



Green Label Product Motors (TGL-15-98)

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TGL-15-98 Motors

1 Background

Main environmental impacts of motor result from the pollutants generated during its production and a high electricity consumption due to low efficiency motors. The higher electricity consumption indirectly result in environmental impacts during electricity generation, which not only uses a plenty of natural resources, but also result in serious impacts such as air pollutants, particulate, ash, wastewater and heavy metals.

Green Label Motor must be an energy efficient motor, should not use the paint with heavy metal residues, and should preferably use the recycled materials.

2 Scope

This category includes only three-phase induction motors which have a rated output and a voltage not exceeding 375 kW or 500 horse power and 1,000 volts, respectively.

3 Definitions

- 3.1 **Motor** refers to the machine that converts electrical energy into mechanical energy by electromagnetic field.
- 3.2 **Rating** refers to the numeric value for totally electrical and mechanical quantity which is specified on the rating sheet and the motor meets those specified conditions.
- 3.3 **Rated value** refers to the numeric value for rating quantity.
- 3.4 **Rated output** refers to the numeric value for rating quantity.
- 3.5 **Load** refers to the numeric value for total mechanical quantity that is done with motor at any moment.
- 3.6 **No-Load** refers to the state of the motor that spins at normal speed in a given condition, but do not want to use the power.
- 3.7 **Lot** refers to motors which the same model, type and rated output that are produce from the same manufacture in the same time.

4 General requirements

- 4.1 The product shall be certified or passed the product quality requirements (except for efficiency test) in accordance with Thai Industrial Standard for Three-phase Induction Motors, TIS 867 or international standards or acceptable standards such as IEC, NEMA, JIS.

Verification Method

The applicant shall submit the certificate of Thai Industrial Standard for Three-phase Induction Motors, TIS 867 or test reports stating compliance with product quality requirements in accordance with TIS 867 or international standards or acceptable standards such as IEC, NEMA, JIS.

- 4.2 The manufacturing process, transportation and post-industrial waste disposal shall comply with national laws and regulations.

Verification Method

The applicant shall submit the license or evidence to prove that manufacturing process, transportation, and post-industrial waste disposal comply with national laws and regulations.

5 Environment requirements

- 5.1 The efficiency shall not be less than the minimum value indicated in Table 1.

Table 1: The Efficiency of Motor

Size		2 poles	4 poles	6 poles	8 poles
(hp)	(kW)	(~3,000 rpm)	(~1,500 rpm)	(~1,000 rpm)	(~750 rpm)
1.0	0.75	75.5	82.5	80.0	74.0
1.5	1.1	82.5	84.0	85.5	77.0
2.0	1.5	84.0	84.0	86.5	82.5
3.0	2.2	85.5	87.5	87.5	84.0
5.0	3.7-4.0	87.5	87.5	87.5	85.5
7.5	5.5	88.5	89.5	89.5	85.5
10.0	7.5	89.5	89.5	89.5	88.5
15.0	11.0	90.2	91.0	90.2	88.5
20.0	15.0	90.2	91.0	90.2	89.5
25.0	18.5	91.0	92.4	91.7	89.5
30.0	22.0	91.0	92.4	91.7	91.0
40.0	30.0	91.7	93.0	93.0	91.0
50.0	37.0	92.4	93.0	93.0	91.7
60.0	45.0	93.0	93.6	93.6	91.7
75.0	55.0	93.0	94.1	93.6	93.0
100.0	75.0	93.6	94.5	94.1	93.0
125.0	90.0	94.5	94.5	94.1	93.6
150.0	110.0	94.5	95.0	95.0	93.6
200.0	150.0-160.0	95.0	95.0	95.0	94.1
250.0	185.0-200.0	95.4	95.0	95.0	94.5
300.0	220.0-250.0	95.4	95.4	95.4	95.4
400.0	300.0-315.0	95.4	95.4	95.4	95.4
500.0	355.0-400.0	95.4	95.8	95.4	94.5

Verification Method

The applicant shall submit the test reports for the efficiency of motor by using test method according to IEEE-112 (test method B) and random sampling from the same lot as in the following Table 2.

Table 2: Random Sampling number

Number of product per lot	Number of sample per lot	Acceptable number of sample that is not passed
< 5	all	0
5-150	5	0
151-500	20	1
501-1,200	32	2
1,201-3,200	50	3
>3,200	80	5

5.2 The manufacturer shall establish a policy and a program to use of recycled materials.

Verification Method

The applicant shall submit the letter of declaration to certify that is meeting the requirement no. 5.2. The declaration letters shall be signed by authorized personnel of the manufacturer and have the company seal affixed (if relevant).

5.3 Paints used in product shall not contain the following heavy metals such as mercury or component of mercury, lead, cadmium, chromium and their oxide compounds.

Verification Method

The applicant shall submit one of the following documents;

1. Letter of declaration to certify that paints used in the product is meeting the requirement no. 5.3. The declaration letters shall be signed by authorized personnel of the paint manufacturers and have the company seal affixed (if relevant).
2. Test results of heavy metals in paints in accordance with acceptable standards.

6. Testing and certification

6.1 Testing

- 6.1.1 The laboratory shall be operated by the government or under governmental control as defined by clause 5 of the Industrial Standard Act B.E. 2511 (and its addenda) or certified by TIS. 17025¹ or ISO 17025².
- 6.1.2 Test results
 - 6.1.2.1 Shall be the results of the testing methods defined in this document.

¹TIS 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

²ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

In the event of any conflict arising, the original criteria in Thai is to be final authority

- 6.1.2.2 If “comparable test methods” are applied, the following documents shall be submitted with the test results;
- (1) Declaration letter from the laboratory verifying that the test methods are comparable to the methods defined in this document.
 - (2) Method validation documents which enable unequivocal scientific verification that the testing methods and requirements defined in this document have been met.
- 6.1.2.3 Test results shall have been issued no more than 1 year following the application date.

6.2 Declaration letter to verify compliance with Green label specification

- 6.2.1 Shall have been issued no more than 1 year following the application date.
- 6.2.2 Shall be signed by the authorized directors and have the company seal affixed (if relevant).