

AutomationDirect AC Motors Selection Overview

EPAct, High and Premium Efficiency What does it all mean?

EPAct (1992)

In 1992, the U.S. Congress passed legislation requiring that general purpose Design A & B motors meet minimum efficiency requirements, and this legislation was called the Energy Policy Act of 1992. Previously, there had been no U.S. standards set forth for motor energy efficiency. Since 1997 (when EPAct '92 was first enforced), two-, four-, and six-pole general purpose Design A & B motors had to meet EPAct guidelines. Since then, most general purpose motors manufactured and/or sold in the U.S. have met these requirements.

Premium Efficiency (EISA 2007)

In December 2010, a new level of energy efficiency mandate went into effect. The Energy Independence and Security Act of 2007 mandated that all AC industrial motors as described below must meet Premium Efficiency standards. The NEMA trade group was instrumental in getting this legislation passed, so many people refer to the high efficiency motors by their nickname – NEMA Premium®. All applicable motors manufactured or imported into the U.S. after December 2010 must meet the Premium Efficiency guidelines.

Motors Covered Under EISA 2007 (Premium Efficiency Mandate)

Included – must meet the new Premium Efficiency standards – Industrial AC electric squirrel-cage general-purpose motors as follows:

Single speed; Polyphase; 1–200 hp with 3-digit frame sizes; 2, 4, & 6 pole (3600, 1800, & 1200 rpm); NEMA design A & B (including IEC equivalent); Continuous rated

Not Included in Premium Efficiency standards, but must now meet EPAct standards:

JM; JP; Round body (footless); 201–500 hp; Fire pump; U-frame; Design C; 8-pole

Certain motors (Inverter/Vector Duty, NEMA design D, etc.) are not covered by EISA 2007.

For full text, visit www.energy.senate.gov and click "ENERGY INDEPENDENCE & SECURITY ACT OF 2007".

| Nominal Full-Load Efficiency Standards Comparisons (%) | | | | | | |
|---|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|
| Enclosed Electric Motors, Random Wound, 60 Hz, 600V or Less | | | | | | |
| Motor HP | 1200 rpm [6-pole] | | 1800 rpm [4-pole] | | 3600 rpm [2-pole] | |
| | EPAct | Premium Efficiency | EPAct | Premium Efficiency | EPAct | Premium Efficiency |
| 1 | 80.0 | 82.5 | 82.5 | 85.5 | 75.5 | 77.0 |
| 1.5 | 85.5 | 87.5 | 84.0 | 86.5 | 82.5 | 84.0 |
| 2 | 86.5 | 88.5 | 84.0 | 86.5 | 84.0 | 85.5 |
| 3 | 87.5 | 89.5 | 87.5 | 89.5 | 85.5 | 86.5 |
| 5 | 87.5 | 89.5 | 87.5 | 89.5 | 87.5 | 88.5 |
| 7.5 | 89.5 | 91.0 | 89.5 | 91.7 | 88.5 | 89.5 |
| 10 | 89.5 | 91.0 | 89.5 | 91.7 | 89.5 | 90.2 |
| 15 | 90.2 | 91.7 | 91.0 | 92.4 | 90.2 | 91.0 |
| 20 | 90.2 | 91.7 | 91.0 | 93.0 | 90.2 | 91.0 |
| 25 | 91.7 | 93.0 | 92.4 | 93.6 | 91.0 | 91.7 |
| 30 | 91.7 | 93.0 | 92.4 | 93.6 | 91.0 | 91.7 |
| 40 | 93.0 | 94.1 | 93.0 | 94.1 | 91.7 | 92.4 |
| 50 | 93.0 | 94.1 | 93.0 | 94.5 | 92.4 | 93.0 |
| 60 | 93.6 | 94.5 | 93.6 | 95.0 | 93.0 | 93.6 |
| 75 | 93.6 | 94.5 | 94.1 | 95.4 | 93.0 | 93.6 |
| 100 | 94.1 | 95.0 | 94.5 | 95.4 | 93.6 | 94.1 |
| 125 | 94.1 | 95.0 | 94.5 | 95.4 | 94.5 | 95.0 |
| 150 | 95.0 | 95.8 | 95.0 | 95.8 | 94.5 | 95.0 |
| 200 | 95.0 | 95.8 | 95.0 | 96.2 | 95.0 | 95.4 |