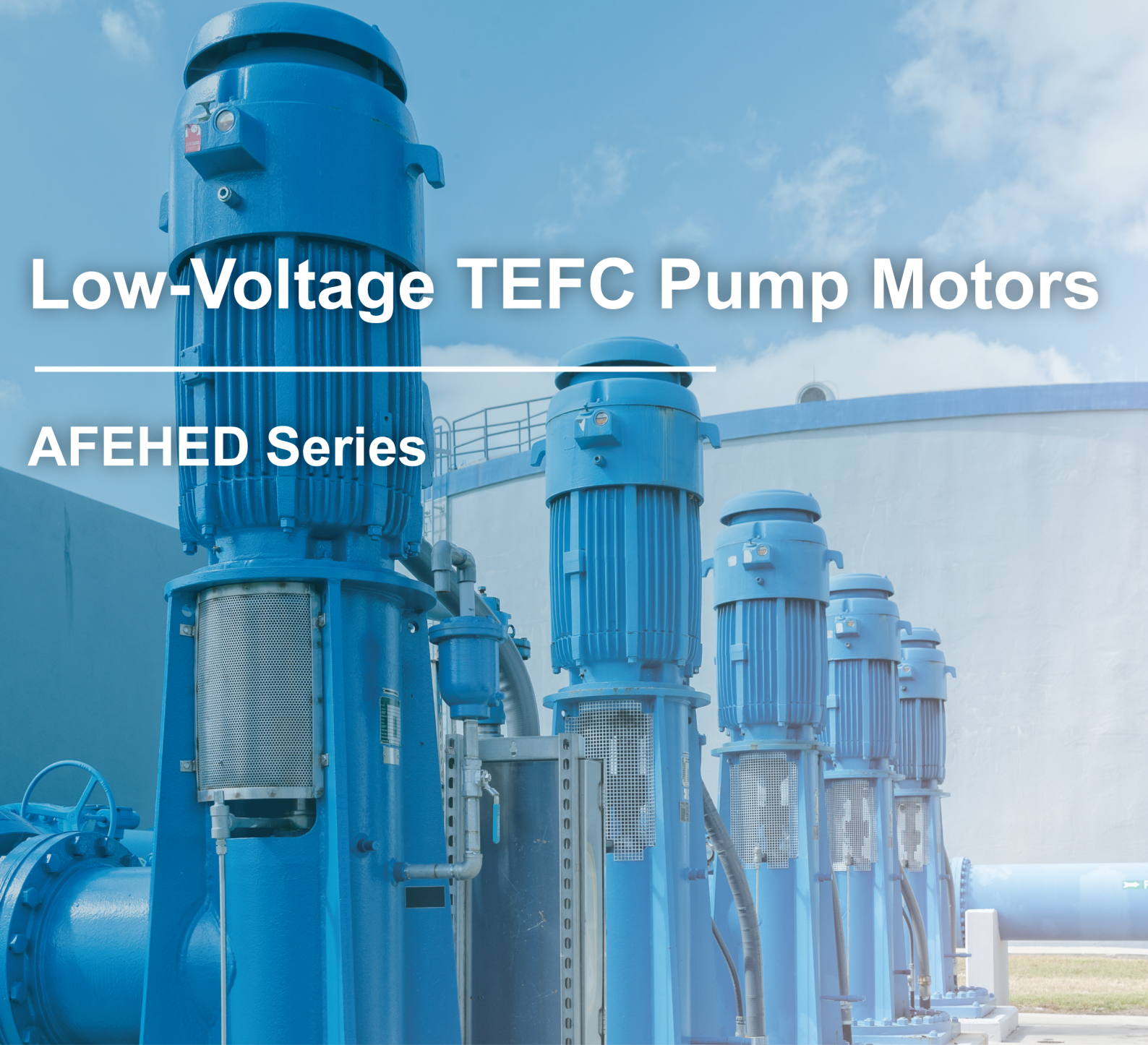


Low-Voltage TEFC Pump Motors

AFEHED Series



TECO 

together, we empower the Future⁷



Table of Contents

04	Low-Voltage TEFC Pump Motor Overview
05	Industries & Applications
06 - 07	Product Information
08	Performance Data
09 - 10	Outline Dimension Sheet

Low-Voltage TEFC Pump Motor

Designed for vertical turbine pump applications, the AFEHED series low-voltage squirrel-cage induction motors deliver reliable performance, high efficiency, and superior axial thrust capability. Engineered in compliance with NEMA MG-1 standards, these motors are specifically optimized for deep well turbine pump systems.

Featuring a totally enclosed (IP55) construction with IC 411 cooling, the motors provide effective protection against dust and moisture for outdoor installation. The solid-shaft design combined with a spherical roller thrust bearing ensures stable operation under heavy axial loads and extends bearing life in continuous-duty applications.

With support for direct-on-line, reduced voltage, and VFD operation, the AFEHED series offers flexible integration into modern pumping systems while maintaining dependable performance across a wide operating range.

- High Axial Thrust Capability for Vertical Pumps
- IP55 Totally Enclosed Design for Harsh Outdoor Duty
- Flexible Operation with DOL, Reduced Voltage & VFD Control

Reasons for AFEH series



High Thrust
Bearing
Design



NEMA
MG-1
Compliance



TEFC
IP55
Enclosure



VFD
Compatible
Operation



High
Efficiency
Performance



Heavy-Duty
Mechanical
Structure

Industries & Applications

Deep Well Turbine Pumps



Water Supply & Municipal Infrastructure



Industrial Water & Process Pumping



Irrigation & Agricultural Systems



Product Information

R A T I N G	Kind of Motors	Squirrel-cage Induction Motor (SCIM)
	Design Standard	NEMA MG-1
	Voltages	460 V, capable of running on 380 V / 50 Hz; 575 V is available
	Frequency	60 Hz
	Output Range	200 ~ 1000 HP
	R.P.M	1800 ~ 900 r/min (4 ~ 8 pole)
	Time Duty	Continuous S.F. 1.15 or S.F. 1.0 (S1, MCR) VFD continuous S.F. 1.0 (S1, MCR)
	Frame Size	5009B ~ 5810B
	Protection Enclosure	Totally enclosed (IP55)
	Cooling Method	Self external fan, surface cooling (IC 411)
	Mounting	Flange mounting (IM3011)
A P P L I C A T I O N	Power Condition	Voltage: $\pm 10\%$, frequency: $\pm 5\%$, and $\pm 10\%$ max. of combined voltage and frequency, but frequency variation does not exceed $\pm 5\%$
	Designed Primarily	For deep well turbine pump
	Environment Conditions	Outdoor, non-hazardous
	Ambient Temperature	-15°C ~ 40°C
	Relative Humidity	Less than 90% RH (non-condensation)
	Altitude	Less Than 3,300 FT CSA Class I, Div. 2, Group B, C & D, T3
	Drive Method	Direct coupling
	Direction of Rotation	Counter-clockwise view from top
	Method of Starting	Full voltage direct-on-line or Y- Δ starting or VFD
C O N S T R U C T I O N	Dimensions	AS DWG
	Frame	High grade cast iron
	Flange Bracket	High grade cast iron or steel plate fabricated
	Upper Bracket	High grade cast iron or steel plate fabricated, including oil tank
	Internal Fan	Steel plate fabricated
	External Fan	Steel plate fabricated or aluminum alloy fabricated or integral cast bronze

C O N S T R U C T I O N	Fan Cover	Steel plate fabricated
	Vertical Splash Cover	Integral cast aluminum or steel plate fabricated
	Shaft	Carbon steel, cylindrical single extension with keyway and key
	Thrust Bearing (upper)	Spherical roller thrust bearing
	Guide Bearing (lower)	Bracket mounting, vacuum de-gassed high quality deep-groove ball bearing with regrease provision
	Lubricant	Thrust bearing: turbine oil; guide bearing: mineral oil, polyurea-thickened grease (Mobil Polyrex EM grease)
	Shaft opening shield	Metal flinger at flange bracket end
	Terminal Housing	Steel plate, larger size, threaded for external conduit entrance
	Lead Terminal	Solderless lug terminals
	Iron Core	High grade, insulated, cold-rolled electro-magnetic steel plate
	Stator Winding	Pre-formed random wound, made of high pulse endurance index wire, CIV tested to 2000 V / 0.1 μ s; per NEMA MG-1 Part 31
	Stator Insulation	Class F insulation system
	Varnish Treatment	1-dip with solventless epoxy resin and 1-spray enamel top coating
	Rotor Winding	Squirrel-cage, aluminum conductor with end-ring and wafer blades integrally cast or copper rotor
	Painting	Alkyd resin with rust-proof base, plus polyurethane surface finish painting in blue-gray color (Munsell 7.5B 3.5/0.5)
	Nameplate	Stainless steel plate
	Bolt Thread	ISO metric system
	Grounding Terminal	Be set inside of terminal housing and on the flange bracket
P E R F O R M A N C E	Test Procedure	IEEE-112 Method-B and full voltage measuring starting performance
	Temperature Rise	Sinusoidal power: not to exceed 80° C for S.F. 1.0 or 105° C for S.F. 1.15 by resistance method Inverter source: not to exceed 105° C for S.F. 1.0 by resistance method
	Over Speed	200 HP and smaller: 125% syn. rpm for two minutes (4P); 150% syn. rpm for two minutes (6 & 8P) 201 HP and larger: 125% syn. rpm for two minutes (4P and slower)
	Speed Range	Variable torque : 10 : 1, constant torque : 3 : 1
	Over Torque	160% rated torque for 15 sec

Performance Data AFEHED - 460V 60Hz

HP	Full Load RPM	Frame Size (EGV)	Efficiency				Power Factor			Current		Torque			Rotor WR ² lb-ft ²	Down Thrust LBS	Approx. Rotor Weight LBS	Approx. Weight LBS	Reed Freq. Hz
			Full Load %		3/4 Load Nom.	1/2 Load Nom.	Full Load %	3/4 Load %	1/2 Load %	Full Load A	Locked Rotor A	Full Load lb-ft	Locked Rotor &FLT	Break Down %FLT					
			Nom.	Min.															
200	892	5009	94.5	93.6	94.1	93.6	82.0	78.0	69.0	241	1450	1177.8	120	230	153	23400	425	3980	44
250	892	5009	95.0	94.1	94.5	94.1	83.0	80.0	71.0	296	1825	1472.3	120	230	186	23300	470	4170	43
300	1189	5009	95.8	95.0	95.4	95.0	80.0	77.0	67.0	366	2200	1325.4	120	200	153	20500	425	4210	43
	892	5009	95.0	94.1	94.5	94.1	83.0	79.0	71.0	355	2200	1766.8	120	220	224	23100	550	4510	42
350	1790	5009	96.2	95.4	95.8	95.4	87.0	86.0	79.0	391	2550	1027.2	140	200	138	17800	370	3950	44
	1190	5009	95.8	95.0	95.4	95.0	79.0	75.0	67.0	432	2550	1545.1	120	200	177	20400	460	4420	42
	892	5009	95.0	94.1	94.5	94.1	83.0	80.0	71.0	415	2550	2061.2	120	220	258	23000	600	4630	42
400	1790	5009	96.2	95.4	95.8	95.4	88.0	87.0	81.0	442	2900	1173.9	140	200	155	17800	400	4100	43
	1191	5011	95.8	95.0	95.4	95.0	80.0	76.0	68.0	488	2900	1764.3	120	200	205	21700	535	5020	36
	892	5011	95.0	94.1	94.5	94.1	80.0	77.0	68.0	492	2900	2355.7	120	200	301	25000	710	5390	35
450	1790	5009	96.2	95.4	95.8	95.4	89.0	88.0	84.0	491	3250	1320.6	150	210	176	17700	445	4350	42
	1191	5011	95.8	95.0	95.4	95.0	80.0	76.0	68.0	549	3250	1984.8	120	200	229	21600	580	5230	35
	892	5011	95.0	94.1	94.5	94.1	80.0	76.0	67.0	553	3250	2650.1	120	200	339	25000	730	5500	34
500	1790	5011	96.2	95.4	95.8	95.4	89.0	87.0	84.0	546	3625	1467.4	150	210	200	17500	510	4950	36
	1191	5011	95.8	95.0	95.4	95.0	80.0	76.0	67.0	610	3625	2205.4	130	200	253	21500	610	5460	35
	891	5810※	95.0	94.1	94.5	94.1	84.0	80.0	71.0	586	3625	2947.9	110	230	437	24500	930	7200	32
600	1790	5011	96.2	95.4	95.8	95.4	89.0	87.0	82.0	655	4396	1760.8	150	210	231	17400	565	5220	35
	1191	5011※	95.8	95.0	95.4	95.0	85.0	84.0	75.0	689	4122	2646.4	100	210	264	21200	740	5760	34
	891	5810※	95.4	94.5	95.0	94.5	81.0	77.0	68.0	726	4611	3537.5	120	210	445	24500	950	7240	32
700	1790	5011※	96.2	95.4	95.8	95.4	89.0	88.0	86.0	764	5020	2054.3	80	200	242	17000	735	5570	34
	1191	5810※	96.2	95.4	95.8	95.4	88.0	87.0	83.0	773	5263	3087.5	100	210	385	20900	870	6850	33
	891	5810※	95.4	94.5	95.0	94.5	82.0	78.0	69.0	837	5216	4127.1	120	200	517	24200	1030	7690	31
800	1792	5810※	96.2	95.4	95.8	95.4	90.0	89.0	84.0	864	5990	2345.2	90	220	356	16600	850	7300	32
	1191	5810※	96.2	95.4	95.8	95.4	87.0	86.0	81.0	894	6066	3528.6	100	210	436	20700	940	7180	32
900	1792	5810※	96.2	95.4	95.8	95.4	90.0	89.0	85.0	972	6730	2638.3	90	220	403	16500	890	7470	32
	1191	5810※	96.2	95.4	95.8	95.4	87.0	87.0	82.0	1006	6906	3969.7	100	210	516	20400	1055	7710	31
1000	1790	5810※	96.2	95.4	95.8	95.4	89.0	88.0	84.0	1092	7400	2934.7	100	220	403	16500	910	7540	31

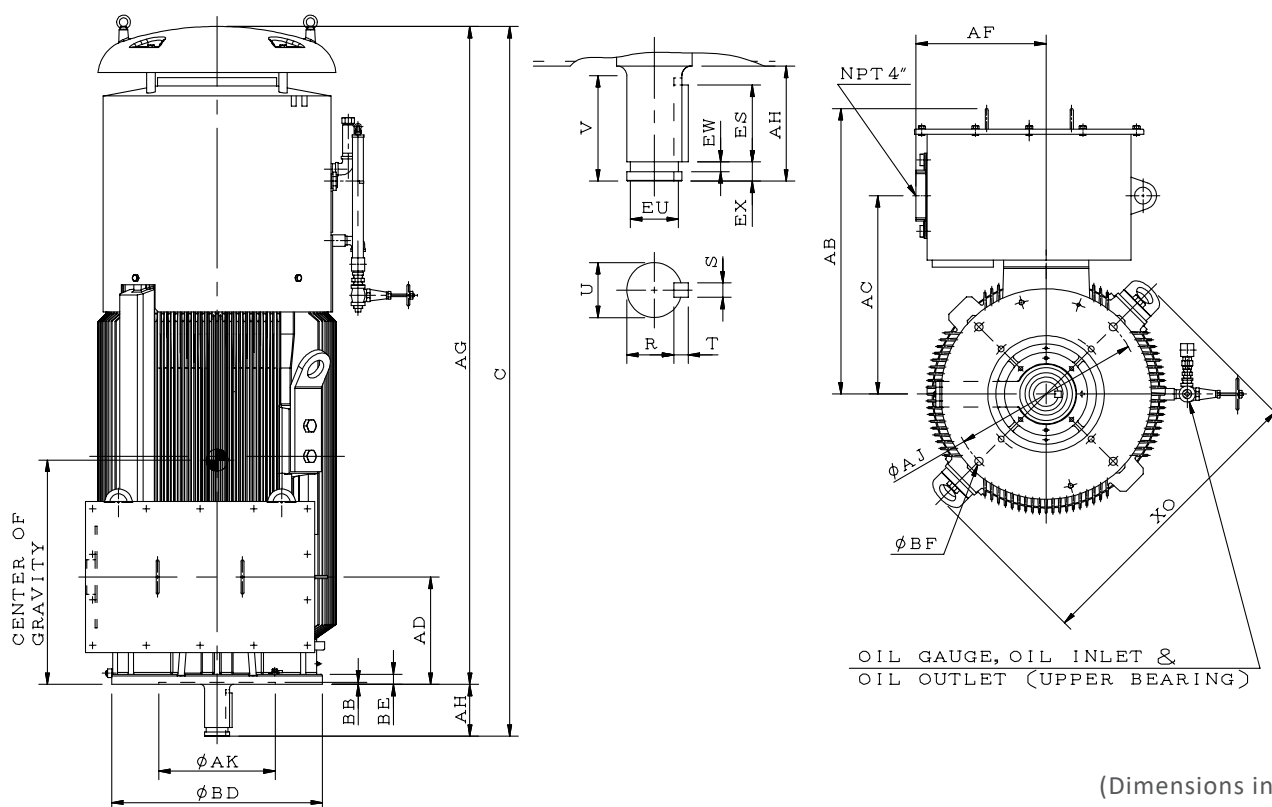
NOTE:

1. THE ABOVE ARE TYPICAL VALUES BASED ON TEST ACCORDING TO ANSI/IEEE STANDARD 112 METHOD B.
2. BREAKDOWN & LOCKED ROTOR TORQUES ARE SHOWN AS AVERAGE EXPECTED VALUES.
3. EFFICIENCY, POWER FACTOR, SPEED AND TORQUE ARE THE SAME FOR OTHER VOLTAGES. CURRENT VALUES VARY INVERSELY WITH VOLTAGE.
4. DECLARED EFFICIENCY HAVEN'T TAKEN INTO ACCOUNT OF THRUST LOAD LOSSES
5. TOLERANCE ACCORDING TO NEMA MG1-12& IEC 34-1
6. REDUCING THE THRUST LOAD WILL INCREASE BEARING LIFE AS FOLLOWS:

Spherical roller thrust bearing	Thrust(%)	100	84	75	64	57
	Bearing life(Hrs.)	30000	50000	70000	110000	150000

7. WITH "※" : COPPER ROTOR
- WITHOUT "※" : ALUMINUM ROTOR
8. DATA SUBJECT TO CHANGE WITHOUT NOTICE

Outline Dimension Sheet AFEHED - Frame 5009 ~ 5011



(Dimensions in inches)

FRAME SIZE (EGV)	MOUNTING						
	BD	AK	AJ	BF	QTY. OF BP HOLES	BB	BE
5000	20.00	13.50	14.75	0.69	4	0.25	1.18
	*24.50	13.50	14.75	0.69			
			22.00	0.94			
	30.50	22.00	26.00	0.81			

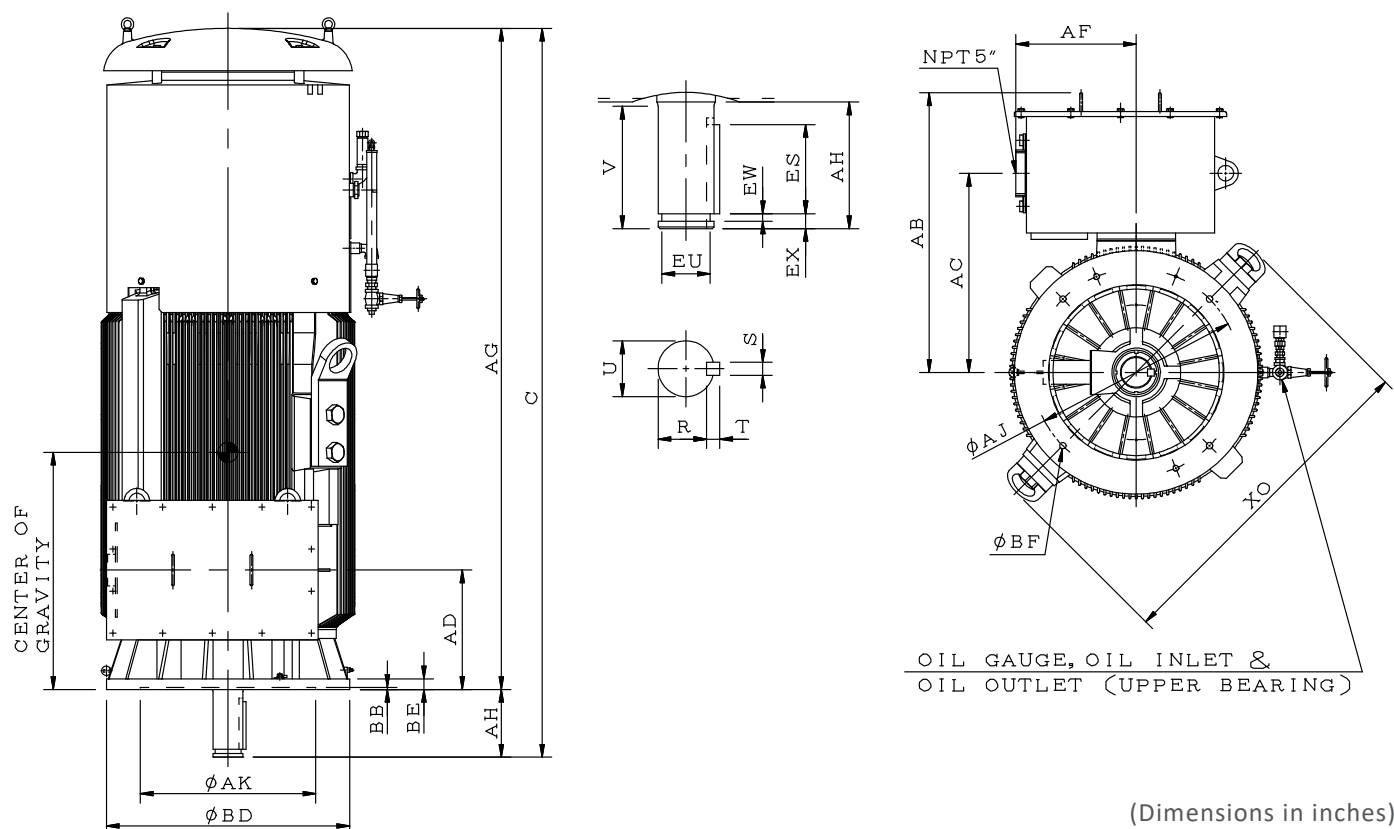
UPPER BEARING		LOWER BEARING
4P	6 & 8P	
29326 +6024	29330 +6028	6220C3

FRAME SIZE (EGV)	U	AH	V	R	EU	EW	EX	ES	S	T	XO
5000	2.875	6.00	5.50	2.450	2.500	0.500	1.000	4.00	0.750	0.750	34.47

FRAME SIZE (EGV)	TERMINAL HOUSING				AG			C			CENTER OF GRAVITY
	AB	AC	AD	AF	4P	6P	8P	4P	6P	8P	
5000	33.08	22.99	12.44	15.08	68.35	68.35	69.72	74.35	74.35	75.72	22.5
					76.22	77.60	77.60	82.22	83.60	83.60	26.4

NOTE: 1. DIMENSION AK TOLERANCE: +0.005 INCH, -0.000 INCH
2. DIMENSION U TOLERANCE: +0.000 INCH, -0.001 INCH
3. DIMENSION R TOLERANCE: +0.000 INCH, -0.015 INCH
4. DIMENSION EU TOLERANCE: +0.000 INCH, -0.010 INCH
5. DIMENSION AH TOLERANCE: +0.06 INCH, -0.06 INCH
6. DIMENSION EW TOLERANCE: +0.003 INCH, -0.000 INCH
7. DIMENSION EX TOLERANCE: +0.000 INCH, -0.010 INCH
8. USABLE SHAFT LENGTH FOR V
9. WITH BALL TYPE NON-REVERSE RATCHET MECHANISM

Outline Dimension Sheet AFEHED - Frame 5810



(Dimensions in inches)

FRAME SIZE (EGV)	MOUNTING						
	BD	AK	AJ	BF	QTY. OF BP HOLES	BB	BE
5800	24.50	13.50	14.75	0.69	4	0.25	1.38
	*30.50	22.00	22.00	0.94	4		
			26.00	0.81	4		
	36.00	26.00	32.00	1.00	8		

UPPER BEARING		LOWER BEARING
4P	6 & 8P	
29326 +6024	29330 +6028	6320C3

FRAME SIZE (EGV)	U	AH	V	R	EU	EW	EX	ES	S	T	XO
5800	3.750	8.50	8.00	3.261	3.250	0.500	1.000	6.00	0.875	0.875	42.52

FRAME SIZE (EGV)	TERMINAL HOUSING				AG			C			CENTER OF GRAVITY
	AB	AC	AD	AF	4P	6P	8P	4P	6P	8P	
5800	35.05	24.96	14.96	15.08	82.87	82.87	82.87	91.37	91.37	91.37	29.7

NOTE: 1. TOLERANCE ON AK DIMENSION
 13.50~22.00 INCHES: +0.005 INCH, -0.000 INCH
 26.00 INCH: +0.007 INCH, -0.000 INCH
 2. DIMENSION U TOLERANCE: +0.000 INCH, -0.001 INCH
 3. DIMENSION R TOLERANCE: +0.000 INCH, -0.015 INCH
 4. DIMENSION EU TOLERANCE: +0.000 INCH, -0.010 INCH
 5. DIMENSION AH TOLERANCE: +0.06 INCH, -0.06 INCH
 6. DIMENSION EW TOLERANCE: +0.003 INCH, -0.000 INCH
 7. DIMENSION EX TOLERANCE: +0.000 INCH, -0.010 INCH
 8. USABLE SHAFT LENGTH FOR V
 9. WITH BALL TYPE NON-REVERSE RATCHET MECHANISM





For more information,
please visit TECO website.