Integral Horsepower Electric Motors

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Monitor
Verify
Enforce
US Regulations are in Place

- Standards - test and efficiency
  -Precise
  -Published

- Labeling - product and collateral
  -Nominal Efficiency
  -Compliance number

- Accredited Labs
  -Manufacturer
  -Third Party

- Enforcement procedures
  -Sample size, method, specific performance
Historic Efficiency Trend 2001-2006

Market penetration after six years

Company Confidential
Future Efficiency Expected 2008-2013

Revised forecast model with the EISA impact of NEMA Premium required 12/19/10

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Current Requirements

- Department of Energy
  - Submit efficiency data for 113 ratings [basic models]
  - Five ratings must be test data
    - 107 ratings submit calculated data
  - Test Lab must be NVLAP accredited

- DOE provides compliance number to manufacturer
  - Manufacturer includes compliance number on each name plate of covered products
  - Custom can verify using compliance number and nominal efficiency on name plate or shipping documents
**Monitoring**

- Current Department of Energy
  - Industry self policing
  - Limited customs review
    - Weak at best
- Industry efforts
  - NEMA Premium
  - Licensed trade mark
Use of the mark beginning in 2011 will require additional validation

- DOE compliant data
  - Agreement to the use of CFR10 part 431 testing and labeling
- Annual lab accreditation certificate
- Annual verification
Why is MVE important

- To Manufacturers
  - Regulatory compliance
  - Provides a level playing field
  - Market differentiation or “brand building”
  - Flexibility to meet changing requirements, e.g., DOE, EPA, CA, NRCan and others
  - Potential to reduce non-value added costs for testing and administrative oversight by ‘outsourcing’ to a third party

- To Regulators
  - Assurance product meets applicable regulatory requirements
  - Facilitates compliance to minimum performance standards
  - Potential to fulfill need for test data submission

- To Consumers
  - Increases consumers’ confidence in industry ratings
  - Add credibility to life cycle cost evaluation
  - Clear product identification
  - Potential regulatory compliance
Key program elements of NEMA Premium Support MVE

- Industry directed; not government mandated
- Certification programs performance based
- Use recognized industry test standards
  - CFR 10 part 431
- Verify manufacturer’s performance ratings through 3rd party testing
- Open to members and non-members
- Open to all manufacturers, foreign and domestic
“Basic model “ concept

- All programs define a “Basic Model”
  - Similar performance characteristics
    - Horsepower
    - Speed
    - Enclosure
  - Example of a basic model
    - 5 horsepower, four pole, and enclosed
Random product selection process

- Selection from a sample minimum,
  - Select from distributor stock

- Shipment to testing laboratory
  - Units sealed by authorized selector
  - Checked upon receipt at laboratory

- After successful test
  - Returned to manufacturer
  - Sent to a selected distributor
  - Donated to applied technology school
  - Discarded
**Independent testing**

- 3rd party testing laboratory
  - Avoids conflict of interest
  - Minimizes capital requirements

- Authorized laboratory or witness test
  - Accredited manufacturer labs acceptable
  - First preference is laboratory testing
  - Witness testing at manufacturers accredited lab
Test failure provisions

- First test failure
  - Laboratory advises manufacturer and NEMA
  - Manufacturer’s options
    - Delist models in the basic model group
    - Retest using another sample
    - Prove a defect caused failure and retest as first sample

- Second test failure
  - Laboratory advises manufacturer and NEMA
  - Manufacturer’s options
    - Mandatory rerate of entire basic model group to the test results or
    - Obsolete all models in the basic model group
MVE- Certification documents

- Standard- NEMA and IEEE
  - Defines technical requirements
  - Test methods
- Operational manual- NEMA License
  - Defines program requirements
  - Validation schedule
- Participation agreement, OEM
  - Defines terms for product testing
- License agreement, Motor Manufacturer
  - Defines terms, conditions, and legal requirements for the use of the certification mark
Certifications - Labs and Products

NVLAP - USA

ISO 9001:2000

CSA - CANADA

EMA - MEXICO

ILAC

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Overarching policy

- All-certify rule
- Test methods and procedures use existing federal regulations
- “Basic model ” concept
- Random product selection process
- Independent testing
- Test failure provisions
- NEMA peer review
Would you like a copy of the NEMA Premium license agreement?

Email

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Where is the next motor priority?

Save Energy by expanding the application of NEMA Premium to an additional 35% of units sold each year.

Low Risk? NEMA Premium is an electrical design that may be incorporated in most mechanical packages rarely having negative affects to the application.