

3-Phase Motor NEMA Premium™ Information Guide

National Electrical Manufacturers Association (NEMA), in conjunction with the US electric motor industry, has established NEMA Premium Efficiency standards as the highest nominal efficiencies to date, and is endorsed by the Consortium for Energy Efficiency (CEE). CEE members include electric utilities, administrators of state and regional efficiency programs, and environmental and research groups. CEE's motor specifications are used as a basis for public motor efficiency programs, which may include rebates or financing.

3-PHASE MOTORS AND NEW ENERGY LEGISLATION (EISA)

The Energy Independence and Security Act (EISA) of 2007 was signed into law in December of 2007. While the policy covers several areas of promoting energy efficiency, its primary focus is to conserve domestic resources, limit dependence on foreign oil, and reduce toxic emissions. The production of energy is one of the largest contributors to the decline of natural resources as well as pollution of the environment. Motors consume approximately 60% of the electricity

used in the United States; therefore, motors were targeted to raise the bar in minimum efficiency levels to help drive this initiative. While the law was signed in 2007, the real action will take place on December 19th of 2010. Motor manufacturers will only be able to manufacture motors covered by the legislation meeting the newer, higher efficiency levels after that date.

ENERGY LEGISLATION COVERAGE

The EAct 2007 legislation separates the motors covered by the policy into 2 groups: Subtype 1 and Subtype 2. These are defined as follows.

SUBTYPE 1

- General Purpose 3-Phase Motors
- 1 to 200 HP
- NEMA frame 143T and larger
- C-Face Motors with Base Mount

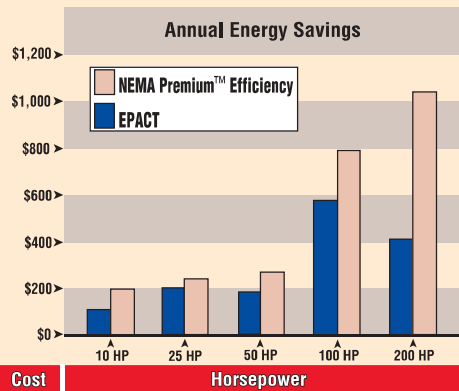
Motors previously covered under EAct 1992 will now be required to meet NEMA Premium Efficient levels (NEMA MG1 Table 12-12).

SUBTYPE 2

- General Purpose and Definite Purpose 3-Phase Motors
- 1 to 200 HP
- NEMA frame 143T and larger
- U Frame Motor Designs
- NEMA Design C Torque
- Close-Coupled Pump
- Metric IEC
- Fire Pump
- Footless Design, C-Face without Base
- Vertical Solid Shaft Normal Thrust
- 8 Pole General Purpose Design up to 600V
- NEMA Design B General Purpose 201 to 500 HP

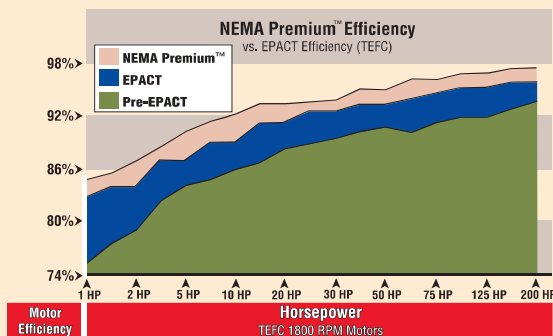
3-Phase motors not covered under EAct 1992 and meeting the following requirements, will now be required to meet old EAct 1996 minimum efficiency standards (NEMA MG1 Table 12-11).

Note: NEMA Premium is a registered trademark of the National Electrical Manufacturers Association and may only be used on products covered by a memorandum of understanding between the manufacturer and NEMA.



ANNUAL ENERGY SAVINGS

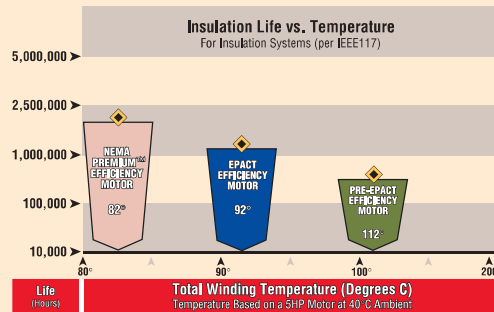
NEMA Premium™ Efficiency motors will save you significant energy costs, resulting in a faster payback on your purchase. Comparisons are based on industry average efficiency standards. Based on a Dayton TEFC motor, 1800 rpm, 0.07/KWH @ 4400 hours.



EFFICIENCY COMPARISONS

Grainger carries a complete line of 1 to 200 HP NEMA Premium™ Efficiency motors.

Motor HP	NEMA EPACT Nominal Full-Load Efficiency						NEMA Premium Nominal Full-Load Efficiency					
	Open Motors			Enclosed Motors			Open Motors			Enclosed Motors		
	1200 rpm	1800 rpm	3600 rpm	1200 rpm	1800 rpm	3600 rpm	1200 rpm	1800 rpm	3600 rpm	1200 rpm	1800 rpm	3600 rpm
1	80	82.5	—	80	82.5	75.5	82.5	85.5	77.0	82.5	85.5	77.0
1½	84	84	82.5	85.5	84	82.5	86.5	86.5	84.0	87.5	86.5	84.0
2	85.5	84	84	86.5	84	84	87.5	86.5	85.5	88.5	86.5	85.5
3	86.5	86.5	84	87.5	87.5	85.5	88.5	89.5	85.5	89.5	89.5	86.5
5	87.5	87.5	85.5	87.5	87.5	87.5	89.5	89.5	86.5	89.5	89.5	88.5
7½	88.5	88.5	87.5	89.5	89.5	88.5	90.2	91.0	88.5	91.0	91.7	89.5
10	90.2	89.5	88.5	89.5	89.5	89.5	91.7	91.7	89.5	91.7	91.7	90.2
15	90.2	91	89.5	90.2	91	90.2	91.7	93.0	90.2	91.7	92.4	91.0
20	91	91	90.2	90.2	91	90.2	92.4	93.0	91.0	91.7	93.0	91.0
25	91.7	91.7	91	91.7	92.4	91	93.0	93.6	91.7	93.0	93.6	91.7
30	92.4	92.4	91	91.7	92.4	91	93.6	94.1	91.7	93.0	93.6	91.7
40	93	93	91.7	93	93	91.7	94.1	94.1	92.4	94.1	94.1	92.4
50	93	93	92.4	93	93	92.4	94.1	94.5	93.0	94.1	94.5	93.0
60	93.6	93.6	93	93.6	93.6	93	94.5	95.0	93.6	94.5	95.0	93.6
75	93.6	94.1	93	93.6	94.1	93	94.5	95.0	93.6	94.5	95.4	93.6
100	94.1	94.1	93	94.1	94.5	93.6	95.0	95.4	93.6	95.0	95.4	94.1
125	94.1	94.5	93.6	94.1	94.5	94.5	95.0	95.4	94.1	95.0	95.4	95.0
150	94.5	95	93.6	95	95	94.5	95.4	95.8	94.1	95.8	95.8	95.0
200	94.5	95	94.5	95	95	95	95.4	95.8	95.0	95.8	96.2	95.4
250	—	—	—	—	—	—	95.4	95.8	95.0	95.8	96.2	95.8
300	—	—	—	—	—	—	95.4	95.8	95.4	95.8	96.2	95.8
350	—	—	—	—	—	—	95.4	95.8	95.4	95.8	96.2	95.8
400	—	—	—	—	—	—	95.8	95.8	95.8	95.8	96.2	95.8
450	—	—	—	—	—	—	96.2	96.2	95.8	95.8	96.2	95.8
500	—	—	—	—	—	—	96.2	96.2	95.8	95.8	96.2	95.8



INSULATION LIFE VS. TEMPERATURE

NEMA Premium™ Efficiency motors run cooler and operate at a lower temperature rise which increases insulation life, grease life, and ultimately the life of the motor. You'll enjoy lower maintenance and air conditioning costs with less downtime.