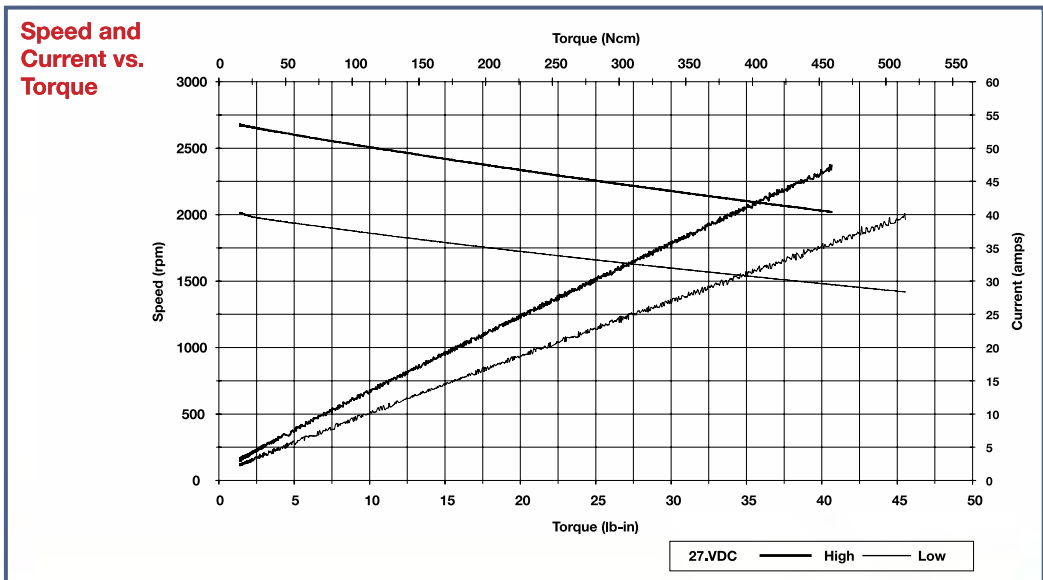
**60,000 Hour Brushless DC Motors for OEM  
and Field Upgrade Applications**

Ametek's 64 frame brushless DC motors are designed for 60,000 hour operating life and have been built to meet the original OEM specifications for new and existing coach field replacement applications. All Coach AC motors include a 4.5 year warranty. These motors are designed to directly replace OEM brush motors.



## Features

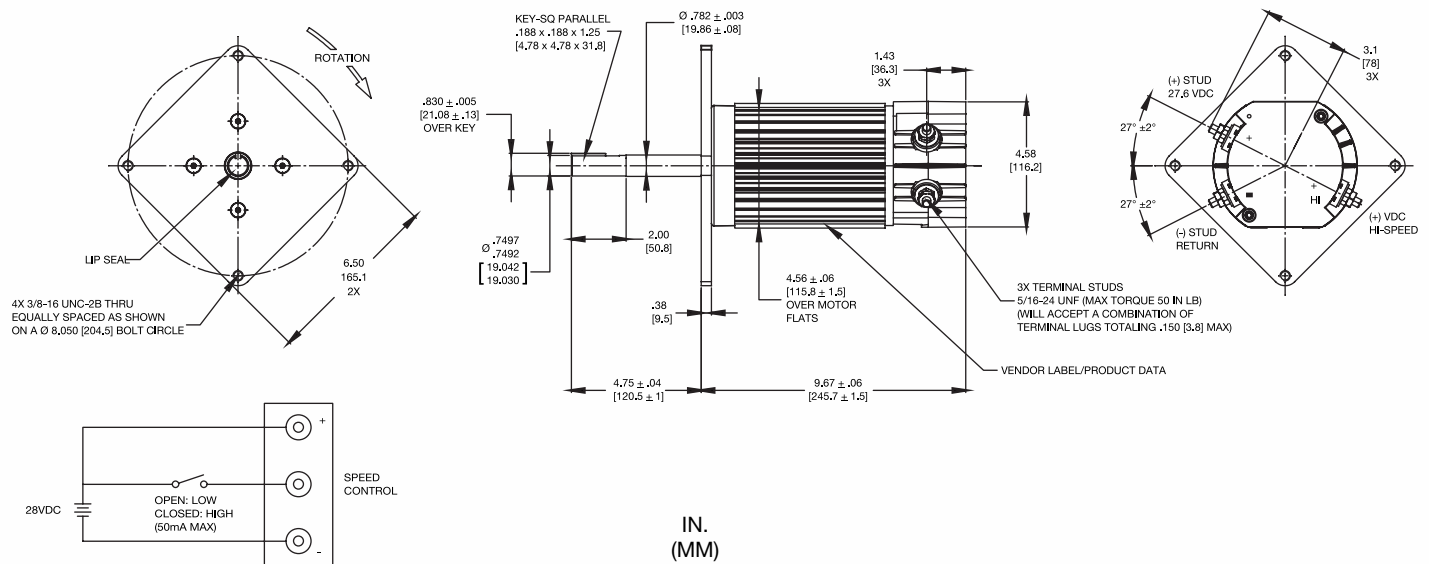
- 27.6 VDC Brushless DC Microprocessor Controlled Design
- Field proven and Qualified in most major OEM applications
- Drop-in replacement for most existing brush motor applications, up to 2.2 HP
- Environmentally Sealed design with O-rings and shaft seals for harsh Environments
- Electronically protected design includes:
  - Current limiting soft start
  - Reverse polarity protection
  - Locked rotor (stall) protection
  - Over temperature protection
- 4.5 year Warranty
- Custom Shaft and mounting Configurations available
- Custom Motor performance design variations available to meet existing or new design applications.
- Complete Field replacement/upgrade kits are available from coach manufacturers.



## 64 Frame Condenser Motors for Coach A/C Systems

### 60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

#### Dimensions



| Motor Data          | Unit of Measure | Part Numbers |
|---------------------|-----------------|--------------|
|                     |                 | 151140-00    |
| Voltage Input       | Volts DC        | 27.6         |
| Voltage Range       | Volts DC        | 18-32        |
| Speed(s)            | #               | 2            |
| Torque              | In.-Lbs.        | 24/16        |
| Speed               | RPM             | 2340/1160    |
| Rotation            | CCW/CW.         | CCW (SE)     |
| Current             | Amps            | 30/5         |
| Weight              | Lbs./Kg         | 21.8/9.9     |
| Ambient Temperature | C               | -40 to -65   |

#### NOTES:

- \* Motor design characteristics are based on an operating environment of 65°C.
- \* Nominal and maximum performance figures are based on a winding temperature of 105°C.
- \* This product is designed for heavy-duty harsh environment applications such as construction and transportation applications.
- \* This product is environmentally resistant to hot-water spray, rain, humidity, salt, fog, shock, and vibration associated with vehicle applications.

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## 64 Frame Condenser Motors for Coach A/C Systems

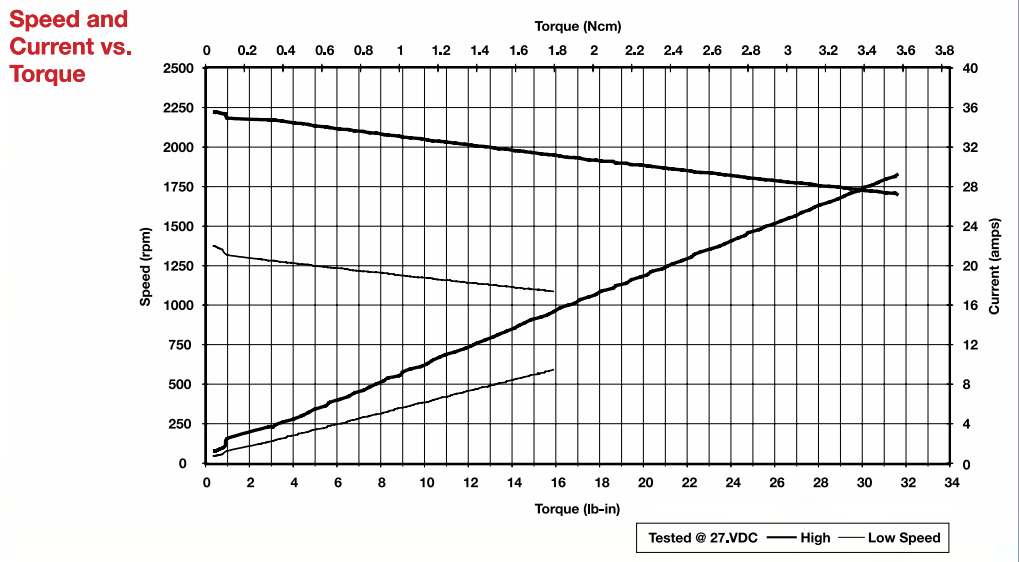
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### Features and Benefits

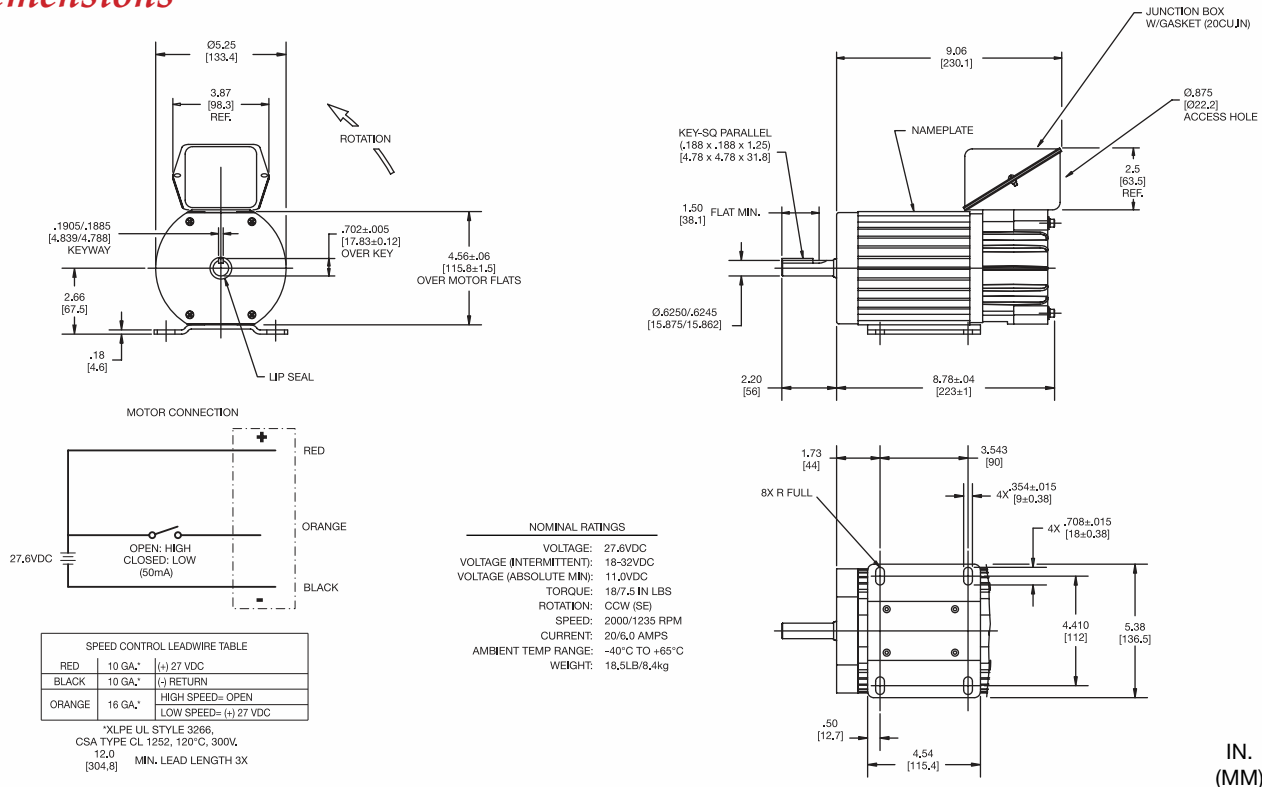
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- Environmentally Sealed design with O-rings and shaft seals for harsh Environments
- Electronically protected design includes:
  - Current limiting soft start
  - Reverse polarity protection
- Locked rotor (stall) protection
- Over temperature protection
- 4.5 year Warranty
- Custom Shaft and mounting Configurations available
- Custom Motor performance design variations available to meet existing or new design applications.
- Complete Field replacement/upgrade kits are available from coach manufacturers.



## 64 Frame Condenser Motors for Coach A/C Systems

### 60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

### Dimensions



| Motor Data          | Unit of Measure | Part Numbers |
|---------------------|-----------------|--------------|
|                     |                 | 150214-00    |
| Voltage Input       | Volts DC        | 27.6         |
| Voltage Range       | Volts DC        | 18-32        |
| Speed(s)            | #               | 2            |
| Torque              | In.-Lbs.        | 18/7.5       |
| Speed               | RPM             | 2000/1235    |
| Rotation            | CCW/CW.         | CCW (SE)     |
| Current             | Amps            | 20/6         |
| Weight              | Lbs./Kg         | 18.6/8.4     |
| Ambient Temperature | C               | -40 to -65   |

#### NOTES:

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- \* Nominal and maximum performance figures are based on a winding temperature of 105°C.
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- \* This product is environmentally resistant to hot-water spray, rain, humidity, salt, fog, shock, and vibration associated with vehicle applications.

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## 64 Frame Brushless DC Motor 60,000 Hour Design Life

The 64 Frame, Electronically Commutated DC (ECDC™) motor series is a long-life, brushless DC motor system for fans, blowers, pumps, and compressors up to 1.25 horsepower.

### Features

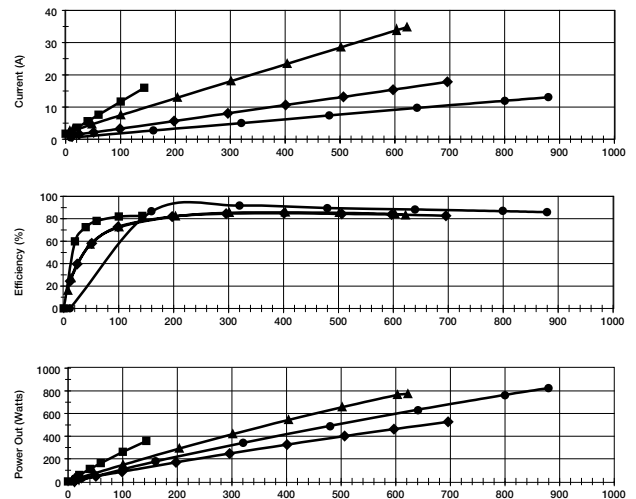
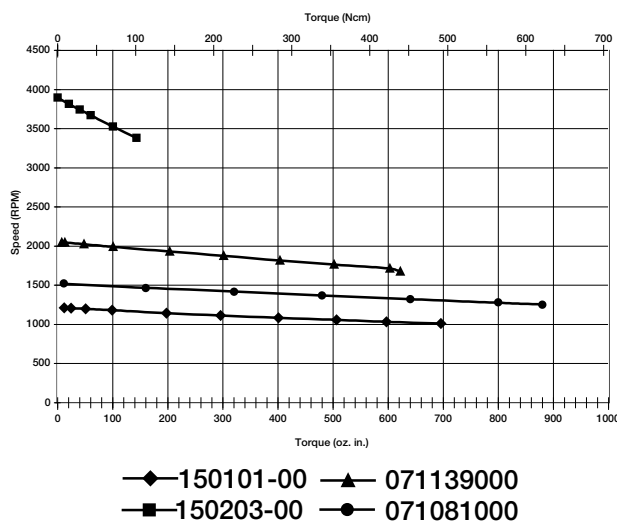
- ECDC motor design provides maintenance free operation by eliminating brush motor failures and, brush and commutator maintenance
- Rare-earth magnets provide high torque/weight ratio
- Wide range of voltage inputs of 12, 24, 37, 74, 90, and 110 VDC
- “O” ring sealed for harsh operating environments
- Reverse polarity and voltage surge protected



### Options

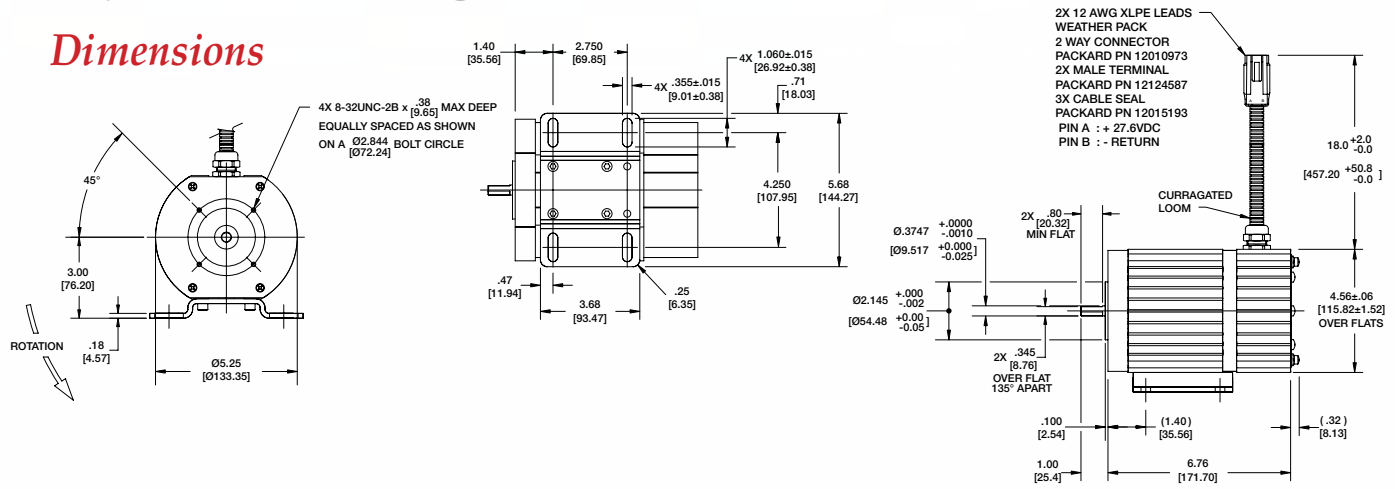
- Custom shaft and mounting configurations (foot and face)
- Winding variations to meet exact speed/torque/voltage point
- Drop-in replacement motor design for existing brush motors
- Available for OEM and retrofit applications
- Complete blowers, fans, and pumps available

### Performance



## 64 Frame Brushless DC Motor 60,000 Hour Design Life

### Dimensions



| Motor Data                 | Unit of Measure      | Part Numbers |           |           |           |
|----------------------------|----------------------|--------------|-----------|-----------|-----------|
|                            |                      | 150203-00    | 071139000 | 150101-00 | 071081000 |
| Voltage Input              | Volts DC             | 27.6         | 27.6      | 36.0      | 74.0      |
| Voltage Range              | Volts DC             | 18-32        | 18-32     | 24-40     | 50-80     |
| No Load Speed, Nominal     | RPM                  | 3900         | 2050      | 1220      | 1525      |
| No Load Current, Nominal   | Amps                 | 1.7          | 2.5       | 1.3       | 0.5       |
| Stall Torque, Theoretical  | Oz.-In.              | 150          | 625       | 700       | 900       |
| Continuous Torque          | Ncm                  | 106          | 441       | 494       | 636       |
|                            | Oz.-In.              | 75           | 400       | 500       | 800       |
| Speed @ Torque, Nominal    | RPM                  | 3600         | 1825      | 1050      | 1250      |
|                            | Amps                 | 9.0          | 23.5      | 13.2      | 12        |
| Current @ Torque, Nominal  | Watts Out            | 200          | 542       | 400       | 765       |
|                            | Horsepower           | 0.27         | 0.73      | 0.54      | 1.00      |
| Torque Constant            | Oz. - in. / Amp      | 9.57         | 18.20     | 39.90     | 65.61     |
|                            | Ncm / Amp            | 6.76         | 12.86     | 28.18     | 46.33     |
| Voltage Constant           | V / k RPM            | 7.08         | 13.46     | 29.51     | 48.52     |
|                            | V / rad / sec        | 0.0676       | 0.1286    | 0.2818    | 0.4634    |
| Ambient Temperature, Max.  | Degrees C            | 72           | 70        | 70        | 85        |
| Motor Length, ("L" above)  | Inches               | 7.08         | 10.36     | 10.125    | 13.34     |
|                            | mm                   | 179,83       | 263,14    | 257,18    | 338,83    |
| Weight                     | Lbs.                 | 18           | 23        | 26        | 29        |
|                            | kg                   | 8.16         | 10.43     | 11.79     | 13.15     |
| Shaft Length ("S" above)   | Inches               | 1            | 2.5       | 1.68      | 2.16      |
|                            | mm                   | 25,4         | 63,5      | 42,67     | 54,86     |
| Shaft Diameter ("D" above) | Inches               | 0.375        | 0.625     | 0.5       | 0.7497    |
|                            | mm                   | 9,53         | 15,88     | 12,7      | 19,04     |
| Shaft Configuration        |                      | Single       | Single    | Single    | Single    |
| Rotation                   | Viewed Lead Exit End | CW           | CW        | CCW       | CCW       |
| Speeds                     |                      | 1            | 2         | 1         | 1         |

\* 25°C ambient mounted on 12 in. x 12 in. x 1/2 in. aluminum sink.

#### NOTES:

\* Motor design characteristics are based on an operating environment of 85°C.

\* Nominal and maximum performance figures are based on a winding temperature of 105°C.

\* This product is designed for heavy-duty harsh environment applications such as construction and transportation applications.

\* This product is environmentally resistant to hot-water spray, rain, humidity, salt, fog, shock, and vibration associated with vehicle applications.

This document is for informational purposes only and should not be considered as a binding description of the products or their performance in all applications. The performance data on this page depicts typical performance under controlled laboratory conditions, data is corrected to 0.075 lb./ft³ air density (29.92" Hg @ 70° F). Actual performance will vary depending on the operating environment and application. AMETEK products are not designed for use with volatile, hazardous, or corrosive gases. Blower housings are not sealed, slight air/gas leakage will occur. AMETEK Rotron products are not designed for and should not be used in medical life support applications. AMETEK reserves the right to revise its products without notification. The above characteristics represent standard products. For product designed to meet specific applications contact AMETEK Marketing and Sales.



## **Transportation Sales Team**

### **Transportation Sales Manager**

Keith Hallenbeck  
100 E. Erie St  
Kent, OH 44240  
Phone: 330-677-3335  
E-Mail: keith.hallenbeck@ametek.com

### ***Eastern Sales Region***

#### **Technical Sales & Application Engineer**

#### **Rotron Transportation Products**

#### **Dynamic Fluid Solutions Business Unit**

Patrick Foley  
7801 Yager Road  
Blossvale, NY 13308  
Phone: 315-520-3874  
E-Mail: patrick.foley@ametek.com

### ***Western Sales Region***

#### **Technical Sales & Application Engineer**

#### **Rotron Transportation Products**

#### **Dynamic Fluid Solutions Business Unit**

Henry Roesler  
21629 N. 261st Ave.  
Buckeye, AZ 85396  
Phone: 928-252-2291  
Cell: 330-715-8914  
E-Mail: henry.roesler@ametek.com

## Transportation Products Warranty

The seller warrants to the buyer that all products to be delivered hereunder will be free from defects in material and workmanship for the time period listed below. The warranty does not cover damage in transit, damage resulting from mishandling by the buyer, his employees or customers, normal wear or improper use of application thereof. The foregoing warranty is in lieu of and excludes all other warranties expressed or implied (including any warranty of merchantability or fitness for purpose). If within the time period below, the buyer notifies the seller promptly that the products delivered hereunder do meet the warranty specified below, the seller will, at its option, issue credit, repair or replace any item or part thereof which is proved to be other than as warranted. The seller undertakes no liability and the buyer waives any claim for the cost for removing old and installing new or replacement parts. Goods returned without the seller's consent will be held at buyer's risk and expense. Any goods returned upon a claim of breach of any warranty shall be returned with transportation costs prepaid by the buyer. If any goods proved to be other than as warranted, transportation costs for return of such goods from buyer's plant will be borne by seller. The following are the specific limits of warranty by product.

### **Seal-Less Type 47FR 18 GPM Water Circulating Pump**

Motor & Pump with date code after 01-01-02; 4 1/2 years from date of shipment, or 4 years from installation.

### **64FR ECDC Air Conditioning Motors & 64FR 26 GPM Pump & Motor**

4 1/2 years from date of shipment, or 4 years from installation.

### **All Other Brushless Motor, Blower & Pump Products**

2 1/2 years from date of shipment, or 2 years from installation.

### **All Brush Motor, Blower & Pump Products**

1 1/2 years from date of shipment, or 1 year from installation

## **Locomotive Parts Distribution**

### **Trinity Equipment Co.**

3918 Holton Rd

Muskegon, MI 49445

Phone: 231-557-6110

E Mail: keith@trinityequipmentco.com

## **Bus & Rail Products Repair Facility**

### **Kirk's Automotive Inc.**

9330 Roselawn

Detroit, MI 48204

Phone: 313-933-7030

Fax: 313-933-7073

E Mail: sales@kirksauto.com

## Bus Products Distribution Contacts

**Gillig LLC**

25972 Eden Landing Rd.  
Hayward, CA. 94545  
Phone: 1-800-735-1500

**New Flyer Industries**

Aftermarket Parts  
Customer Service  
Phone: 1-800-665-2637

**Prevost Parts  
Parts Customer Service**

2200 Point Blvd.  
Elgin, IL 60123  
U.S. Coach Phone: 800-621-5519  
Fax: 877-999-8809  
U.S. Transit Phone: 877-999-8808  
Fax: 877-999-8809  
Canada Phone: 800-463-8876  
Fax: 800-939-0133  
Online ordering: [www.prevostcar.com](http://www.prevostcar.com)

**Motor Coach Industries  
Service Parts Division**

1700 E. Golf Rd  
Schaumburg, IL. 60173  
Phone: 847-285-2205  
Fax: 847-285-2222  
Website: [www.mcicoach.com](http://www.mcicoach.com)

**ABC Companies-Muncie Division**

3720 S. Madison Street  
Muncie, IN. 47302  
Phone: 765-288-1971  
Fax: 765-286-0164  
[www.abc-companies.com](http://www.abc-companies.com)

**North American Bus Industries  
Aftermarket Parts Division**

1375 South Houk Road  
Delaware, OH. 43015  
Phone: 740-369-1056  
Fax: 740-363-5897