

# Nameplate Explanation

Understanding your motor's nameplate is essential. You can use this guide to understand what the markings on your NAE motor nameplate means. Please contact our team if you have any additional questions.



These nameplates shown do not reflect NAE's full line of motors and are meant to be a general representation of NAE motor nameplates only.

## Motor Terms A-Z

### A

- AC Induction Motor:** Type of Motor.
- AMB/Ambient Temperature:** Allowable surrounding air temperature.
- AMPS:** The current load the motor can carry for an undefined amount of time.

### B

- Base Diameter:** Measurement across the middle of the base of the motor.
- Bottom Bearing:** Size and type of the bottom bearing.

### C

- CAT NO./Category number:** The motor's model number.
- CC#:** Compliance Certification number assigned by the Department of Energy. Indicates that this motor meets the DOE energy efficiency requirements.
- CE Mark:** Shows that the motor complies with European Low Voltage Directive.
- Code:** KVA electric motor code.
- Connection:** The way the motor is wound internally.
- Connection Diagram:** Shows how to connect power to the motor.
- CSA Mark:** Certified by the Canadian Standards Association with the file number listed below.

### D

- Date:** Date the motor was manufactured.
- DE BRG/Drive end bearing:** Bearing type and size for the bearing installed on the Drive End of the motor.
- DES/Design:** NEMA Design letter.
- Description:** Operational environment(s).
- Down Thrust:** Maximum amount of thrust in pounds.
- Duty:** Indicates how long the motor can operate safely.

### E

- EFF/Full load efficiency:** Output power divided by input power at the full load specified.
- EHT:** Extra High Thrust
- ENCL/Enclosure:** Indicates the type of enclosure and the protection level the motor has.

### F

- FLA/Full Load Amps:** The max amps used by the motor when running at maximum torque and hp
- Frame:** Size and mounting of the motor.

### H

- HP/Horsepower:** Indicates the horsepower, which measures the motor's mechanical output or power.
- HZ/Hertz:** Input frequency of power supply. Number of cycles in a time period. (typically 1 second)

### I

- INS/Insulation:** Insulation Class.
- IP/Ingress Protection:** Protection of the enclosure to solids and liquids, defined by IEC 34-5.
- ISO Mark:** Shows that the organization meets the international standard for a quality management system (QMS).

### L

- LUB/Lubricant:** Lubricant type required for the motor's bearings.

### M

- Max Ambient:** The maximum temperature the motor can operate at.
- MIN/Min EFF/Minimum efficiency:** Lowest efficiency at rated load. When operating at rated voltage and frequency, the full load efficiency will not be less than the minimum efficiency.
- Motor Weight:** The weight of the motor in pounds.

### N

- NAE logo:** Indicates which company produced the motor.
- NEMA Code:** Code that identifies the torque and specifications of the motor
- NEMA Premium:** Indicates that the motor meets premium efficiency standards set by NEMA.
- NOM EFF/Nominal Efficiency:** Average efficiency for a substantial number of identical motors tested
- Non-Reverse-Ratchet-Ball-Type:** Indicates that the motor has a non-reversing rotation when the power is turned off. This prevents the motor from rotating in reverse when the power is turned off.

### O

- ODE BRG/Opposite Drive end bearing:** Bearing type and size for the bearing installed on the Opposite Drive End of the motor.
- Oil Capacity:** How many quarts of oil the motor can hold.

### P

- P.F./Power factor:** True power compared to apparent power.
- PH/ Phase:** Indicates the number of phases for the motor.

### R

- Rating Continuous:** The maximum load a motor can give continuously over an amount of time.
- RPM/Revolutions per minute:** Describes the motor's speed.

### S

- S.F./Service factor:** Indicates the percentage of the stated horsepower at which the motor can safely operate.
- S/N:** Serial number.

### T

- Type:** Indicates the motor enclosure type. Most common types are TEFC and ODP.

### U

- Upper Bearing:** Size and type of the upper bearing.

### V

- Volts:** Voltage rating of the motor at the operating frequency.

### W

- WT/LBS:** How much the motor weighs in pounds.

### Example Plates:

Plate shown below is for a General Purpose motor. The sections highlighted in red and blue display the same type of information, but apply to different countries. The red section is most common for U.S. operation, while the blue is more common in European countries.

CAT NO.		PE447T-200-4		FRAME		447T		PHASE		3		CONNECTION DIAGRAMS
HZ	60	S.F.	1.15	HZ	50	S.F.	1.0	ENCL	TEFC	IP	55	
HP	200	RPM	1790	HP	200	RPM	1488	DUTY CONT	DES	B		
VOLTS		460		VOLTS		380		AMB		40°C		PWS Start T7 T8 T9 L1 L2 L3
AMPS		220		AMPS		270		DE BRG		NU319		
CODE	G	P.F.	0.87	CODE	F	P.F.	0.88	ODE BRG		6318		PWS Run T7 T8 T9 L1 L2 L3
EFF	96.2	MIN	95.4	EFF	95.0	MIN	94.2	LUB:		Mobil Polyrex EM		
MOTOR WEIGHT	1890		LBS		CONNECTION		6 Lead Δ		SER NO			
General purpose use on industrial machinery installed in damp, dusty or dirty environments. Hernando, Mississippi												
				ISO 9001 CERTIFIED		CE		SP US ENERGY VERIFIED 272709		CC082A		

### NAE Nameplate shown below is for an OWP motor.

North American Electric, Inc.				OIL WELL PUMP MOTOR			
INVERTER DUTY 20:1 VT 10:1 CT							
TYPE:	MODEL:	S.F.:	1.15	O7	O8	O9	
HP:	FRAME:	EFF:		O6	O4	O5	230V
RPM:	VOLTS:	P.F.:		O12	O10	O11	
INS: F	AMPS:	CODE:		O1	O2	O3	
PH: 3/60 Hz	MAX AMB:	DE BRG:		L1	L2	L3	
DATE:	S/N	ODE BRG:		O9	O7	O8	
WT/LBS.	DESIGN: D	Lube: Mobil Polyrex EM		O6	O4	O5	480V
				O12	O10	O11	
				O1	O2	O3	
				L1	L2	L3	
ISO9001 AC INDUCTION MOTOR				CE			
Hernando, MS 38632							

### NAE Nameplate shown below is for a VHS motor.

North American Electric, Inc.		NEMA Premium		VERTICAL HOLLOW SHAFT MOTOR HIGH THRUST DESIGN		INVERTER DUTY 20:1 VT		Connected Diagrams	
MODEL		FRAME						208-230V	
HZ	60	S.F.		ENCL	WP1	DESIGN	B	T4 T5 T6	
HP		RPM		IP	23	INS	F	PHASE	3
VOLTS		MAX.AMBIENT		40 C				T7 T8 T9	
FLA		RATING CONTINUOUS		S1				T10 T11 T12	
NEMA CODE	P.F.	MOTOR WEIGHT		LBS				T13 T14 T15	
NOM EFF	MIN EFF	CONNECTION		12 LEAD 2 /				T16 T17 T18	
DOWN THRUST		BASE DIAMETER		INCHES				T19 T20 T21	
UPPER BEARING		BOTTOM BEARING						T22 T23 T24	
OIL CAP		QTS		LUBRICATION		MOBIL POLYREXEM		T1 T2 T3	
NON-REVERSE-RATCHET-BALL TYPE		SERIAL NO.						L1 L2 L3	
Specifically designed for use on deep well turbine pump applications. Hernando, Mississippi				ISO9001 CERTIFIED		CC323B		SP US ENERGY VERIFIED 2082	
				ROTATION				PART WIND START	
								CAPABLE @ 230V	

References:

- Motor Nameplate and Ratings Explained;
- EASA Electrical Engineering Pocket Handbook
- easa.com/resources
- https://www.ecmweb.com/maintenance-repair-operations/motors/article/20897647/how-precise-are-motor-nameplate-ratings
- https://electrical-engineering-portal.com/nema-definition-of-motor-full-load-nominal-efficiency-standard-mg1-12-54-2
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