



Pumps & Motors Catalog

ROTRON® Transportation

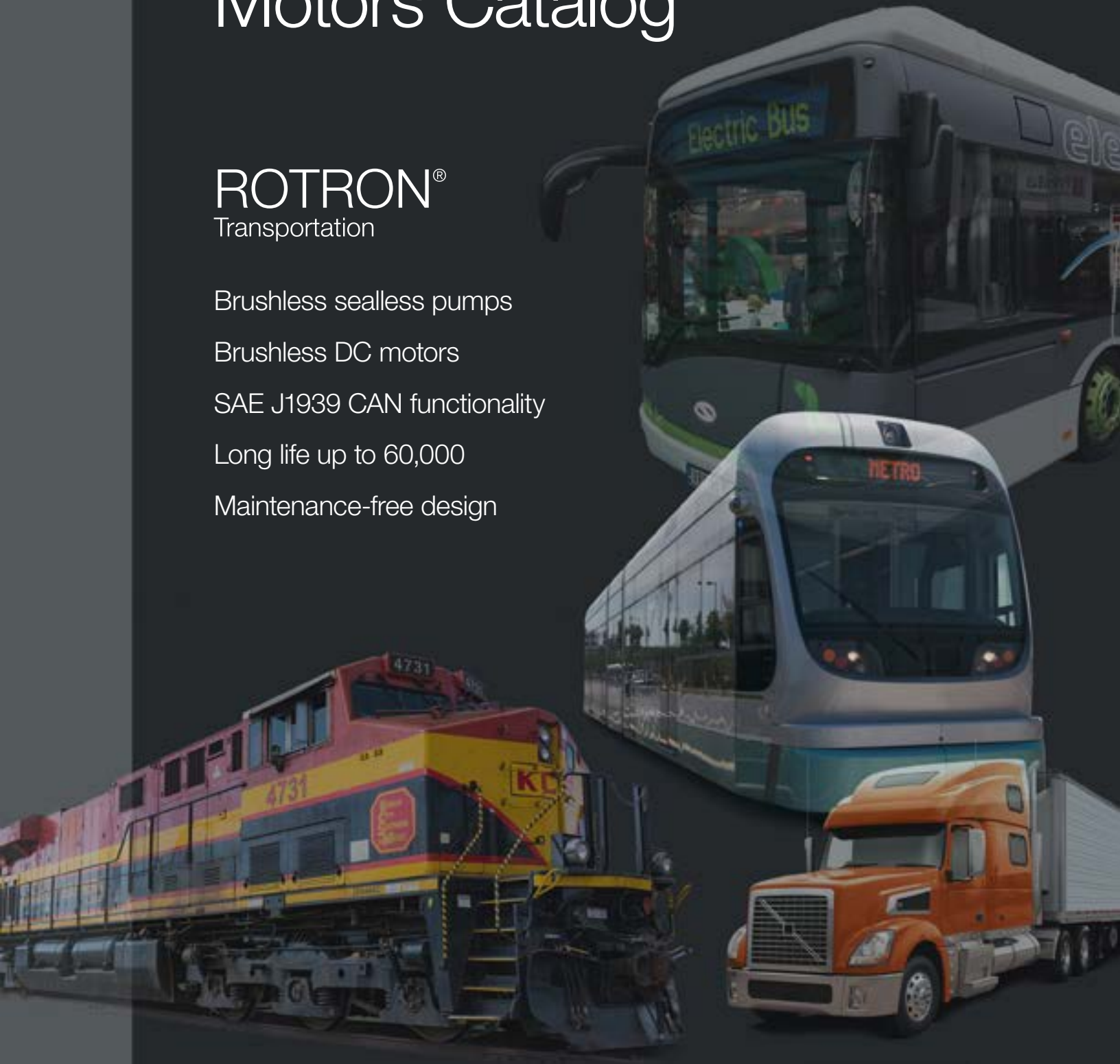
Brushless sealless pumps

Brushless DC motors

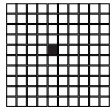
SAE J1939 CAN functionality

Long life up to 60,000

Maintenance-free design

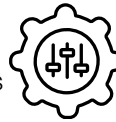


Partner With Bison[®] To...



Differentiate

... your bus, truck, off-road and rail equipment using the highest quality motors and pumps that provide heavy-duty, yet light weight and compact designs, CAN functionality, long life and much more.



Customize

... your vehicles' air- and other fluid-moving solutions, working side by side Bison[®] engineers who know the dynamics of fluid and have hundreds of years of cumulative experience.



Save Time

... by running performance tests and rapid prototyping and more through a Bison[®] state-of-the-art engineering laboratory.



Gain Access

... to heavy-duty transportation pumps and motors that are Buy America Compliant.

Differentiate Your End Products With ROTRON[®] Pumps and Motors

- Brushless sealless pumps
- Brushless DC motors
- SAE J1939 CAN functionality
- Long life up to 60,000 hours
- Maintenance-free design



Bison[®] also manufactures a full line of brushless DC fans and impeller style blowers.

Our Engineers Can Customize Your Air- and Other Fluid-Moving Solutions to...

- Heat and cool interiors
- Cool electronics, batteries & drive motors
- De-ice entryways
- Defrost windows
- And so much more!



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Helping
Fleet
Owners....



Reduce
Operational Costs



Eliminate
Downtime



Increase
Service Time,
Revenues & Profits

Pumps	SLP	Sealless Pump with Brushless DC Motor	2
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Sealless Pump with Brushless DC Motor

40,000 Hour Design Life

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Operation Features

- 18-32 VDC voltage range
- -40 to 95°C operating fluid temperature
- -40 to 95°C storage temperature
- Weight 6.7 lb
- Over-temperature protection
- Soft start
- Current overload protection
- Over-voltage protection
- Under-voltage detection
- Locked-rotor protection
- Reverse polarity protection
- Transient voltage protection
- 40,000-hour design life for pump and motor

Pump

- Sealless design for life
- Pump electro-magnetically coupled
- Bronze/stainless-steel impeller
- Cast aluminum pump casing

Motor

- Efficient brushless DC motor
- Alumina ceramic and tungsten carbide bearing surfaces
- Environmentally sealed (IP67)

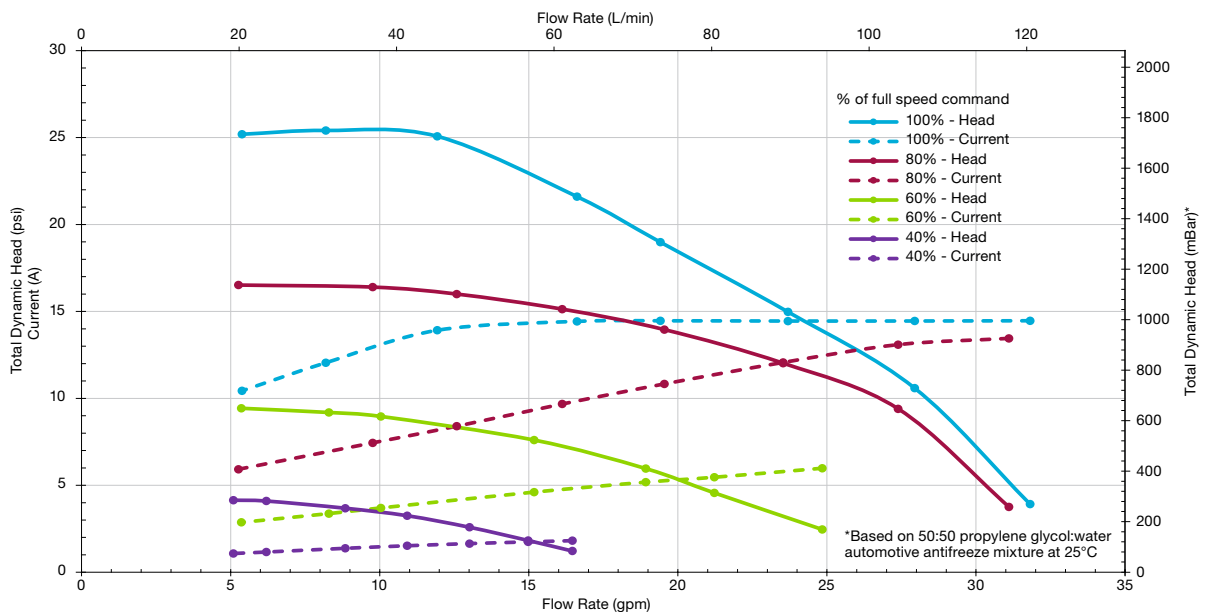
Options

- CAN communication (SAE J1939)
- Custom pump outlet discharge orientation
- Lead exit orientation
- PEEK bearings



Performance

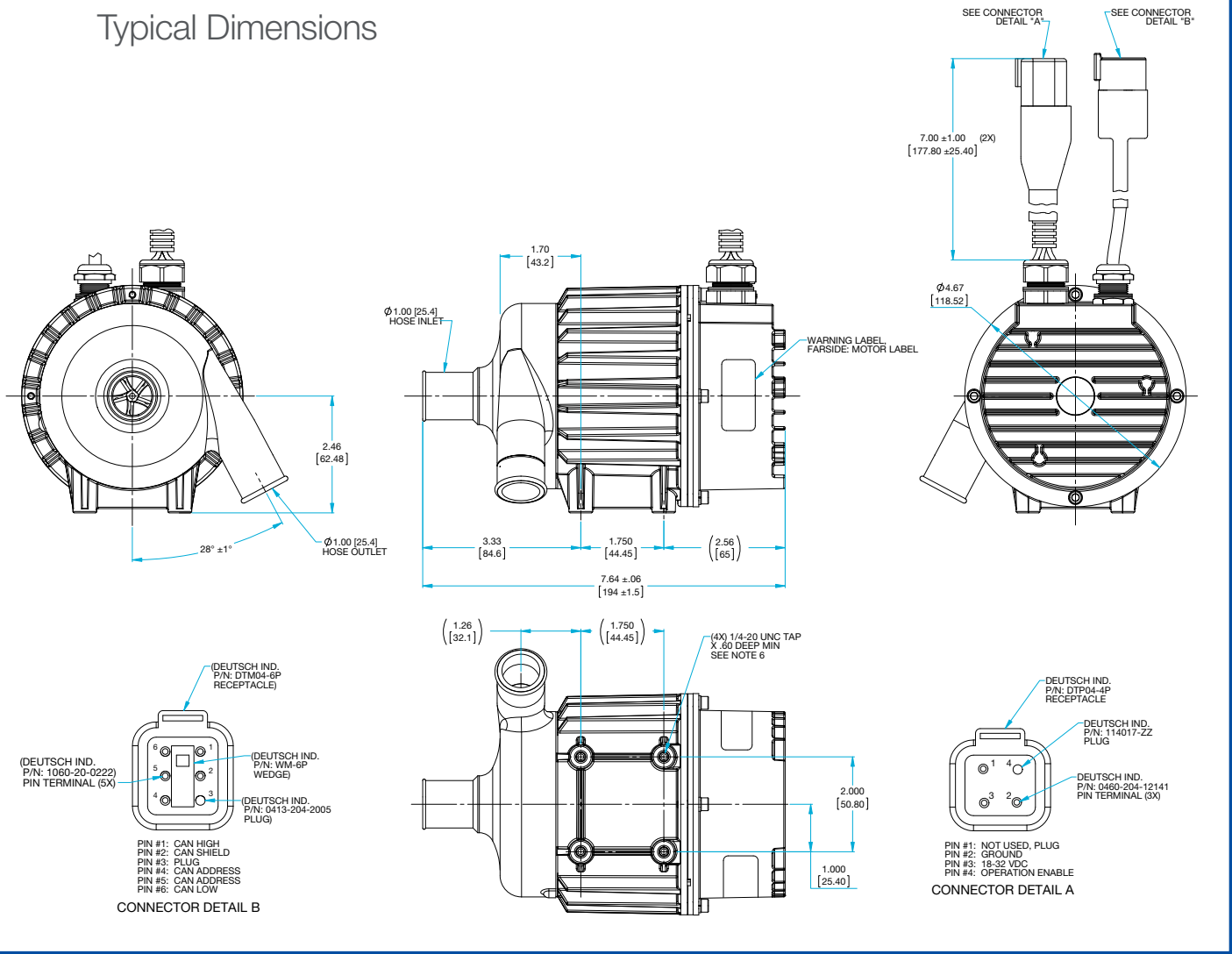
Speed control via J1939 CAN



Sealless Pump with Brushless DC Motor 40,000 Hour Design Life

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Typical Dimensions



- Pin out configurations vary.



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47 Frame

Sealless Pump with Brushless DC Motor 60,000 Hour Design Life/18 Gallon

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Pump

- Sealless design is leak proof; pump is magnetically coupled to the motor
- Motor is removable from pump without draining system
- Environmentally resistant to hot-water spray, salt, fog, shock and vibration
- Cast brass pump designed for heavy-duty applications

Motor

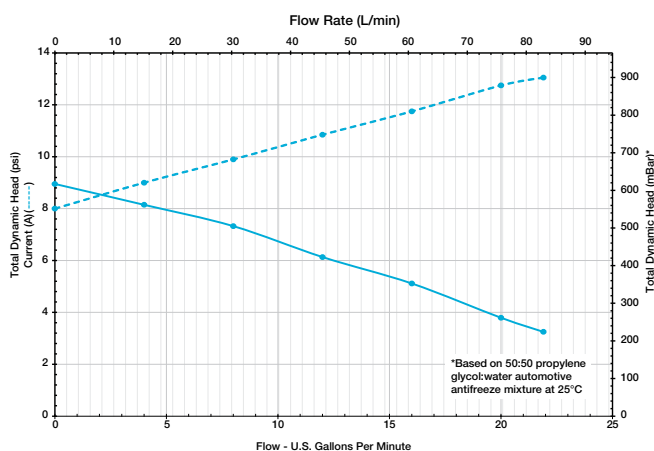
- 12 and 24 VDC models available
- Electronically Commutated DC (ECDC™) motor design provides for maintenance-free operation by eliminating brush motor failures and brush maintenance
- Rare-earth magnets provide high efficiency and low current draw
- "O" ring sealed for harsh operating environment



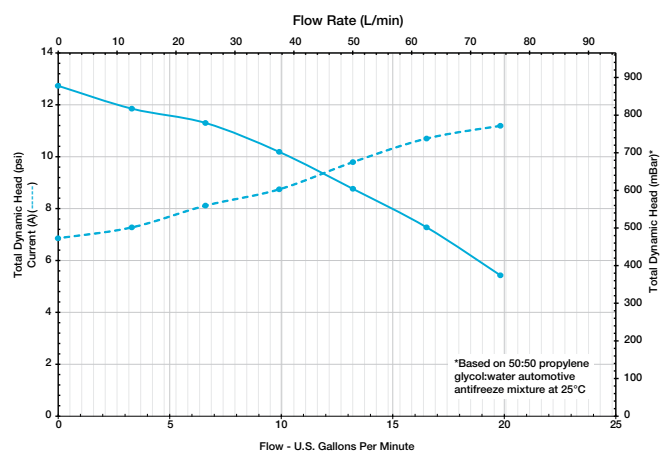
- Reverse polarity and surge protected
- Heavy-duty construction required for transit bus and construction equipment
- Available with or without baseplate and connectors

Performance

12 Volt



24 Volt



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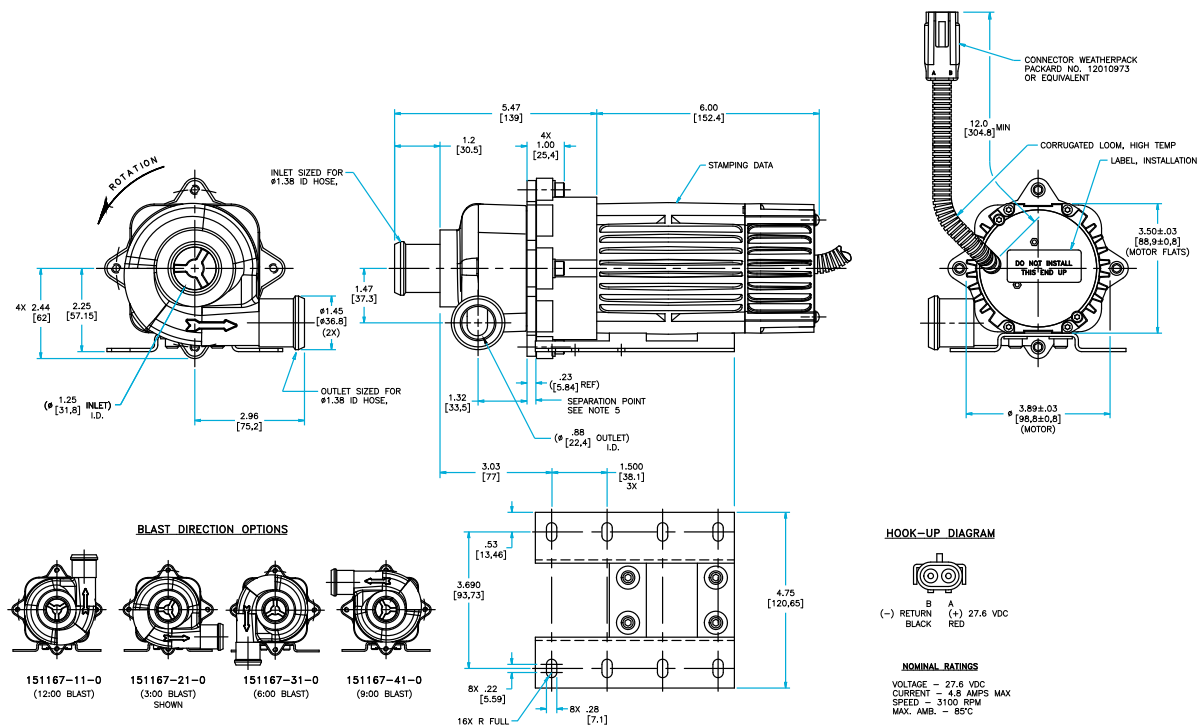
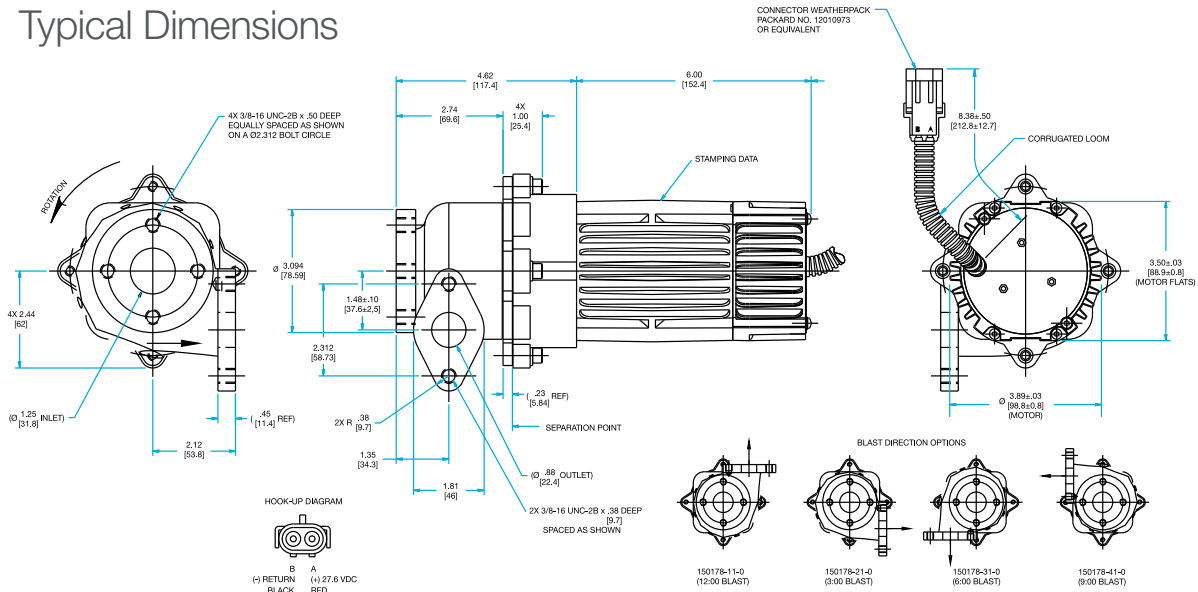
47 Frame



Sealless Pump with Brushless DC Motor 60,000 Hour Design Life/18 Gallon

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Typical Dimensions



- Motor design characteristics are based on an operating environment of 85°C.
- Approximate typical weight: 15.0 lbs.



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Sealless Pump with Brushless DC Motor 60,000 Hour Design Life/26 Gallon

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Pump

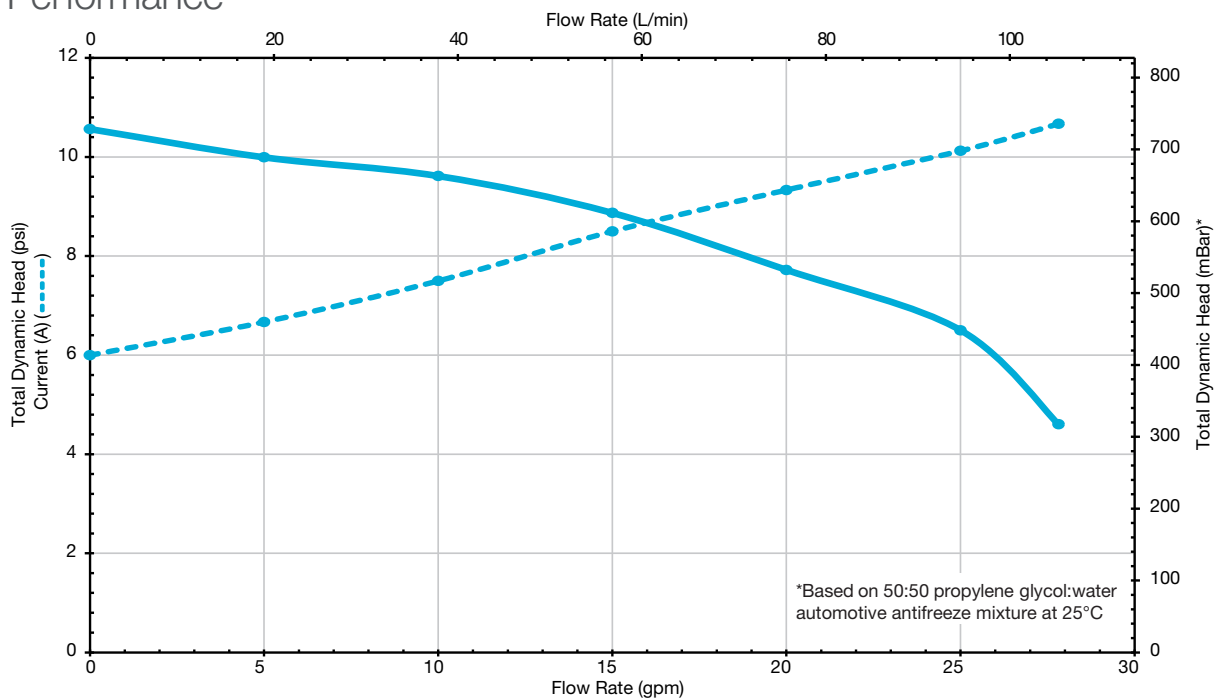
- Sealless design is leak proof; pump is magnetically coupled to motor
- Motor is removable from pump without draining system
- Environmentally resistant to hot-water spray, salt, fog, shock, and vibration
- Cast brass pump designed for heavy-duty applications

Motor

- 24 VDC model only
- Motor design provides for maintenance-free operation by eliminating brush motor failures and brush maintenance
- Rare-earth magnets provide high efficiency and low current draw
- "O" ring sealed for harsh operating environment
- Reverse polarity and surge protected
- Heavy-duty construction required for transit bus and construction equipment



Performance



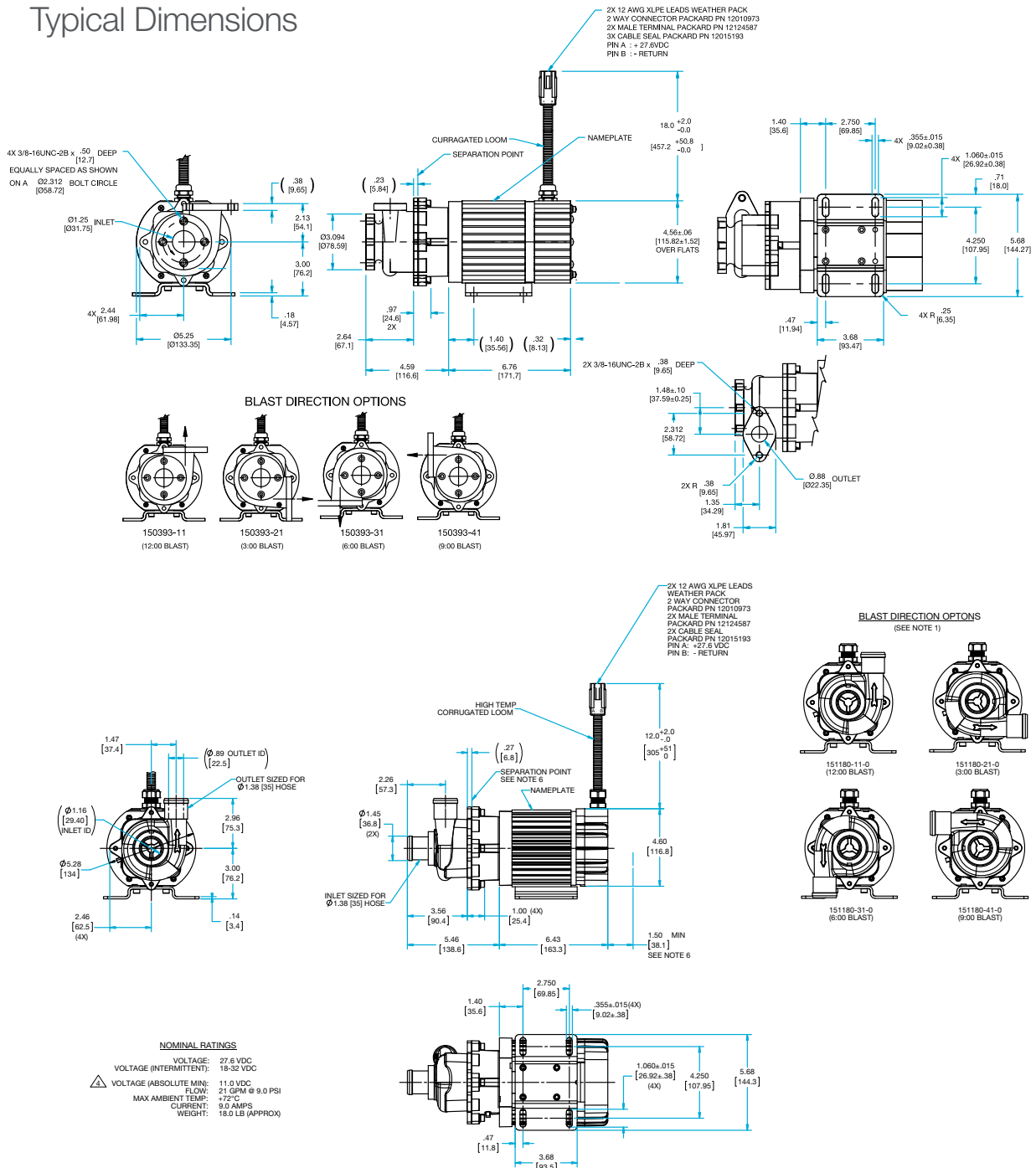
64 Frame



Sealless Pump with Brushless DC Motor 60,000 Hour Design Life/26 Gallon

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Typical Dimensions



- Motor design characteristics are based on an operating environment of 85°C.
- Approximate typical weight: 25.0 lbs.

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Sealless Pump with 3" Motor



15 GPM

40,000 Hour Design Life/15 Gallon

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Pump

- Sealless design is leak proof; pump is magnetically coupled
- Motor is removable from pump without draining system
- Environmentally resistant to hot-water spray, salt, fog, shock and vibration
- Cast brass pump designed for heavy-duty applications

Motor

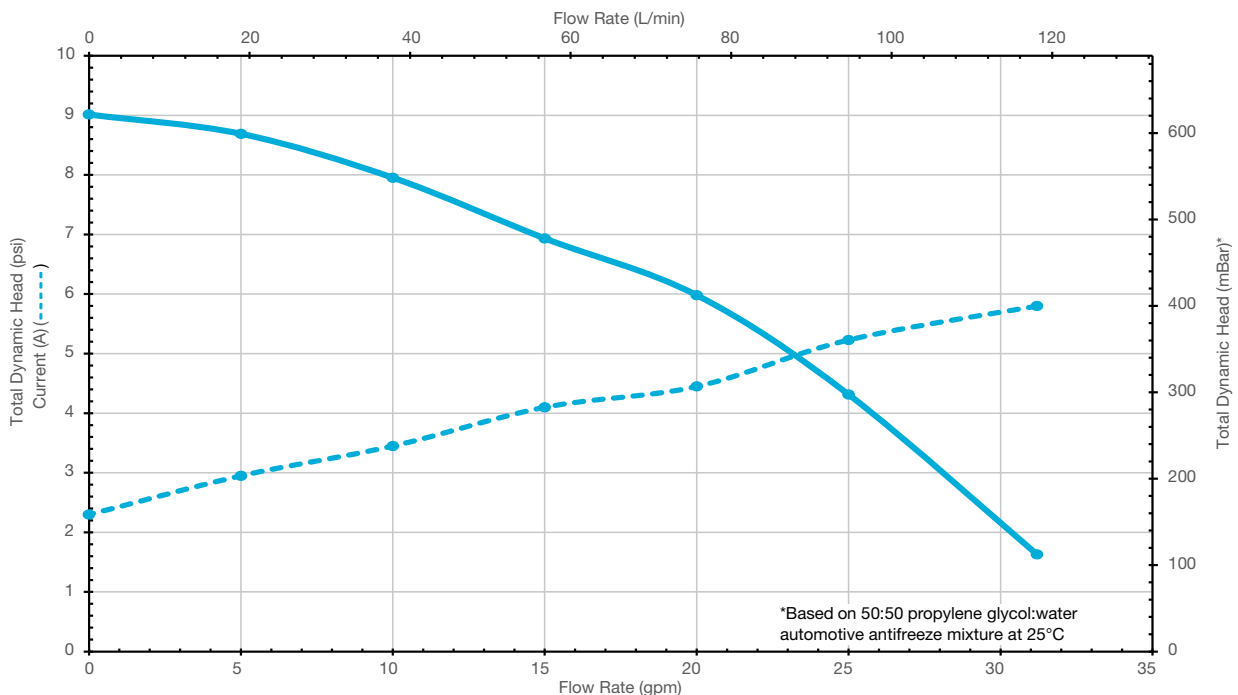
- Efficient brushless DC motor
- Electronically Commutated DC (ECDC™) motor design provides for maintenance-free operation
- "O" ring sealed for harsh operating environment
- Designed for bus and on- and off-highway applications



Options

- Variable speed control
- Pump outlet discharge orientation
- Baseplate versions
- Hose barb versions

Performance



Sealless Pump with 3" Motor

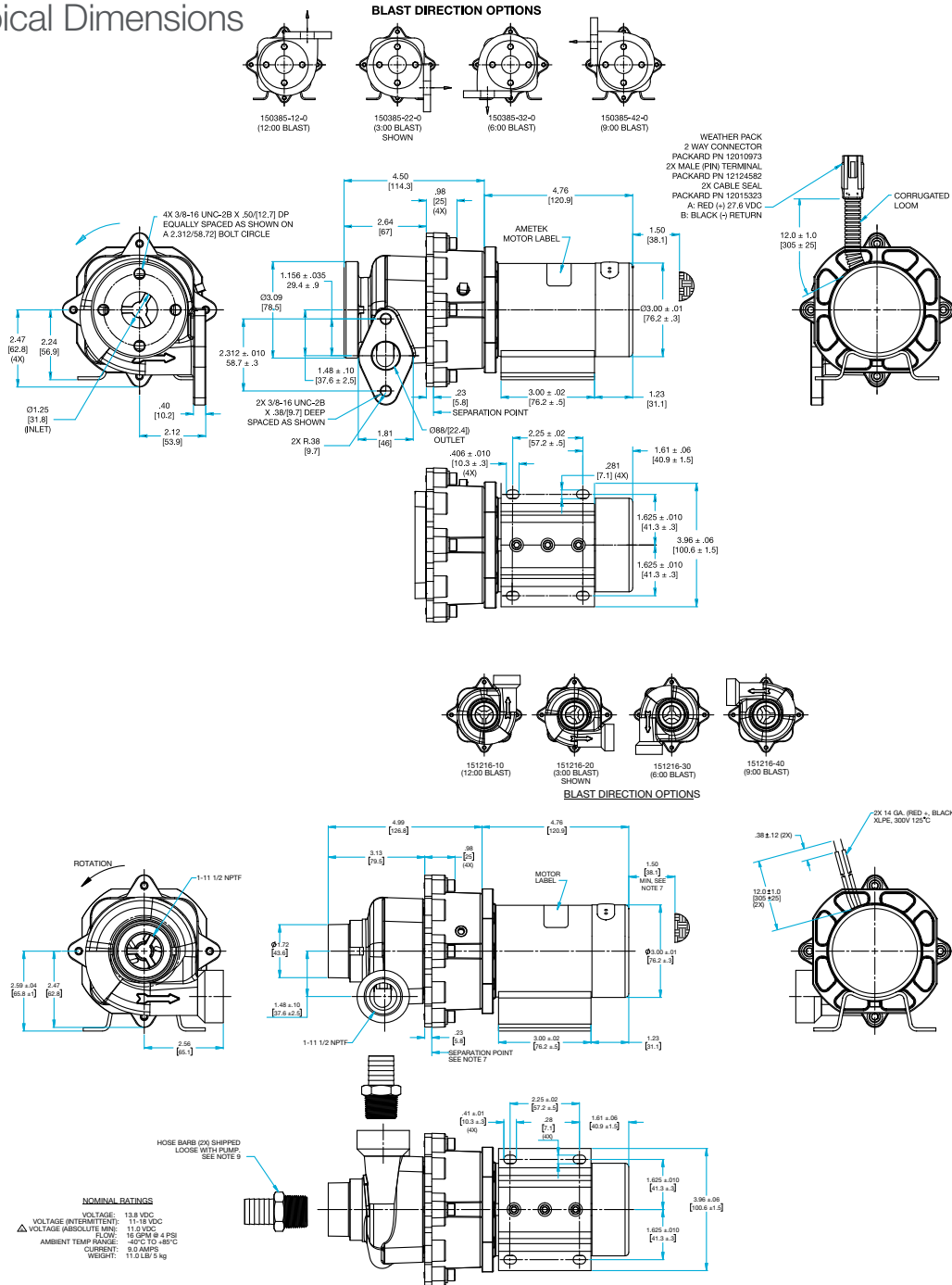


15 GPM

40,000 Hour Design Life/15 Gallon

ROTRON®
Transportation

Typical Dimensions



- Motor design characteristics based on an operating environment of 85°C.
- Approximate typical weight 10 lbs.

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Sealless Pump with 3" Motor



12 GPM

40,000 Hour Design Life/12 Gallon

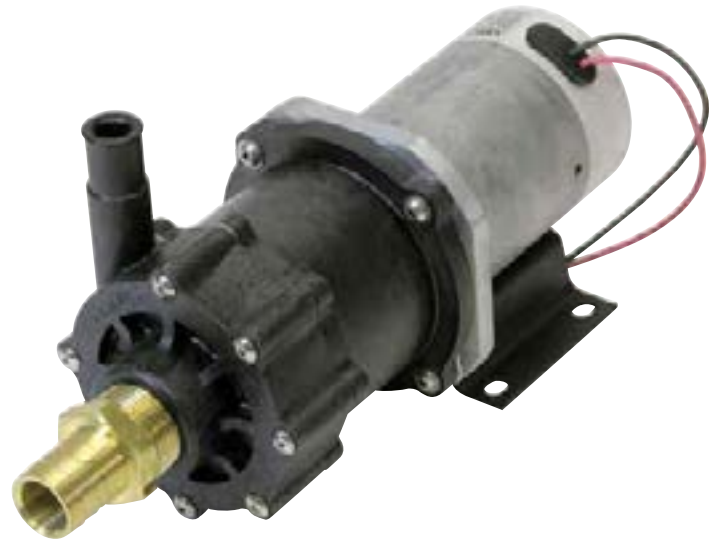
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Pump

- Sealless design is leak proof; pump is magnetically coupled to motor
- Motor is removable from pump without draining system
- Environmentally resistant to hot-water spray, salt, fog, shock, and vibration

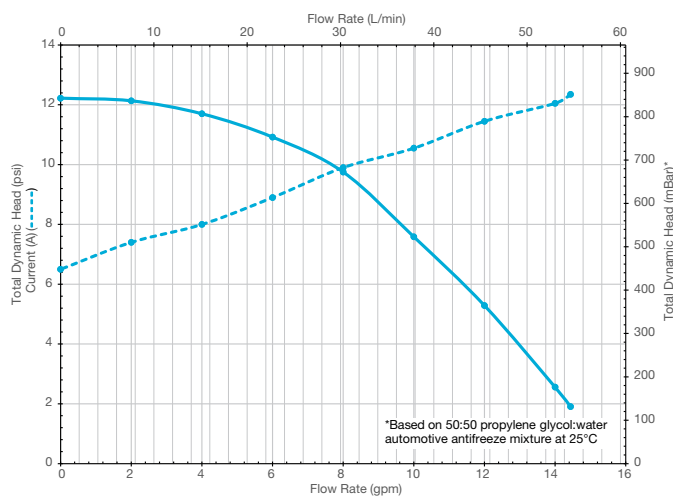
Motor

- 12 VDC and 24 VDC models available
- Variable speed version available
- Electronically Commutated DC (ECDC™) motor design provides for maintenance-free operation by eliminating brush motor failures and brush maintenance
- Rare-earth magnets provide high efficiency and low current draw
- "O" ring sealed for harsh operating environment
- Medium-duty construction required for transit bus and construction equipment

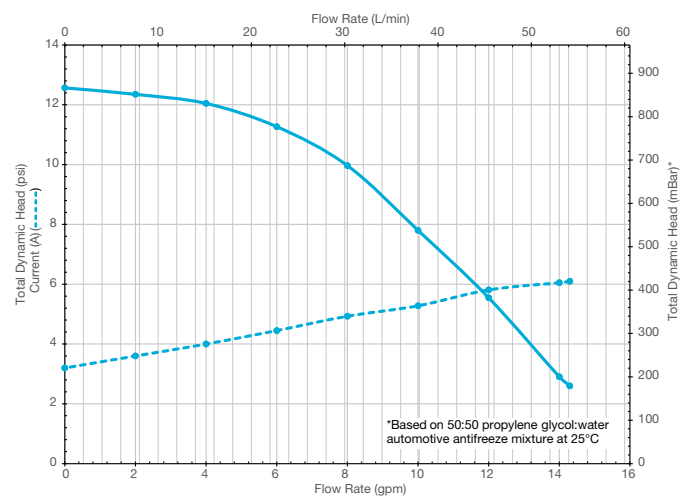


Performance

12 Volt



24 Volt



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Sealless Pump with 3" Motor

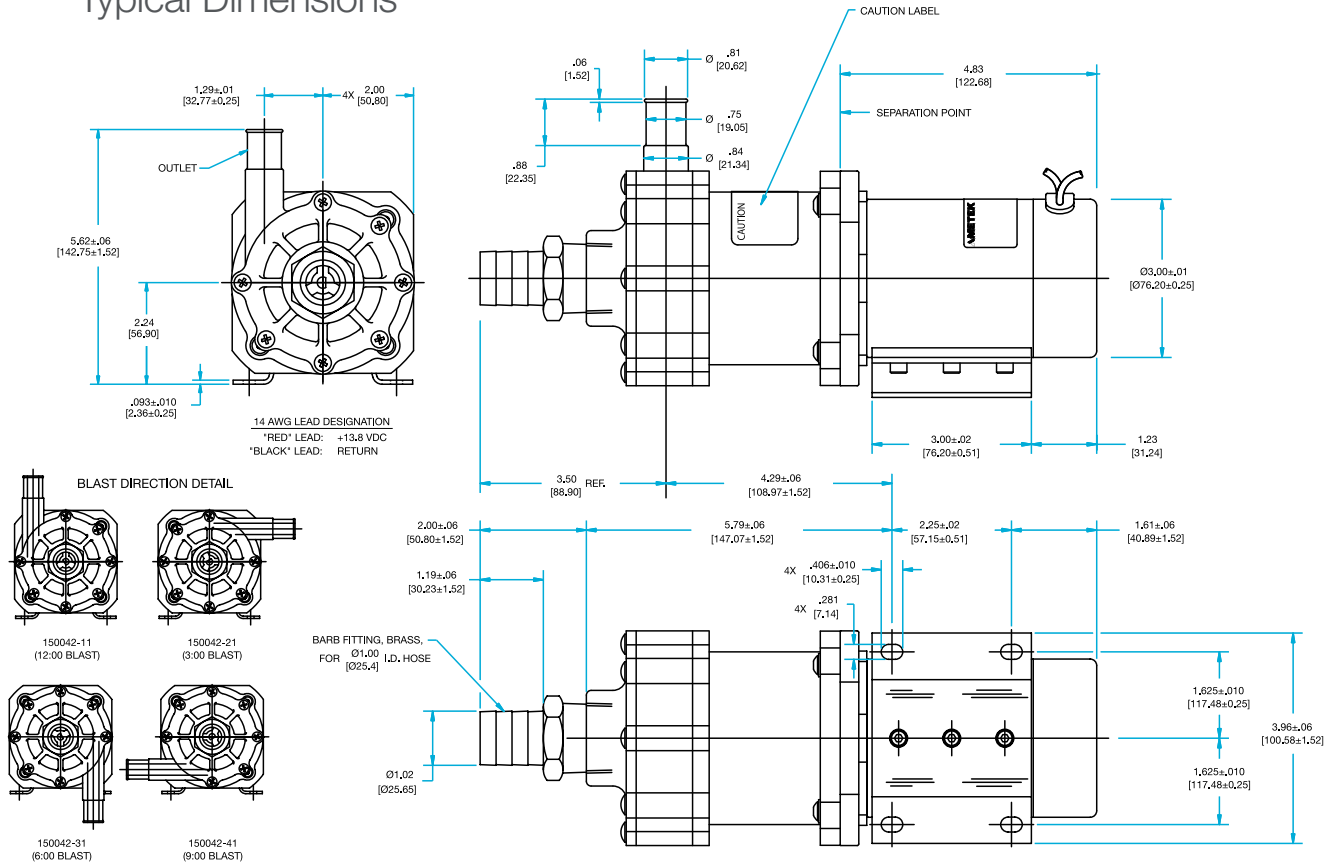


12 GPM

40,000 Hour Design Life/12 Gallon

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Typical Dimensions



- Motor design characteristics are based on an operating environment of 85°C.
- Approximate typical weight: 8.0 lbs.



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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, and 74 VDC
- “O” ring sealed for harsh operating environments
- Reverse polarity and voltage surge protected

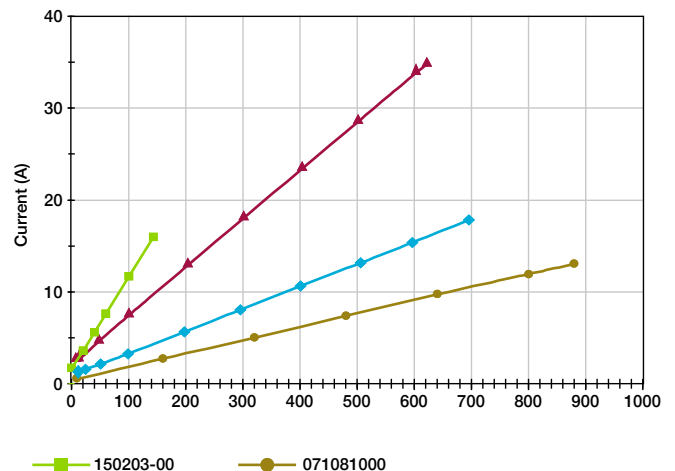
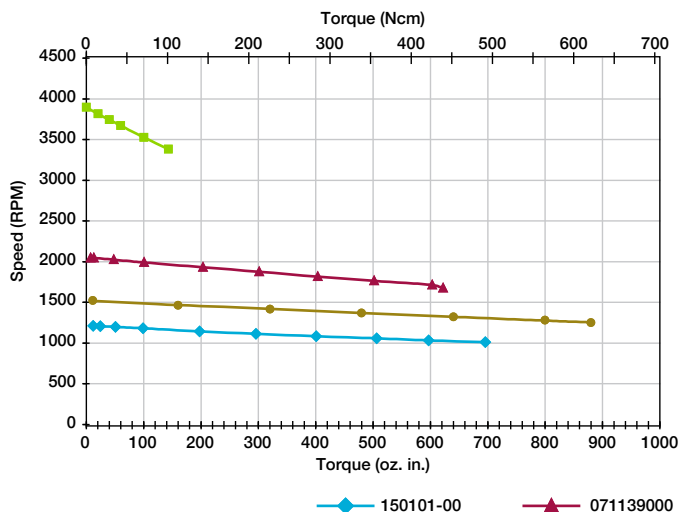
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Options

- 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



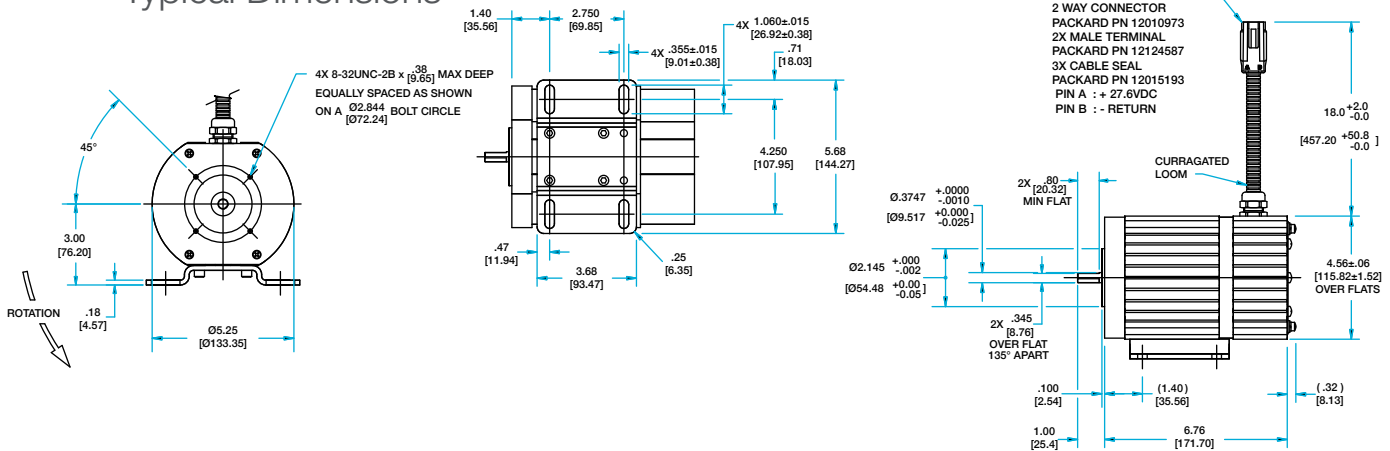
64 Frame



Brushless DC Motor 60,000 Hour Design Life

ROTRON®
Transportation

Typical Dimensions



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

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
	Ncm	106	441	494	636
Continuous Torque	Oz.-In.	75	400	500	800
	Ncm	53	282	353	565
Speed @ Torque, Nominal	RPM	3600	1825	1050	1250
Current @ Torque, Nominal	Amps	9.0	23.5	13.2	12
Continuous Power, Max.	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.	°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.

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Condenser and Evaporator Motors For Coach A/C Systems

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

ROTRON[®] 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. These motors are designed to directly replace OEM brush motors.

- 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
- 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



150214-00
Condenser Motor



151140-00
Condenser Motor



150215-00
150355-00
Evaporator Motors



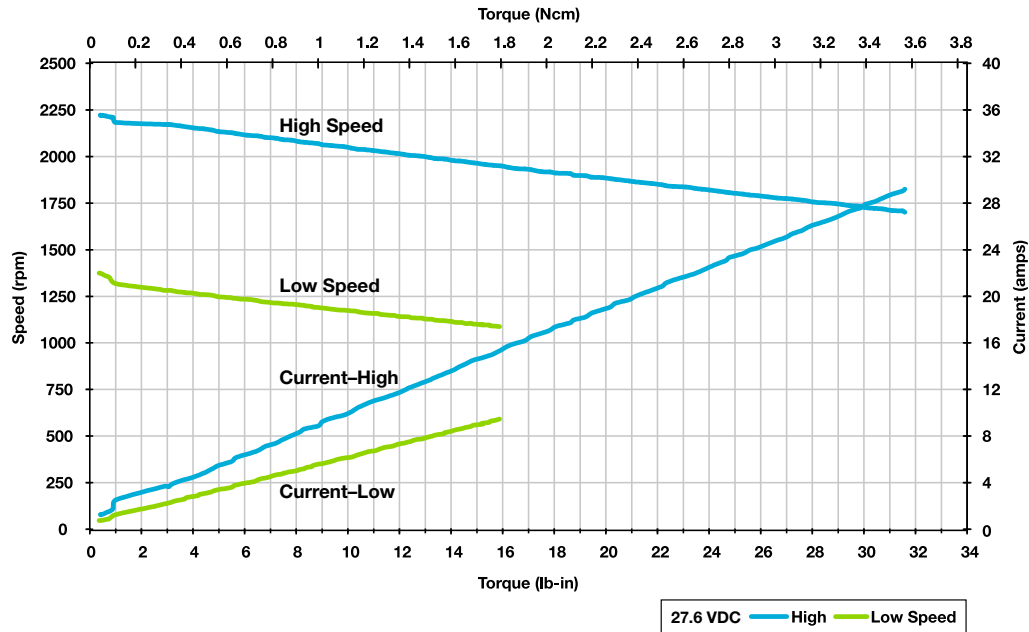
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Condenser and Evaporator Motors For Coach A/C Systems

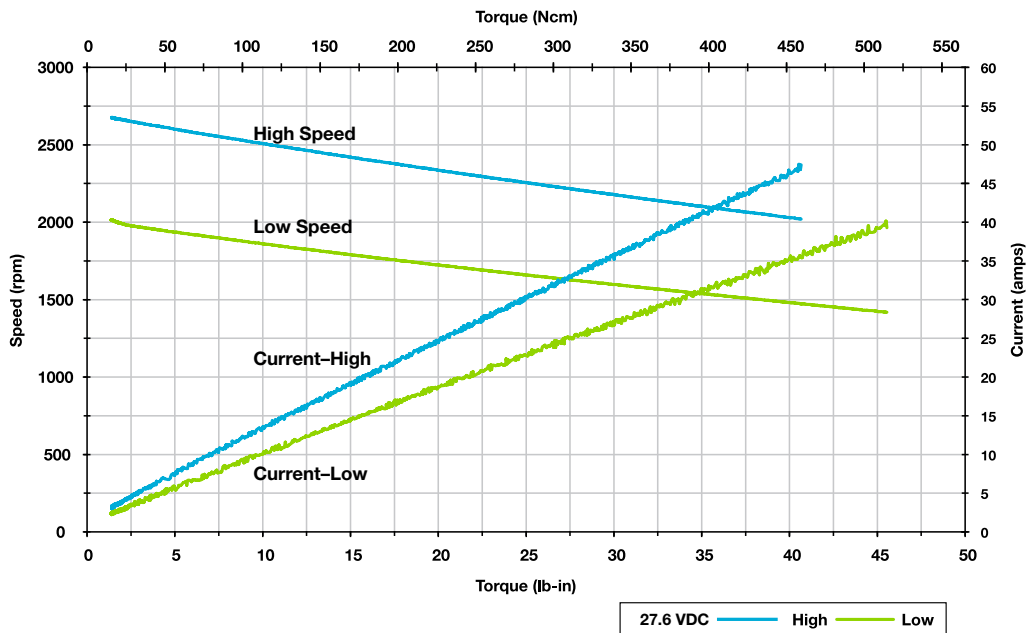
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60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

150214-00 Condenser Motor Performance



151140-00 Condenser Motor Performance

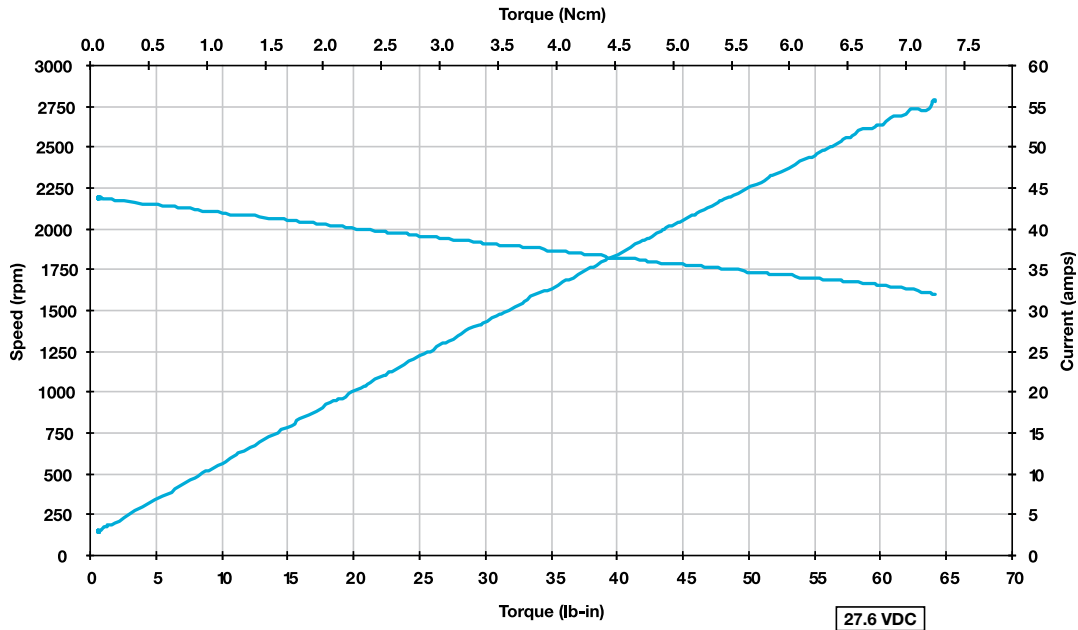


Condenser and Evaporator Motors For Coach A/C Systems

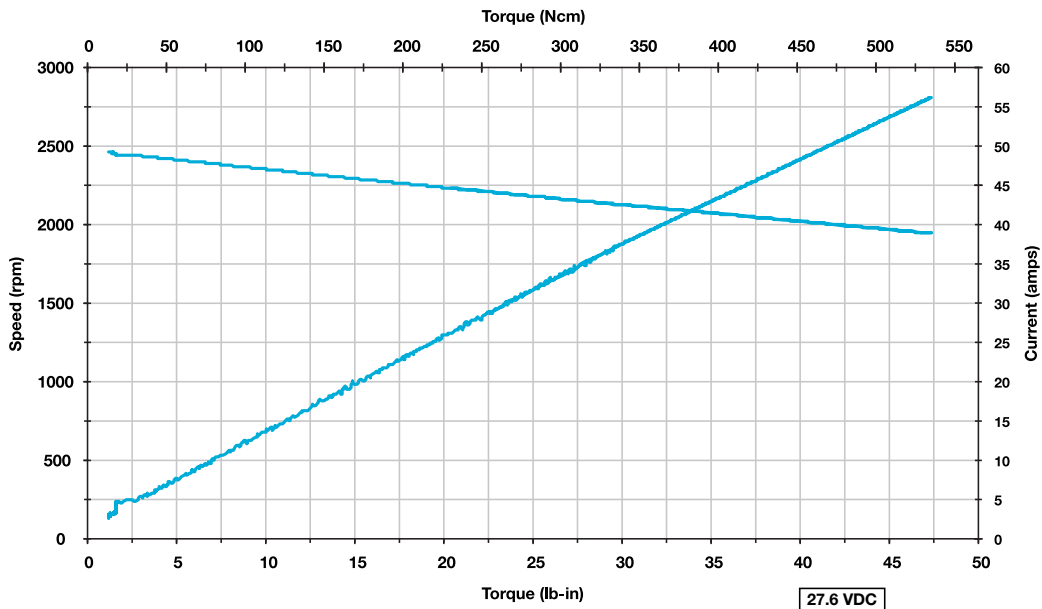
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60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

150215-00 Evaporator Motor Performance



150355-00 Evaporator Motor Performance



64 Frame

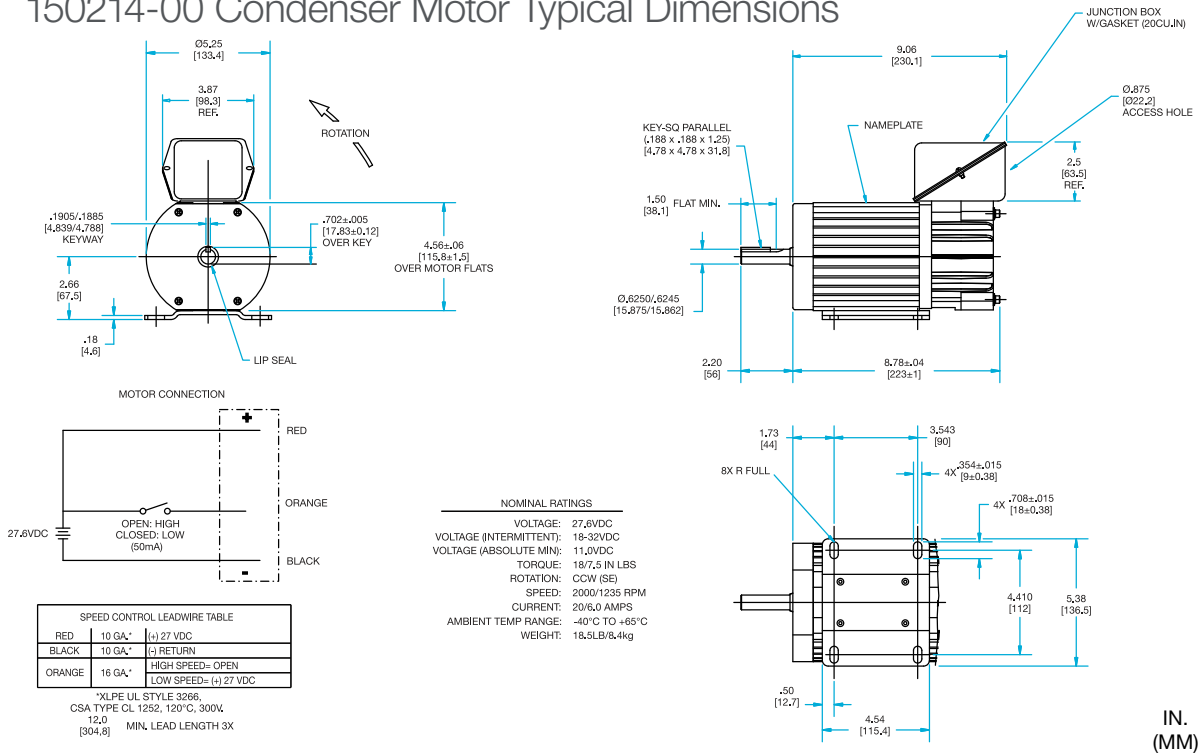


Condenser and Evaporator Motors For Coach A/C Systems

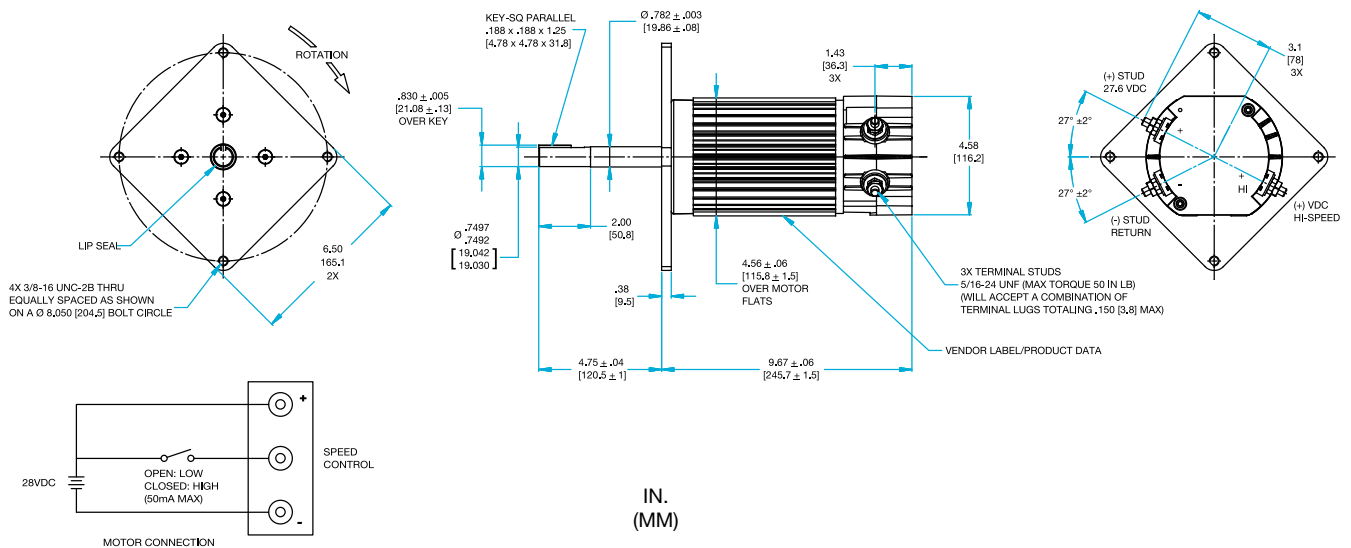
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60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

150214-00 Condenser Motor Typical Dimensions



151140-00 Condenser Motor Typical Dimensions



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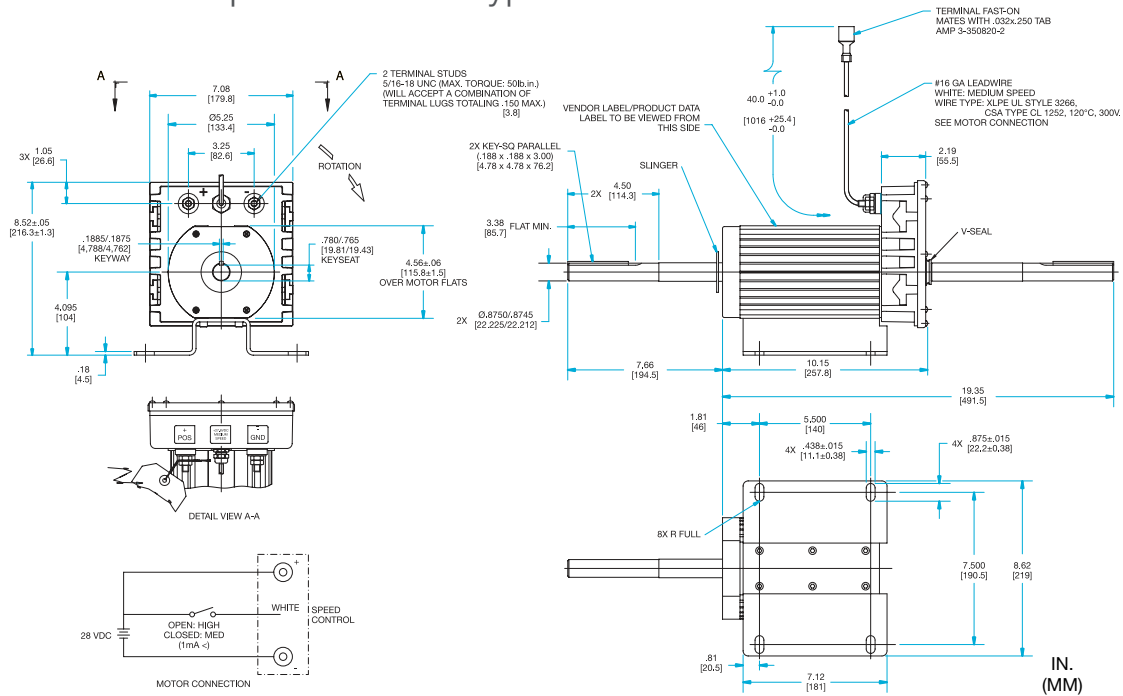
64 Frame

Condenser and Evaporator Motors For Coach A/C Systems

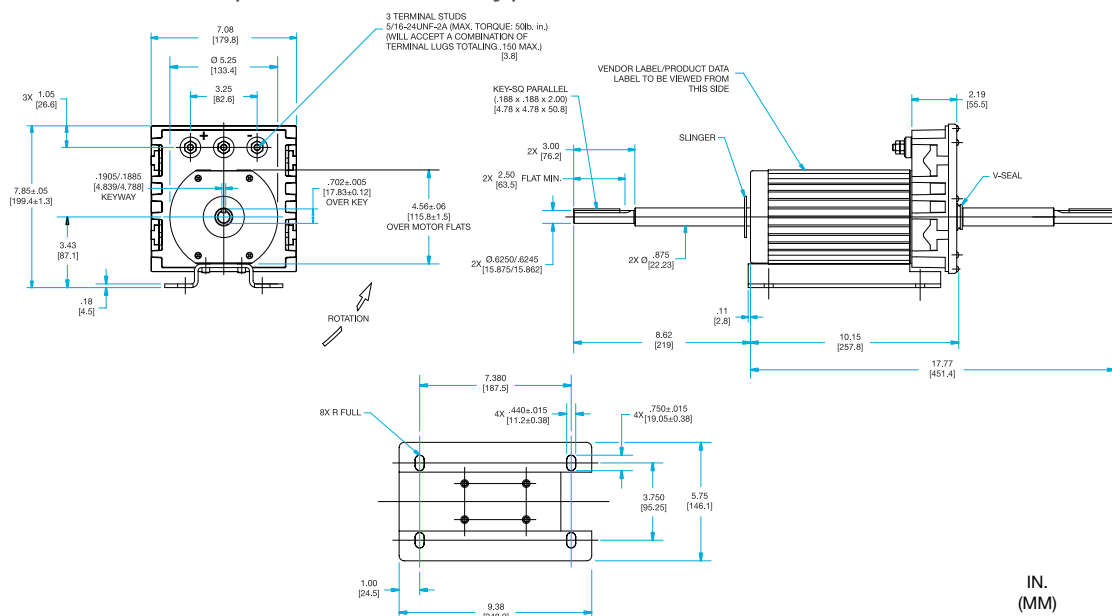
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60,000 Hour Brushless DC Motors for OEM and Field Upgrade Applications

150215-00 Evaporator Motor Typical Dimensions



150355-00 Evaporator Motor Typical Dimensions



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Condenser and Evaporator Motors For Coach A/C Systems

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

Motor Data	Unit of Measure	Condenser Motor Part Numbers		Evaporator Motor Part Numbers	
		150214-00	151140-00	150215-00	150355-00
Voltage Input	Volts DC	27.6	27.6	27.6	27.6
Voltage Range	Volts DC	18-32	18-32	18-32	18-32
Speed(s)	#	2	2	2	2
Torque	In – Lbs.	18/7.5	24/16	54/36	32/21
Speed	RPM	2000/1235	2340/1160	1700/1400	2800/2340
Rotation	CCW/CW	CCW (SE)	CCW (SE)	CW (Electronics End)	CW (Electronics End)
Current	Amps	20/6	30/5	52/26.5	45/25
Weight	Lbs./Kg	18.6/8.4	21.8/9.9	29.6/13.5	28.8/13.1
Ambient Temperature	°C	-40 to -65	-40 to -65	-40 to -65	-40 to -65

- Motor design characteristics are based on an operating environment of 65°C.



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47 Frame

Brushless DC Motor

60,000 Hour Design Life

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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

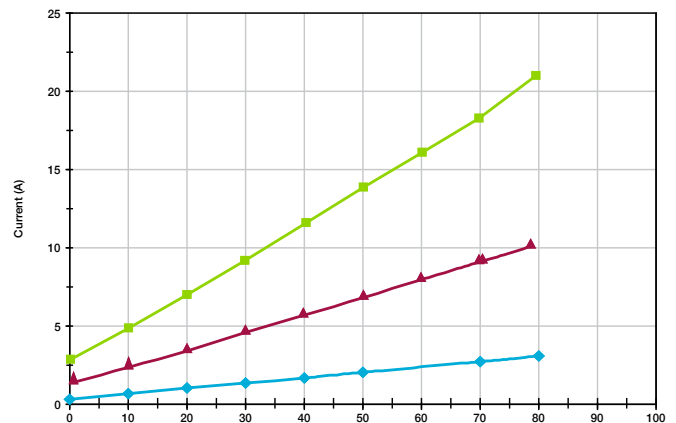
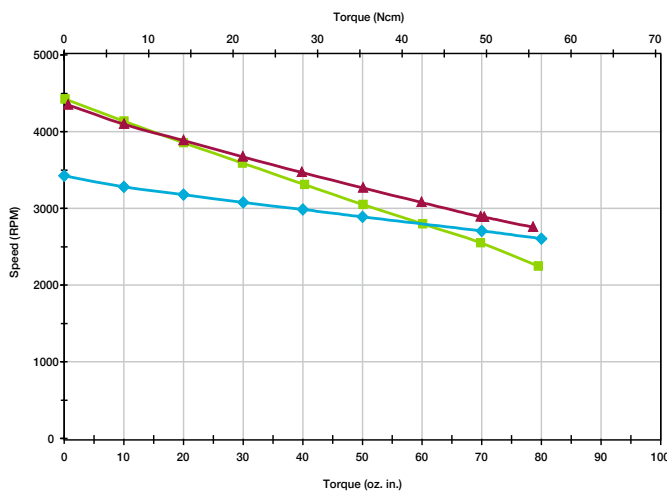
- ECDC™ motor design provides maintenance-free operation by eliminating brush motor failures and brush and commutator maintenance
- Rare-earth magnets provide high torque/weight ratio
- Integral electronics provides simple two-wire, DC operation (reverse polarity protected)
- Wide range of voltage inputs of 12, 24, 37, and 74
- 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



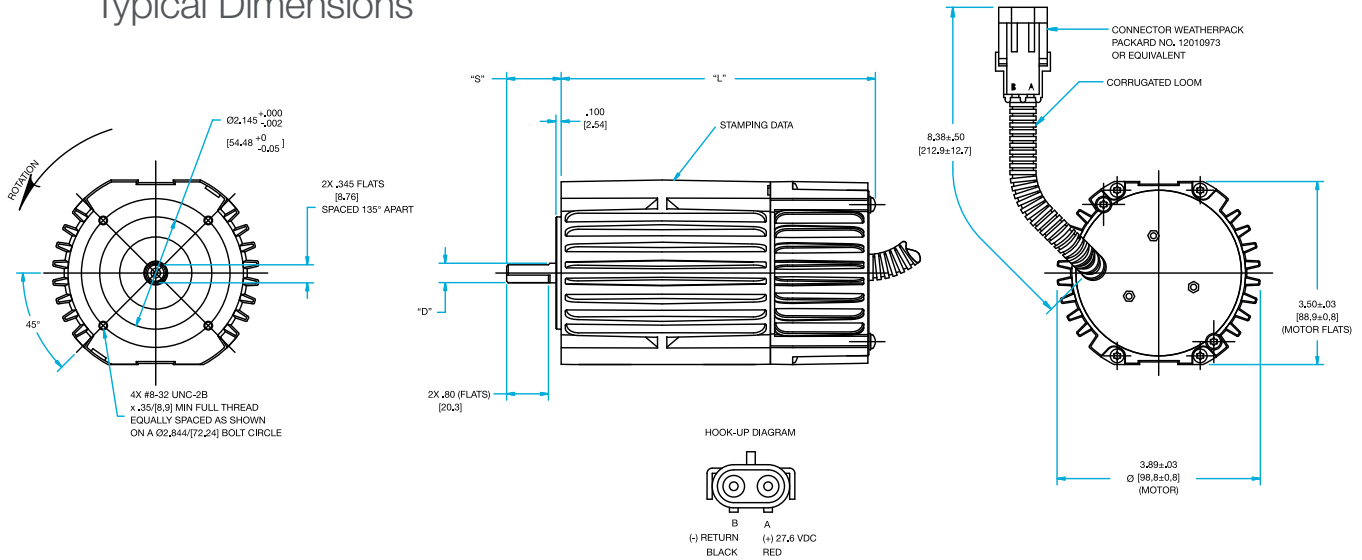
◆ 071031000 ▲ 150552-00 ■ 150551-00

47 Frame

Brushless DC Motor 60,000 Hour Design Life

ROTRON®
Transportation

Typical Dimensions



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

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

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3" Brushless DC Motor



40,000 Hour Design Life

ROTRON®
Transportation

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

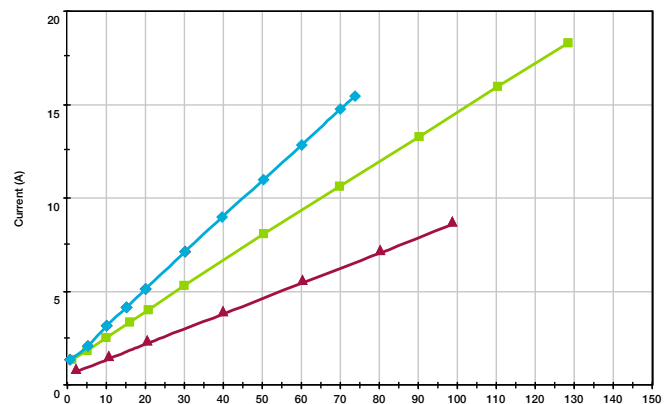
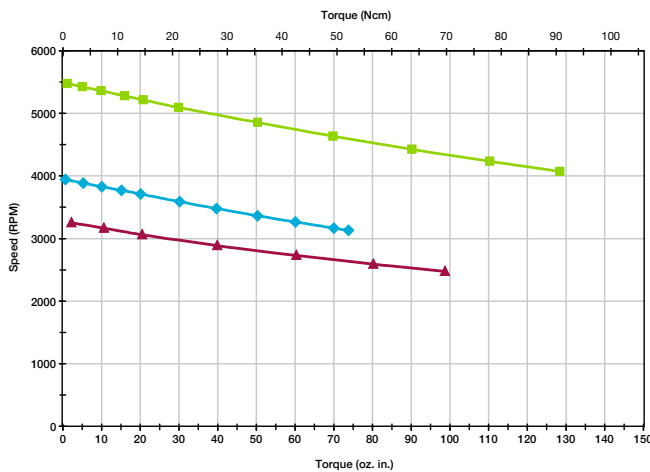
- Multi-speed and variable speed operation
- Current limit
- Locked-rotor protection
- Reverse polarity protection
- Over temperature shut off
- Transient over-voltage protection
- Soft start input



Multi-Purpose Use

- A/C evaporator and condenser motors and blowers
- Heater motors and blowers
- Defroster motors and blowers
- Coolant pumps
- Radiator cooling fans

Performance



◆ 150072-00 ■ 150209-00 ▲ 150218-00

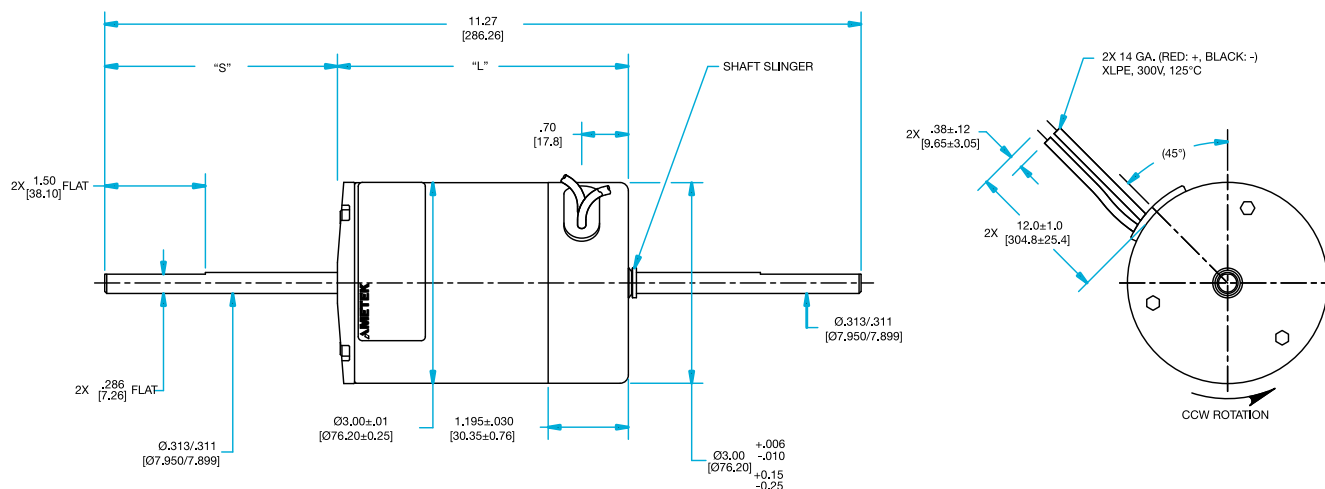
3" Brushless DC Motor



40,000 Hour Design Life

ROTRON®
Transportation

Typical Dimensions



Motor Data	Unit of Measure	Part Numbers		
		150072-00	150209-00	150218-00
Voltage Input	Volts DC	13.8	27.6	27.6
Voltage Range	Volts DC	11-16	18-32	18-32
No Load Speed, Nominal	RPM	3950	5475	3250
No Load Current, Nominal	Amps	1.3	1.0	0.7
Stall Torque, Theoretical	Oz.-In.	75	130	140
	Ncm	53	92	99
Continuous Torque	Oz.-In.	45	90	55
	Ncm	32	64	39
Speed @ Torque, Nominal	RPM	3425	4450	2750
Current @ Torque, Nominal	Amps	10.0	13.0	5.0
Continuous Power, Max.	Watts Out	170	300	113
	Horsepower	0.23	0.40	0.15
Torque Constant	Oz.-In. / Amp	4.72	6.82	11.48
	Ncm / Amp	3.34	4.81	8.11
Voltage Constant	V / k / RPM	3.49	5.04	8.49
	V / rad / sec	0.0334	0.0481	0.0811
Ambient Temperature, Max.	°C	85	85	70
Motor Length ("L" above)	Inches	5.065	4.335	4.175
	mm	128,65	110,11	106,05
Weight	Oz	80	57	52
	Grams	2300	1616	1474
Shaft Length ("S" above)	Inches	1.142	3.47	2
	mm	29	88,14	50,8
Shaft Configuration		Single	Dual	Single
Rotation	Viewed Lead Exit End	CCW	CCW	CW
Speeds		1	1	2

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. Actual performance will vary depending on the operating environment and application.



LEARN MORE

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About **Bison®**

For more than 100 years, Bison® has helped customers differentiate their products by developing robust, flexible and durable motors, blowers and pumps under the brand names - Bison® Gearmotors, Lamb®, Nautilair®, Prestolite Motors, ROTRON® Regenerative Blowers, ROTRON® Transportation and Windjammer®.

Bison® engineers thrive on technical challenges and provide customers collaborative, customizable and optimized fluid-moving, fractional and integral horsepower solutions. Bison® has worldwide sales representative support, research facilities and manufacturing facilities in the United States, China and Mexico. The company is headquartered in Kent, Ohio.

Bison® is a business of AMETEK, Inc. — a leading global provider of industrial technology solutions serving a diverse set of attractive niche markets with annual sales over \$6.0 billion.

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About **ROTRON® Transportation Pumps and Motors**

For more than 75 years, Bison® has designed and manufactured **ROTRON®** brushless sealless pumps and brushless DC motors for heavy-duty transportation OEMs building trucks, buses, locomotives, light rail equipment, off-road vehicles and more.

Our ROTRON® transportation products offer long life up to 60,000 hours, CAN J1939 functionality and maintenance-free designs. The fluid-moving technologies can be customized to OEM specs and are **Buy America Compliant**.



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