



PERMANENT MAGNET DC MOTORS - Standard Products

- SCR and PWM Rated
- Low Voltage Rated
- Wash Down Duty
- Explosion Proof

 **PACIFIC
SCIENTIFIC**
HIGH PERFORMANCE MOTORS & DRIVES

MAY, 1999

ISO
9001

PERMANENT MAGNET DC MOTORS

Welcome to Pacific Scientific... a leader in high performance motor technology

Permanent Magnet DC Motors

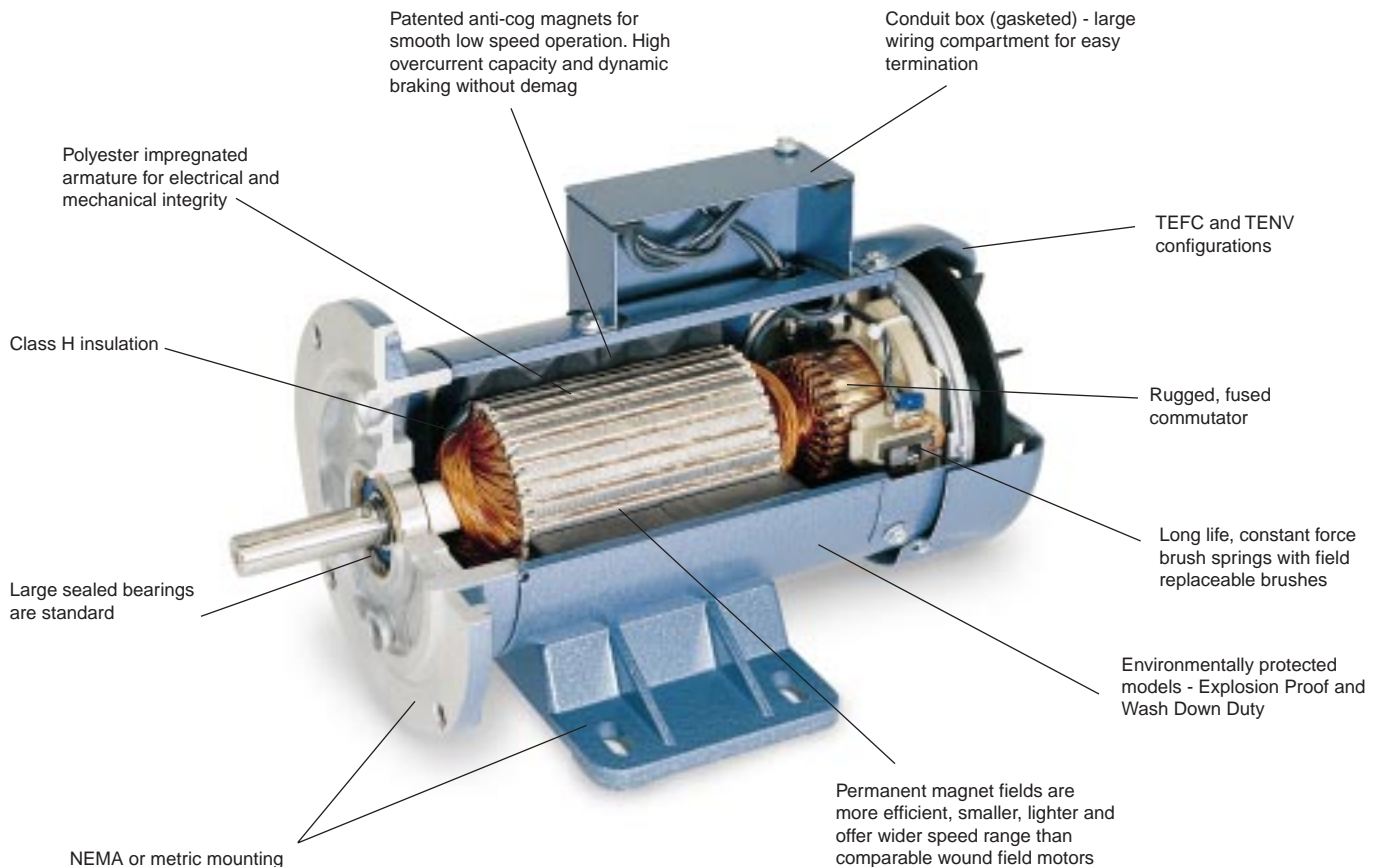
Why have numerous industries depended on Pacific Scientific Permanent Magnet (PMDC) motors for over 30 years?

Value and performance. Rugged, quality construction, backed by a 2 year warranty. More than 40 standard models from 1/4 to 3 HP.

Look under the nameplate and discover the Pacific Scientific differences. These differences account for a diverse base of satisfied customers who have very successfully applied these motors in thousands of different applications over the years.

Pacific Scientific

Pacific Scientific is an 80-year old, worldwide manufacturer of high performance motors and drives. In addition to Permanent Magnet DC (PMDC) motors, our major product lines include hybrid stepper motors and drives, brushless servomotors and drives, low inertia servomotors and DC-powered generators. Pacific Scientific is committed to providing our customers with high performance, quality products that can be tailored to match their exact needs, with the highest level of support.



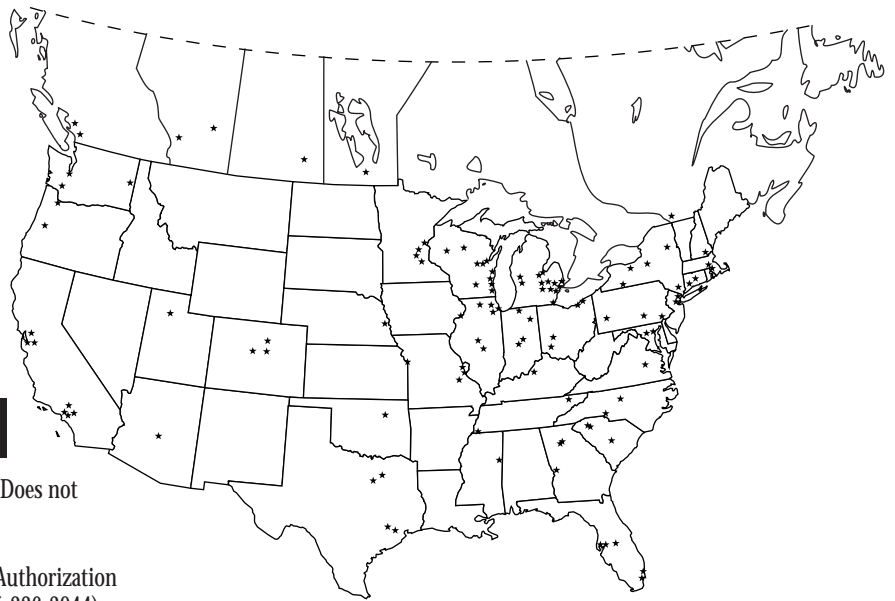
HOW TO ORDER • WARRANTY • TERMS

HOW TO ORDER

- Refer to the separate Pacific Scientific Authorized Distributor List or call Pacific Scientific Motor Products Division at (815) 226-3100 for your nearest Distributor.
- Call your nearest Pacific Scientific PMDC Distributor to order standard products or for application assistance.

WARRANTY POLICY/RETURN AUTHORIZATION

- Warranted 2 years after date of product date code on motor. Does not include brush or commutator wear.
- Before returning for repair, authorization (Return Material Authorization Number) must first be received from Customer Service (815-226-3044).
- Contact your Pacific Scientific PMDC Distributor for complete Warranty and Limitation of Liability policy.



TERMS AND CONDITIONS

1. **OFFER AND ACCEPTANCE:** These Terms and Conditions constitute Seller's offer to Buyer and acceptance by Buyer and any resulting sale is expressly limited to and conditioned upon Seller's terms and conditions as set forth below. If Buyer objects to any of Seller's terms and conditions, such objections must be expressly stated and brought to the attention of Seller in a written document which is separate from any purchase order or other printed form of Buyer. Such objections, or the incorporation of any additional or different terms or conditions by Buyer into a resulting order shall constitute non-acceptance of these Terms and Conditions, releasing Seller from any obligation or liability hereunder and a proposal for different terms and conditions which shall be termed objected to by Seller unless expressly accepted in writing by an authorized representative of Seller. Acknowledgement of the receipt of any purchase order, including signing and returning to Buyer his acknowledgement copy, if any, shall not constitute acceptance by Seller of any additional or different terms or conditions, nor shall Seller's commencement of effort, in itself, be construed as acceptance of an order containing additional or different terms and conditions.
2. **PRICES:** Published prices and discount schedules, are subject to change without notice. They are prepared for the purpose of furnishing general information and are not quotations or offers to sell on the part of the company.
3. **TRANSPORTATION:** Shipments are F.O.B. shipping point. Any transportation damages must be claimed by the Buyer and the Buyer must submit a claim to the carrier.
4. **PAYMENT TERMS:** Subject to approval of Buyer's credit, the full net amount of each invoice is due and payable in cash within thirty (30) days of shipment. No payment discounts are offered, and minor in advertent administrative errors contained in an invoice are subject to correction and shall not constitute reason for untimely payment.
5. **MINIMUM BILLING:** Minimum Billing will be \$50.00.
6. **DELAYS:** Pacific Scientific Co. shall not be liable for any defaults, damages, or delays in fulfilling any order caused by conditions beyond Pacific Scientific's control, including, but not limited to acts of God, strike, lockout, boycott, or other labor troubles, war, riot, flood, government regulations, or delays of Pacific Scientific's subcontractors or suppliers in furnishing materials or supplies due to one or more of the foregoing clauses.
7. **PRODUCT WARRANTY:** All products are warranted for two years from date of manufacture as determined by the date code on the product label. The date code consists of four digits; the first two are the year and the second two are the week.
8. **ORDER SCHEDULES:** For all standard products, shipping schedules for the next 30 day period are firm and cannot be rescheduled. Schedules beyond 30 days may be rescheduled without penalty.
9. **TERMINATION:** By written notice given at any time prior to delivery, Buyer may terminate, for his convenience, any or all of the order. Buyer will be liable for all costs incurred by Seller in performance of the order which is canceled on the actual date of receipt of the written notice of termination. Termination charges may be up to and including 100% of the price of the products.

PERMANENT MAGNET DC MOTORS - SELECTION GUIDE

	HP	Voltage (DC)	Page
SCR Rated • NEMA Standards	1/8 - 1	90	2 - 3
	1/4 - 3	180	2 - 3
SCR Rated • Wash Down Duty	1/4 - 1	90	4 - 5
	1/2 - 2	180	4 - 5
SCR Rated • Explosion Proof	1/4 - 3/4	90	6
	1/4 - 3/4	180	6
Low Voltage Rated • NEMA Standards	1/4 - 1/2	12	7
	1/4 - 1	24	7
Tachometer Adapter Kits			8
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Modification Capabilities— Custom Motors

If the standard motors in this catalog do not meet the needs of your specific application, we'll design one that will. Our application engineers routinely make electrical and/or mechanical modifications to optimize motors for individual requirements. Contact your nearest Pacific Scientific PMDC Distributor.

SCR RATED NEMA STANDARDS



1/8 - 1 HP, 90 VOLT - 1750 RPM

NEMA C face with removable base. Class H insulation. UL Recognized (UL 1004, File E61960) and CSA Certified (CSA Standard C22.2 No. 100, Class 421101, File LR43477). All TEFC motors accept tachometer adapter kits. See facing page and page 11. *User supplied* GE, Servo-Tek, and Baldor tachometers are easily mounted to the adapter.

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/8	SR3616-8290-7-56BC-CU	FGS2430	56C	TENV	1.5	4.5	34.0	4.0	5.3	2.9	19.4	1	8.13	14	YP00507
1/4	SR3624-8291-7-56BC-CU	FGS2431	56C	TENV	2.7	9.0	54.0	3.9	2.5	4.0	9.6	1	9.13	18	YP00507
1/3	SR3632-8292-7-56BC-CU	FGS2432	56C	TENV	3.5	12.0	71.0	3.9	1.8	5.0	6.6	1	10.13	21	YP00507
1/2	SR3642-4822-7-56BC-CU	FGS2434	56C	TENV	4.7	18.0	74.0	4.2	0.9	6.5	3.8	1	12.10	27	YP00507
1/2	SRF3632-5227-84-5-56BC-CU*	FGS2748	56C	TEFC	5.1	18.0	54.0	4.0	1.3	5.2	5.8	2	10.10	22	YP00507
3/4	SRF3650-4823-84-5-56BC-CU*	FGS2749	56C	TEFC	6.9	27.0	81.0	4.2	0.7	7.8	3.7	2	13.25	30	YP00507
1.0	SRF3756-4996-84-5-56BC-CU*	FGS2751	56C	TEFC	9.5	36.0	81.0	4.4	0.5	12.8	3.4	2	13.25	30	YP00507

*CE marked. Conforms to EN60034-1 and EN60034-5

1/4 - 3 HP, 180 VOLT - 1750 RPM

NEMA C face with removable base (except 1.5 HP— welded base**). Class H insulation. UL Recognized (UL 1004, File E61960) and CSA Certified (CSA Standard C22.2 No. 100, Class 421101, File LR43477). All TEFC motors accept tachometer adapter kits. See facing page and page 11. *User supplied* GE, Servo-Tek, and Baldor tachometers are easily mounted to the adapter.

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/4	SR3624-1032-7-56BC-CU	FGS2658	56C	TENV	1.4	9.0	28.0	7.4	9.6	4.0	42.8	1	9.13	18	YP00508
1/2	SR3642-4982-7-56BC-CU	FGS2438	56C	TENV	2.6	18.0	40.0	7.6	3.3	6.3	16.2	1	12.13	27	YP00508
1/2	SRF3632-5265-84-5-56BC-CU*	FGS2735	56C	TEFC	2.4	18.0	27.0	8.1	5.3	5.2	29.5	2	10.10	21	YP00508
3/4	SRF3736-4983-84-5-56BC-CU*	FGS2750	56C	TEFC	3.2	27.0	26.0	8.8	3.6	8.9	28.8	2	11.25	23	YP00508
1.0	SRF3752-4984-84-5-56BC-CU*	FGS2752	56C	TEFC	4.6	36.0	41.0	8.2	1.8	12.0	15.6	2	13.25	29	YP00508
1.5	SRF5348-4485-84-5-45BC-CU*	FGS2753	145TC**	TEFC	7.8	54.0	62.0	7.9	1.2	26.2	13.5	3	16.00	64	YP00435
2.0	SRF5360-4985-84-5-82BC-CU*	FGS2754	145TC/182	TEFC	9.5	72.0	78.0	8.2	0.6	35.9	7.0	4	16.50	75	YP00490
3.0	SRF5570-4986-84-5-82BC-CU*	FGS2755	145TC/182	TEFC	14.0	108.0	78.0	9.3	0.6	40.1	7.2	5	19.75	87	YP00501

*CE marked. Conforms to EN60034-1 and EN60034-5

**Stamped steel, welded base, not removable

SCR RATED NEMA STANDARDS

Configurations

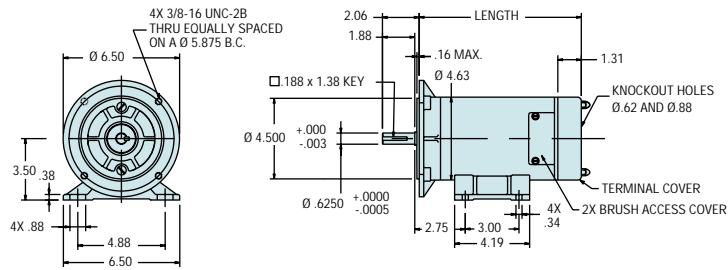
Dimensions (inches)

Tachometer Adapter Kits (see p. 11)

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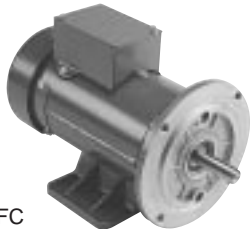


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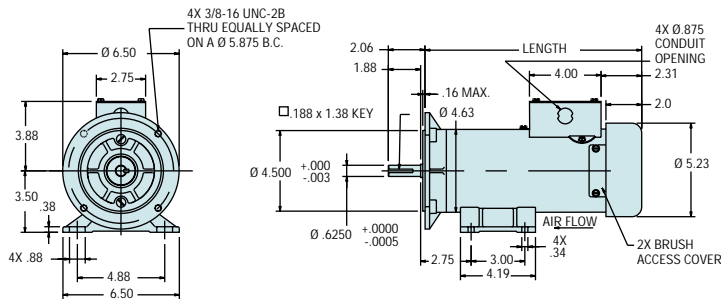


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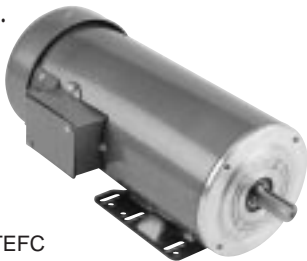


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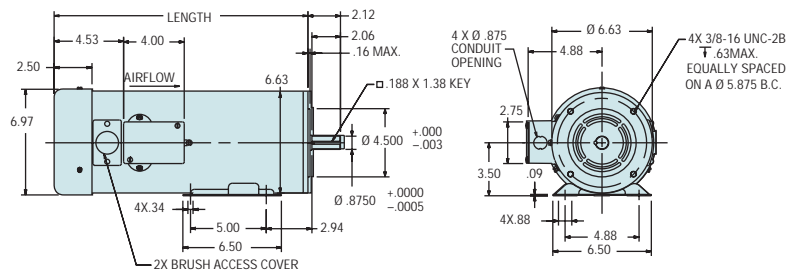


FGZ9054 or
FGZ9060

3.

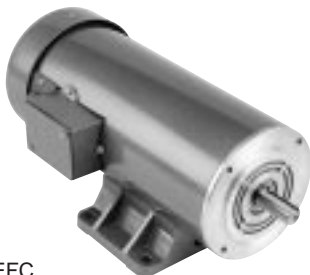


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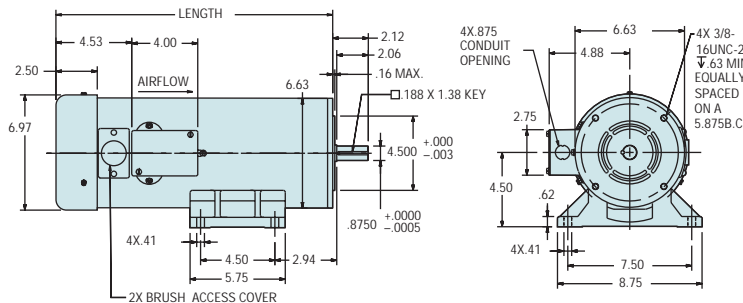


FGZ9055 or
FGZ9058

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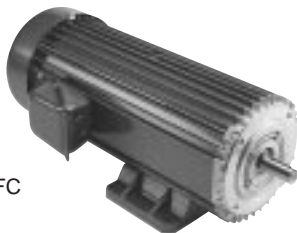


TEFC

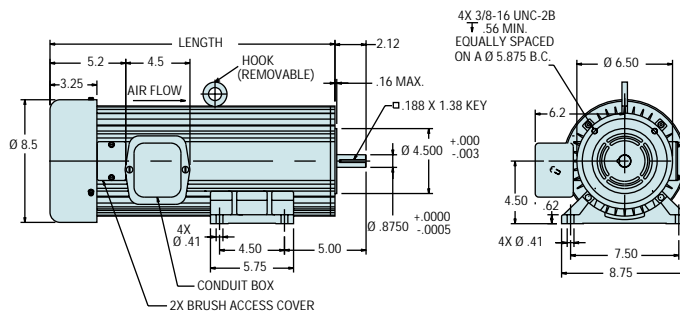


FGZ9055 or
FGZ9058

5.



TEFC



FGZ9056 or
FGZ9059

SCR RATED NEMA STANDARDS - WASH DOWN DUTY



1/4 - 1 HP, 90 VOLT - 1750 RPM

NEMA C face with removable base (except 1 HP— welded base*). Class H insulation. UL Recognized (UL 1004, File E61960). Comply with NEMA MG1-1.26.5 Waterproof designation and IP65. Bakery Industry Sanitation Standards Committee (BISSC) certified per BISSC Standard 29 (Authorization No. 301).

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/4	STF3624-4976-61-56BC	FGS2419	56C	TENV	2.9	9.0	54.0	3.89	2.51	4.0	9.61	1	11.20	22	YP00494
1/2	STF3640-4977-61-56BC	FGS2420	56C	TENV	5.1	18.0	67.0	4.05	0.95	6.3	4.38	1	12.20	26	YP00494
3/4	STF3758-5150-61-56BC	FGS2757	56C	TENV	7.3	27.0	126.0	4.05	0.72	8.7	3.50	2	15.20	41	YP00494
1	STF5332-3747-61-56BC	FGS1751	56C*	TENV	9.2	36.0	67.0	3.98	0.61	22.4	8.00	3	13.30	41	YP00464

*Stamped steel, welded base, not removable

1/2 - 2 HP, 180 VOLT - 1750 RPM

NEMA C face with removable base (except 1.0 & 1.5 HP— welded base*). Class H insulation. UL Recognized (UL 1004, File E61960). Comply with NEMA MG1-1.26.5 Waterproof designation and IP65. Bakery Industry Sanitation Standards Committee (BISSC) certified per BISSC Standard 29 (Authorization No. 301).

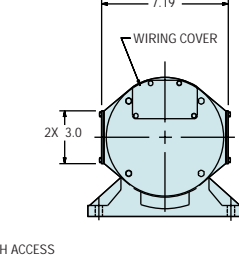
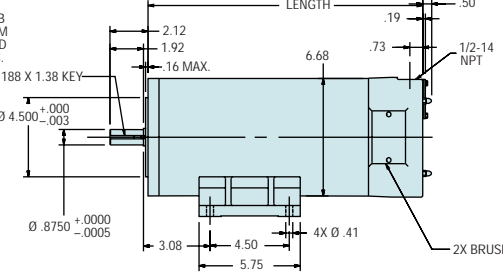
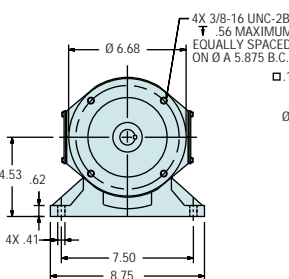
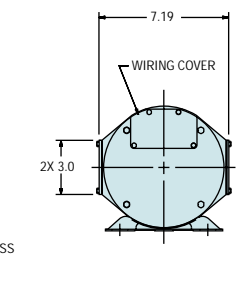
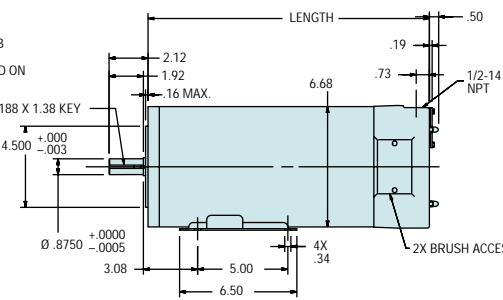
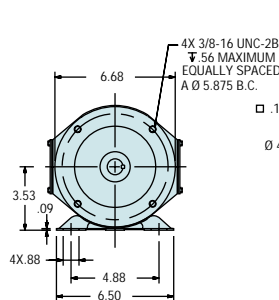
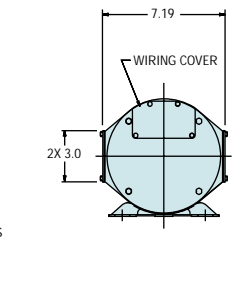
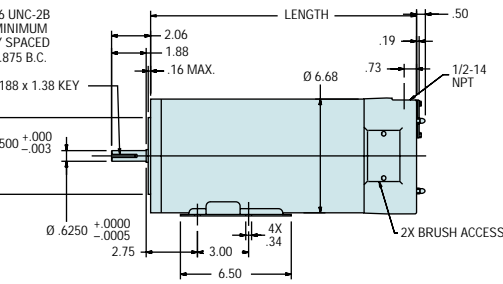
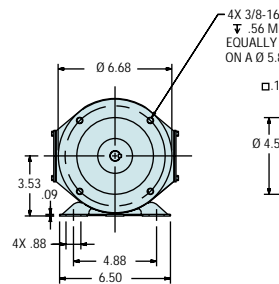
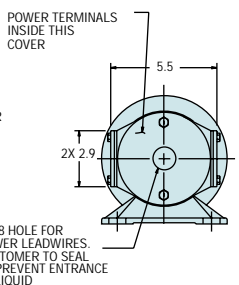
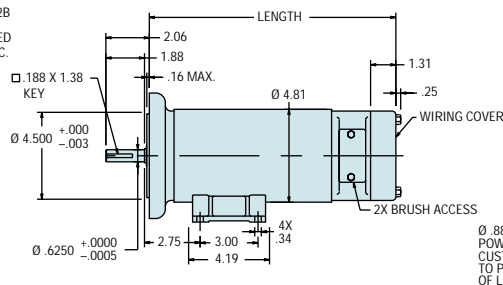
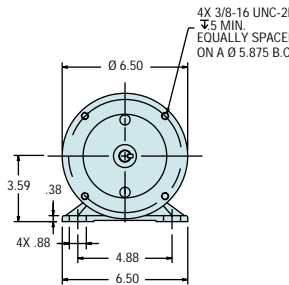
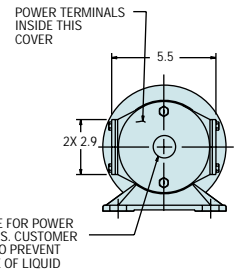
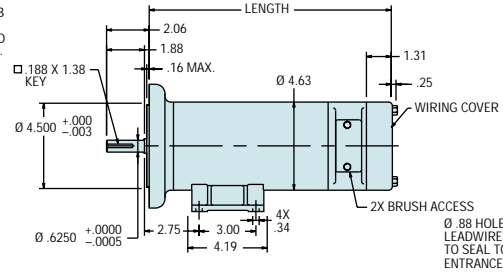
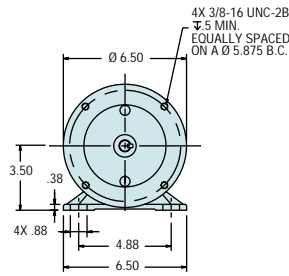
HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/2	STF3648-5268-61-56BC	FGS2738	56C	TENV	2.4	18.0	37.0	8.30	3.59	6.4	19.60	1	11.80	27	YP00492
1	STF5332-3748-61-56BC	FGS2389	56C*	TENV	4.6	36.0	36.0	8.00	2.40	22.4	32.00	3	13.30	41	YP00464
1.5	STF5356-3749-61-45BC	FGS2390	145TC*	TENV	7.1	54.0	70.0	7.90	1.11	29.8	11.20	4	16.30	65	YP00464
2.0	STF5372-3750-61-82BC	FGS2342	145TC/182	TENV	9.3	72.0	93.0	7.90	0.77	39.3	6.80	5	18.30	84	YP00464

*Stamped steel, welded base, not removable

SCR RATED NEMA STANDARDS - WASH DOWN DUTY

Configurations

Dimensions (inches)



SCR RATED NEMA STANDARDS - EXPLOSION PROOF



1/4 - 3/4 HP, 90 VOLT - 1750 RPM

NEMA C face with removable base. Class H insulation. UL Listed (UL674, File E56538), meet Division 1 and 2, Class 1 (Groups C and D), Class II (Groups F and G) and Class III. CSA Listed Components per CSA Standard C22.2 No. 145, Class 428801 (File LR43478).

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/4	EP3624-1434-7-56BC-CU	FGE0212	56C	TENV	2.6	9.0	52.0	4.07	2.63	4.0	10.5	1	10.38	23	YP00507
1/3	EP3632-1435-7-56BC-CU	FGE0242	56C	TENV	3.5	12.0	71.0	3.94	1.76	5.0	6.6	1	11.38	27	YP00507
1/2	EP3640-1436-7-56BC-CU	FGE0213	56C	TENV	4.7	18.0	87.0	4.24	1.03	6.4	5.1	1	12.38	30	YP00507
3/4	EP3758-5151-7-56BC-CU	FGE0248	56C	TENV	7.0	27.0	113.0	4.15	0.74	8.0	3.8	1	14.0	36	YP00507

1/4 - 3/4 HP, 180 VOLT - 1750 RPM

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/4	EP3624-5269-7-56BC-CU	FGE0261	56C	TENV	1.3	9.0	26.0	8.10	10.50	4.0	51.80	1	10.38	23	YP00508
1/2	EP3644-5214-7-56BC-CU	FGE0262	56C	TENV	2.3	18.0	34.0	8.10	4.00	6.7	24.20	1	12.38	30	YP00508
3/4	EP3752-5215-7-56BC-CU	FGE0263	56C	TENV	3.3	27.0	38.0	8.10	3.10	11.4	17.40	1	14.38	34	YP00508

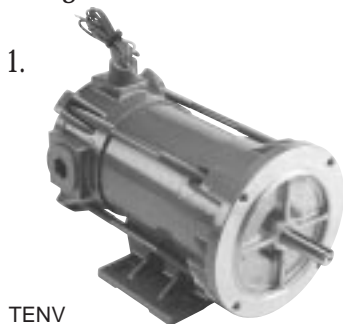
1/3 HP, 12 VOLT - 1750 RPM

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/3	EP3620-1954-7-56BC-CU	FGE0243	56C	TENV	28.0	12.0	n/a	.52	.04	3.5	.18	1	10.38	19	YP00386

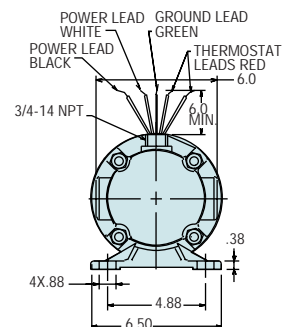
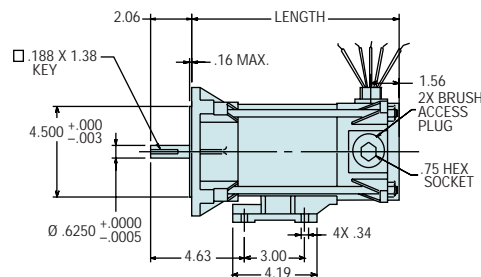
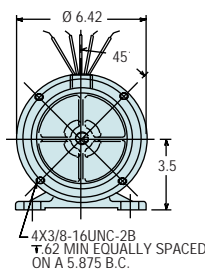
1/3 - 3/4 HP, 24 VOLT - 1750 RPM

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters					Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)	Inductance (Millihenries)				
1/3	EP3624-2757-7-56BC-CU	FGE0245	56C	TENV	13.4	12.0	n/a	1.02	.16	4.0	.66	1	10.38	24	YP00357
3/4	EP3648-4952-7-56BC-CU	FGE0244	56C	TENV	28.2	27.0	n/a	1.02	.06	7.1	.22	1	13.38	33	YP00386

Configurations



Dimensions (inches)



LOW VOLTAGE RATED NEMA STANDARDS



1/4 - 1/2 HP, 12 VOLT - 1750 RPM

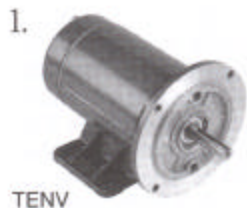
NEMA C face with removable base. Class H insulation. UL Recognized (UL 1004, File E61960). Designed for use with low voltage supplies (batteries). Highly efficient. For constant speed, motors are operated directly from a battery with no motor control interface. For adjustable speed, low voltage motor controls are readily available.

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters				Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)	
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)					Inductance (Millihenries)
1/4	BA3614-4648-9-56BC	FG82010	56C	TENV	21.1	9.0	n/a	0.51	0.07	2.9	0.27	1	8.13	15	YP00357
1/3	BA3624-7005-9-56BC	FG82002	56C	TENV	27.0	12.0	n/a	0.51	0.04	4.0	0.14	1	9.13	19	YP00351
1/2	BA3638-4588-9-56BC	FG82005	56C	TENV	39.8	18.0	n/a	0.49	0.02	5.5	0.07	1	11.13	25	YP00351

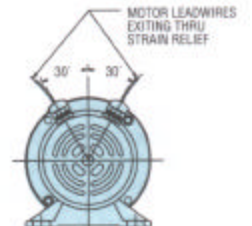
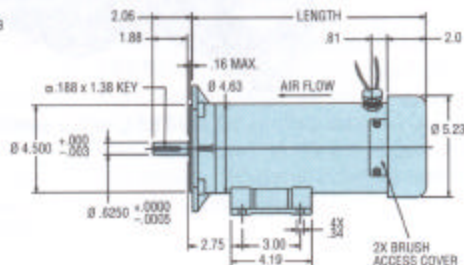
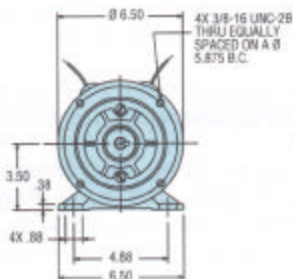
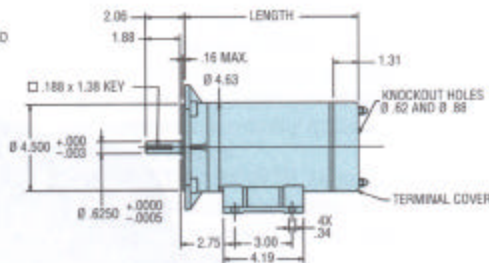
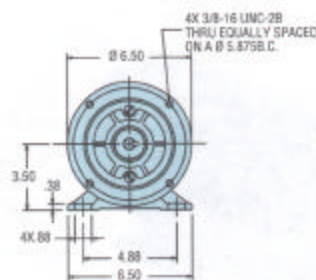
1/4 - 1.0 HP, 24 VOLT - 1750 RPM

HP	Model Number	Product Code	NEMA Frame	Enclosure	Continuous Ratings		Parameters				Configuration (facing page)	Length (in)	Weight (lbs)	Brush Replacement (order 2 per motor)	
					Current (Amps)	Torque (lb-in.)	Current (Peak)	Torque Constant (lb-in./A)	Resistance (Ohms)	Inertia (lb-in)					Inductance (Millihenries)
1/4	BA3618-7009-9-56BC	FG81592	56C	TENV	10.3	9.0	n/a	1.04	0.14	3.2	0.57	1	9.13	18	YP00357
1/3	BA3624-7024-9-56BC	FG82285	56C	TENV	13.4	12.0	n/a	1.02	0.16	4.0	0.66	1	9.13	19	YP00357
1/2	BA3628-7012-9-56BC	FG81441	56C	TENV	19.5	18.0	n/a	1.01	0.10	4.4	0.38	1	10.13	21	YP00357
3/4	BA3648-4650-9-56BC	FG82006	56C	TENV	28.2	27.0	n/a	1.02	0.06	7.1	0.22	1	12.10	29	YP00358
1.0	BAF3644-5081-56BC	FG82335	56C	TEFC	38.4	36.0	n/a	1.00	0.05	6.6	0.21	2	12.25	28	YP00386

Configurations



Dimensions (inches)

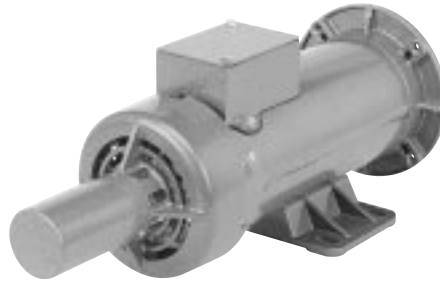


TACHOMETER ADAPTER KITS

Use to simply monitor motor speed with a readout or through control electronics to very accurately maintain the motor's set speed throughout a wide speed range. Kits include parts and instructions for easy mounting. *User supplied* GE, Servo-Tek, and Baldor tachometers are easily mounted to the adapter.

Order Servo-Tek Adapter Kit Model Number	Notes
FGZ9054	Servo-Tek models SA-757A, SA-7103A and SA-7360-F-1(7 V/KRPM). Models with .120" dia. shafts (rather than .187" dia.) can also be mounted using Servo-Tek coupling ST-9502-1.
FGZ9057	
FGZ9058	
FGZ9059	

Order GE or Baldor Adapter Kit Model Number	Notes
FGZ9055	GE model 5PY or Baldor model BTG. See their specifications for voltage gradients.
FGZ9056	
FGZ9060	



3/4 HP TEFC motor with Servo-Tek tachometer installed.



1.5 HP TEFC motor with GE tachometer installed.



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