

## **Schedule - 6**

### **Energy Efficient Three Phase squirrel cage Induction Motors**

#### **1. Scope**

This schedule specifies the requirements for participating in the energy labeling scheme for 3 phase squirrel cage induction motor in 2 Pole, 4 Pole and 6 Pole for continuous duty (S1) operation, suitable for voltage and frequency variation as per IS 12615:2011 having rated output as mentioned in the Tables 1, 2 and 3 of the **Annexure A**.

In particular, this scheme specifies the following:

1. Rated output (rating)
2. Efficiency Class based on IS 12615:2011 i.e. (IE2, IE2(+), IE3, IE3(+) and IE3 (++))
3. Some of the requirements for energy label validity.
4. The performance criteria for energy labeling validity.
5. Test report format.
6. Label design and details to be incorporated on the label.

#### **2. Schedule of Tests:**

##### **2.1 Method of Tests:**

The method of testing shall be as given in IS/ IEC 60034-2-1/ IS15999-2011, reaffirmed with all amendments.

##### **2.2 Parameters to be tested:**

Parameters for initial verification and check testing shall be as given in clause 21.1 of IS 12615:2011.

##### **2.3 Test Report:**

The test report shall be submitted as per the performa given in **Annexure B** of this schedule.

#### **3. Pre-Qualification criteria:**

- a) The products should conform to minimum performance requirements of IS 12615: 2011 to participate in BEE S&L Programme.
- b) BIS Standard mark or Quality Certification as per IS/ISO 9000 are prerequisite to participate in BEE S&L Programme.

#### **4. Qualification criteria:**

The performance of the motor at the rated voltage and rated frequency under the specified conditions shall be as specified in Tables 1, 2 and 3 of **Annexure A** of this schedule.

**5. Tolerance limits:**

All the performance values are subject to tolerance as specified in clause 12.1 of IS/IEC 60034-1:2004. However, there shall be no tolerance for star rating band, the average products tested must be at par or better than the label threshold without tolerance.

**6. Labeling Plan**

The star rating plan based on the motor efficiency class as given in tables 1, 2 & 3 for 2 pole, 4 pole and 6 pole motors shall be as given in the following table.

| <b>Star Rating</b> | <b>Motor Efficiency Class</b>             |
|--------------------|---|
| <b>1 Star</b>      | $\geq \text{IE2} \& \< \text{IE2}(+)$     |
| <b>2 Star</b>      | $\geq \text{IE2}(+) \& \< \text{IE3}$     |
| <b>3 Star</b>      | $\geq \text{IE3} \& \< \text{IE3}(+)$     |
| <b>4 Star</b>      | $\geq \text{IE3}(+) \& \< \text{IE3}(++)$ |
| <b>5 Star</b>      | $\geq \text{IE3}(++)$                     |

**NOTE:**

- i. IE2, IE3 values are based on IS 12615:2011
- ii. IE2 (+) is the intermediate value between IE2 and IE3
- iii. IE3 (+) is the intermediate value between IE3 and IE3 (++)
- iv. IE3 (++) is the value equivalent to IE4 Values based on the guideline given in IEC 60034-31
- v. IE2 values specified in IS 12615:2011 would be the minimum entry level for labeling as per this schedule.**

**7. Sampling**

For check testing samples shall be picked up by BEE or its designated agency. The sample size for check testing shall be as decided by BEE.

## **8. Name Plate & Label Content:**

- All the contents of the name plate shall confirm to BIS specification as per clause 10.2 of IS/IEC 60034-1:2004. Any other additional information may be furnished if required by the manufacturers.
- The size of the name plate & position of display shall be as per the choice of motor manufacturers.
- The design of Energy star label shall be as given in clause 10.1 of this schedule.
- The manner of display scheme of the Energy star label will be as per clause 10.2 of this schedule

## **9. Labeling Fees**

- i. Registration Fee payable on application (for each model) for authority to affix labels is Rs. 1000/- ( Rupees one thousand only)
- ii. Registration Fee payable on application for renewal (of each application) of authority to affix labels is Rs. 500/ (Rupees five hundred only)
- iii. Labeling fee for affixation of label on each General purpose motor is Rs. 5 (five rupees only)
- iv. The time and procedure laid down in the manner of submission of labelling fees has been listed in 'General Instructions' manual (available on BEE website)
- v. For other Terms & Conditions regarding participation in the voluntary programme the BEE scheme for Energy Efficiency Labelling should be referred (available on BEE website)

**10. Label design & manner of display:**

**10.1** Detailed label specifications (size, colour scheme, font size, security features, etc), content of the label (parameters displayed on the label) is provided below. The dimensions of the label can be proportionally reduced with respect to the size of the motor, but should be prominently visible.

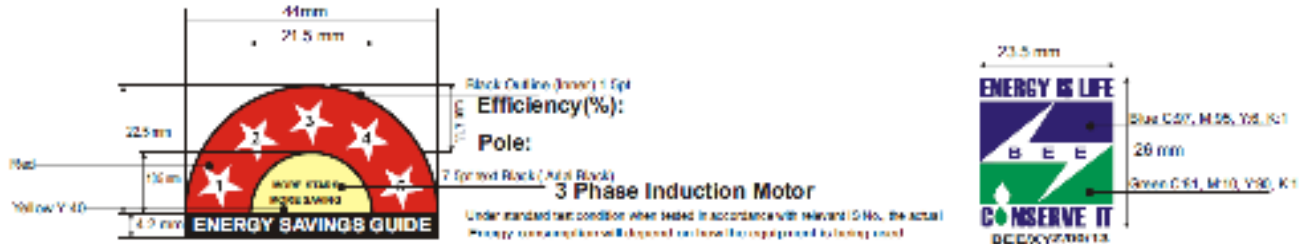


Figure 1: Design Scheme of Label (sample)

**10.2 Manner of display of label:**

The Label logo including the contents shall be prominently visible on the name plate (as shown in Figure 2). All the contents of the name plate shall confirm to BIS specification as per clause 10.2 of IS/IEC 60034-1:2004. Any other additional information may be furnished if required by the manufacturers.

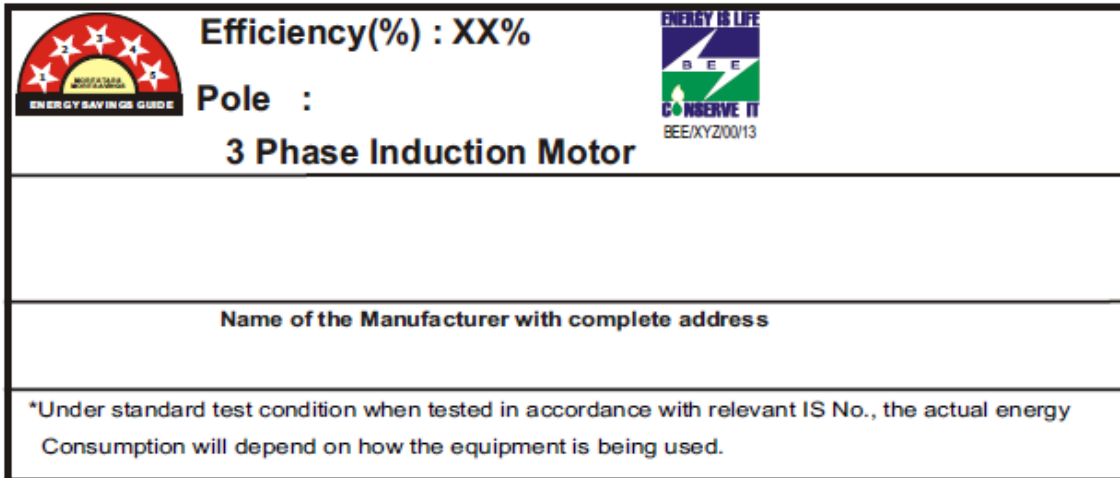


Figure 2: Sample label of Induction Motor

## Annexure A- Performance figures

**Table 1 - Values of Performance characteristics of 2 pole Energy Efficient Induction Motors (based on IS 12615:2011)**

| Sr No | Rated Output | Frame Size                    | Full Load Speed (Min.) | Full Load Current (Max.) | Breakaway Torque in terms of full load torque (Min) | Breakaway Current in terms of full load current (equal or below) |                | Nominal Efficiency % |                |                |                |                |
|-------|--------------|-------------------------------|------------------------|--------------------------|---|--|----------------|----------------------|----------------|----------------|----------------|----------------|
|       |              |                               |                        |                          |   | For IE2  | For IE3        | Star 1               | Star 2         | Star 3         | Star 4         | Star 5         |
|       |              |                               |                        |                          |   | Percent  | Percent        | IE2                  | IE2 (+)        | IE3            | IE3 (+)        | IE3(++)        |
|       | <b>KW</b>    |                               | <b>RPM</b>             | <b>Amps</b>              | <b>Percent</b>                                      | <b>Percent</b>   | <b>Percent</b> | <b>Percent</b>       | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> |
| 1     | 0.37         | 71                            | 2750                   | 1.2                      | 170   | 650  | 700            | 72.2                 | 73.9           | 75.5           | 77.7           | 79.9           |
| 2     | 0.55         | 71                            | 2760                   | 1.6                      | 170   | 650  | 700            | 74.8                 | 76.5           | 78.1           | 80.3           | 82.4           |
| 3     | 0.75         | 80                            | 2780                   | 2.0                      | 170   | 650  | 700            | 77.4                 | 79.1           | 80.7           | 82.8           | 84.9           |
| 4     | 1.1          | 80                            | 2790                   | 2.8                      | 170   | 650  | 700            | 79.6                 | 81.2           | 82.7           | 84.7           | 86.7           |
| 5     | 1.5          | 90S                           | 2800                   | 3.7                      | 170   | 650  | 700            | 81.3                 | 82.8           | 84.2           | 85.9           | 87.5           |
| 6     | 2.2          | 90L                           | 2810                   | 5.0                      | 170   | 700  | 770            | 83.2                 | 84.6           | 85.9           | 87.5           | 89.1           |
| 7     | 3.7          | 100L                          | 2820                   | 8.0                      | 160   | 700  | 770            | 85.5                 | 86.7           | 87.8           | 89.0           | 90.2           |
| 8     | 5.5          | 132S                          | 2830                   | 11.0                     | 160   | 700  | 770            | 87.0                 | 88.1           | 89.2           | 90.4           | 91.5           |
| 9     | 7.5          | 132S                          | 2840                   | 15.0                     | 160   | 700  | 770            | 88.1                 | 89.1           | 90.1           | 91.1           | 92.1           |
| 10    | 11.0         | 160M                          | 2860                   | 21.5                     | 160   | 700  | 770            | 89.4                 | 90.3           | 91.2           | 92.1           | 93             |
| 11    | 15.0         | 160M                          | 2870                   | 29.0                     | 160   | 700  | 770            | 90.3                 | 91.1           | 91.9           | 92.7           | 93.4           |
| 12    | 18.5         | 160L                          | 2880                   | 35.0                     | 160   | 700  | 770            | 90.9                 | 91.7           | 92.4           | 93.1           | 93.8           |
| 13    | 22.0         | 180M                          | 2890                   | 41.5                     | 160   | 700  | 770            | 91.3                 | 92.0           | 92.7           | 93.5           | 94.2           |
| 14    | 30.0         | 200L                          | 2900                   | 54.0                     | 160   | 700  | 770            | 92.0                 | 92.7           | 93.3           | 93.9           | 94.5           |
| 15    | 37.0         | 200L                          | 2900                   | 67.0                     | 160   | 700  | 770            | 92.5                 | 93.1           | 93.7           | 94.3           | 94.8           |
| 16    | 45.0         | 225M                          | 2955                   | 80.0                     | 160   | 700  | 770            | 92.9                 | 93.5           | 94.0           | 94.6           | 95.1           |
| 17    | 55.0         | 250M                          | 2960                   | 95.0                     | 160   | 700  | 770            | 93.2                 | 93.8           | 94.3           | 94.9           | 95.4           |
| 18    | 75.0         | 280S                          | 2970                   | 130.0                    | 160   | 700  | 770            | 93.8                 | 94.3           | 94.7           | 95.2           | 95.6           |
| 19    | 90.0         | 280M                          | 2970                   | 150.0                    | 160   | 700  | 770            | 94.1                 | 94.6           | 95.0           | 95.4           | 95.8           |
| 20    | 110.0        | 315S                          | 2980                   | 185.0                    | 160   | 700  | 770            | 94.3                 | 94.8           | 95.2           | 95.6           | 96             |
| 21    | 125.0        | 315M                          | 2980                   | 209.0                    | 160   | 700  | 770            | 94.5                 | 94.9           | 95.3           | 95.7           | 96             |
| 22    | 132.0        | 315M                          | 2980                   | 220.0                    | 160   | 700  | 770            | 94.6                 | 95.0           | 95.4           | 95.7           | 96             |
| 23    | 160.0        | 315L                          | 2980                   | 265.0                    | 160   | 700  | 770            | 94.8                 | 95.2           | 95.6           | 95.9           | 96.2           |
| 24    | 200.0        | As per manufacturer catalogue | 2980                   | 340.0                    | 160   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.1           | 96.3           |
| 25    | 250.0        |                               | 2980                   | 425.0                    | 160   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.1           | 96.4           |
| 26    | 315.0        |                               | 2980                   | 536.0                    | 160   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.2           | 96.5           |
| 27    | 355.0        |                               | 2980                   | 604.0                    | 160   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.2           | 96.6           |
| 28    | 375.0        |                               | 2980                   | 604.0                    | 160   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.2           | 96.6           |

**Table 2 - Values of Performance characteristics of 4 pole Energy Efficient Induction Motors (based on IS 12615:2011)**

| Sr No | Rated Output | Frame Size                    | Full Load Speed (Min.) | Full Load Current (Max.) | Breakaway Torque in terms of full load torque (Min) | Breakaway Current in terms of full load current (equal or below) |                | Nominal Efficiency % |                |                |                |                |
|-------|--------------|-------------------------------|------------------------|--------------------------|---|--|----------------|----------------------|----------------|----------------|----------------|----------------|
|       |              |                               |                        |                          |   | For IE2  | For IE3        | Star 1               | Star 2         | Star 3         | Star 4         | Star 5         |
|       |              |                               |                        |                          |   | Percent  | Percent        | IE2                  | IE2 (+)        | IE3            | IE3(+)         | IE3(++)        |
|       | <b>KW</b>    |                               | <b>RPM</b>             | <b>Amps</b>              | <b>Percent</b>                                      | <b>Percent</b>   | <b>Percent</b> | <b>Percent</b>       | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> |
| 1     | 0.37         | 71                            | 1330                   | 1.4                      | 170.0   | 600  | 650            | 70.1                 | 71.6           | 73.0           | 74.5           | 76.0           |
| 2     | 0.55         | 80                            | 1340                   | 1.7                      | 170.0   | 600  | 650            | 75.1                 | 76.6           | 78.0           | 79.5           | 81.0           |
| 3     | 0.75         | 80                            | 1360                   | 2.2                      | 170.0   | 600  | 650            | 79.6                 | 81.1           | 82.5           | 84.1           | 85.6           |
| 4     | 1.1          | 90S                           | 1370                   | 2.9                      | 170.0   | 600  | 650            | 81.4                 | 82.8           | 84.1           | 85.8           | 87.4           |
| 5     | 1.5          | 90L                           | 1380                   | 3.8                      | 170.0   | 600  | 650            | 82.8                 | 84.1           | 85.3           | 86.7           | 88.1           |
| 6     | 2.2          | 100L                          | 1390                   | 5.1                      | 170.0   | 700  | 750            | 84.3                 | 85.5           | 86.7           | 88.2           | 89.7           |
| 7     | 3.7          | 112M                          | 1410                   | 8.1                      | 160.0   | 700  | 750            | 86.3                 | 87.4           | 88.4           | 89.6           | 90.7           |
| 8     | 5.5          | 132S                          | 1420                   | 11.4                     | 160.0   | 700  | 750            | 87.7                 | 88.7           | 89.6           | 90.9           | 92.1           |
| 9     | 7.5          | 132M                          | 1430                   | 15.4                     | 160.0   | 700  | 750            | 88.7                 | 89.6           | 90.4           | 91.5           | 92.6           |
| 10    | 11.0         | 160M                          | 1440                   | 22.0                     | 160.0   | 700  | 750            | 89.8                 | 90.6           | 91.4           | 92.5           | 93.6           |
| 11    | 15.0         | 160L                          | 1440                   | 30.0                     | 160.0   | 700  | 750            | 90.6                 | 91.4           | 92.1           | 93.1           | 94.0           |
| 12    | 18.5         | 180M                          | 1440                   | 36.0                     | 160.0   | 700  | 750            | 91.2                 | 91.9           | 92.6           | 93.5           | 94.3           |
| 13    | 22.0         | 180L                          | 1440                   | 43.0                     | 160.0   | 700  | 750            | 91.6                 | 92.3           | 93.0           | 93.9           | 94.7           |
| 14    | 30.0         | 200L                          | 1450                   | 56.0                     | 160.0   | 700  | 750            | 92.3                 | 93.0           | 93.6           | 94.3           | 95.0           |
| 15    | 37.0         | 225S                          | 1450                   | 69.0                     | 160.0   | 700  | 750            | 92.7                 | 93.3           | 93.9           | 94.6           | 95.3           |
| 16    | 45.0         | 225M                          | 1460                   | 84.0                     | 160.0   | 700  | 750            | 93.1                 | 93.7           | 94.2           | 94.9           | 95.6           |
| 17    | 55.0         | 250M                          | 1460                   | 99.0                     | 160.0   | 700  | 750            | 93.5                 | 94.1           | 94.6           | 95.2           | 95.8           |
| 18    | 75.0         | 280S                          | 1470                   | 134.0                    | 160.0   | 700  | 770            | 94.0                 | 94.5           | 95.0           | 95.5           | 96.0           |
| 19    | 90.0         | 280M                          | 1470                   | 164.0                    | 160.0   | 700  | 770            | 94.2                 | 94.7           | 95.2           | 95.7           | 96.2           |
| 20    | 110.0        | 315S                          | 1480                   | 204.0                    | 160.0   | 700  | 770            | 94.5                 | 95.0           | 95.4           | 95.9           | 96.4           |
| 21    | 125.0        | 315M                          | 1480                   | 234.0                    | 160.0   | 700  | 770            | 94.6                 | 95.1           | 95.5           | 96.0           | 96.5           |
| 22    | 132.0        | 315M                          | 1480                   | 247.0                    | 160.0   | 700  | 770            | 94.7                 | 95.2           | 95.6           | 96.1           | 96.5           |
| 23    | 160.0        | 315L                          | 1480                   | 288.0                    | 160.0   | 700  | 770            | 94.9                 | 95.4           | 95.8           | 96.2           | 96.5           |
| 24    | 200.0        | As per manufacturer catalogue | 1480                   | 348.0                    | 160.0   | 700  | 770            | 95.1                 | 95.6           | 96.0           | 96.3           | 96.6           |
| 25    | 250.0        |                               | 1480                   | 435.0                    | 160.0   | 700  | 770            | 95.1                 | 95.6           | 96.0           | 96.4           | 96.7           |
| 26    | 315.0        |                               | 1480                   | 548.0                    | 160.0   | 700  | 770            | 95.1                 | 95.6           | 96.0           | 96.4           | 96.8           |
| 27    | 355.0        |                               | 1480                   | 618.0                    | 160.0   | 700  | 770            | 95.1                 | 95.6           | 96.0           | 96.4           | 96.8           |
| 28    | 375.0        |                               | 1480                   | 653.0                    | 160.0   | 700  | 770            | 95.1                 | 95.6           | 96.0           | 96.4           | 96.8           |

**Table 3 - Values of Performance characteristics of 6 pole Energy Efficient Induction Motors (based on IS 12615:2011)**

| Sr No | Rated Output | Frame Size                  | Full Load Speed (Min.) | Full Load Current (Max.) | Breakaway Torque in terms of full load torque (Min) | Breakaway Current in terms of full load current (equal or below) |                | Nominal Efficiency % |                |                |                |                |
|-------|--------------|-----------------------------|------------------------|--------------------------|---|--|----------------|----------------------|----------------|----------------|----------------|----------------|
|       |              |                             |                        |                          |   | For IE2  | For IE3        | Star 1               | Star 2         | Star 3         | Star 4         | Star 5         |
|       |              |                             |                        |                          |   | Percent  | Percent        | IE2                  | IE2 (+)        | IE3            | IE3 (+)        | IE3(++)        |
|       | <b>KW</b>    |                             | <b>RPM</b>             | <b>Amps</b>              | <b>Percent</b>                                      | <b>Percent</b>   | <b>Percent</b> | <b>Percent</b>       | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> | <b>Percent</b> |
| 1     | 0.37         | 80                          | 870                    | 1.4                      | 160   | 600  | 650            | 69.0                 | 70.5           | 71.9           | 74.0           | 76.1           |
| 2     | 0.55         | 80                          | 870                    | 1.9                      | 160   | 600  | 650            | 72.9                 | 74.4           | 75.9           | 78.0           | 80.1           |
| 3     | 0.75         | 90S                         | 890                    | 2.3                      | 160   | 600  | 650            | 75.9                 | 77.4           | 78.9           | 81.0           | 83.1           |
| 4     | 1.1          | 90L                         | 900                    | 3.2                      | 160   | 600  | 650            | 78.1                 | 79.6           | 81.0           | 82.6           | 84.1           |
| 5     | 1.5          | 100L                        | 900                    | 4.0                      | 160   | 600  | 650            | 79.8                 | 81.2           | 82.5           | 84.4           | 86.2           |
| 6     | 2.2          | 112M                        | 910                    | 5.5                      | 150   | 700  | 750            | 81.8                 | 83.1           | 84.3           | 85.7           | 87.1           |
| 7     | 3.7          | 132S                        | 920                    | 8.8                      | 150   | 700  | 750            | 84.3                 | 85.4           | 86.5           | 87.9           | 89.2           |
| 8     | 5.5          | 132M                        | 920                    | 12.7                     | 150   | 700  | 750            | 86.0                 | 87.0           | 88.0           | 89.1           | 90.2           |
| 9     | 7.5          | 160M                        | 930                    | 16.7                     | 150   | 700  | 750            | 87.2                 | 88.2           | 89.1           | 90.3           | 91.5           |
| 10    | 11.0         | 160L                        | 935                    | 23.0                     | 140   | 700  | 750            | 88.7                 | 89.5           | 90.3           | 91.4           | 92.5           |
| 11    | 15.0         | 180L                        | 940                    | 30.5                     | 140   | 700  | 750            | 89.7                 | 90.5           | 91.2           | 92.2           | 93.1           |
| 12    | 18.5         | 200L                        | 940                    | 37.5                     | 140   | 700  | 750            | 90.4                 | 91.1           | 91.7           | 92.6           | 93.5           |
| 13    | 22.0         | 200L                        | 945                    | 44.0                     | 140   | 700  | 750            | 90.9                 | 91.6           | 92.2           | 93.1           | 93.9           |
| 14    | 30.0         | 225M                        | 945                    | 59.0                     | 140   | 700  | 750            | 91.7                 | 92.3           | 92.9           | 93.6           | 94.3           |
| 15    | 37.0         | 250M                        | 950                    | 72.0                     | 140   | 700  | 750            | 92.2                 | 92.8           | 93.3           | 94.0           | 94.6           |
| 16    | 45.0         | 280S                        | 960                    | 87.0                     | 140   | 700  | 750            | 92.7                 | 93.2           | 93.7           | 94.3           | 94.9           |
| 17    | 55.0         | 280M                        | 960                    | 107.0                    | 140   | 700  | 750            | 93.1                 | 93.6           | 94.1           | 94.7           | 95.2           |
| 18    | 75.0         | 315S                        | 970                    | 145.0                    | 140   | 700  | 770            | 93.7                 | 94.2           | 94.6           | 95.0           | 95.4           |
| 19    | 90.0         | 315M                        | 970                    | 175.0                    | 140   | 700  | 770            | 94.0                 | 94.5           | 94.9           | 95.3           | 95.6           |
| 20    | 110.0        | 315M                        | 970                    | 214.0                    | 140   | 700  | 770            | 94.3                 | 94.7           | 95.1           | 95.4           | 95.6           |
| 21    | 125.0        | 315M                        | 970                    | 245.0                    | 140   | 700  | 770            | 94.4                 | 94.8           | 95.2           | 95.5           | 95.7           |
| 22    | 132.0        | 315L                        | 980                    | 257.0                    | 140   | 700  | 770            | 94.6                 | 95.0           | 95.4           | 95.6           | 95.8           |
| 23    | 160.0        | as per motor mfr catalogue. | 980                    | 315.0                    | 140   | 700  | 770            | 94.8                 | 95.2           | 95.6           | 95.8           | 96             |
| 24    | 200.0        |                             | 980                    | 370.0                    | 140   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.0           | 96.1           |
| 25    | 250.0        |                             | 980                    | 463.0                    | 140   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.0           | 96.1           |
| 26    | 315.0        |                             | 980                    | 583.0                    | 140   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.0           | 96.1           |
| 27    | 355.0        |                             | 980                    | 657.0                    | 140   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.0           | 96.1           |
| 28    | 375.0        |                             | 980                    | 694.0                    | 140   | 700  | 770            | 95.0                 | 95.4           | 95.8           | 96.0           | 96.1           |





### 5.0 Momentary Overload Test

160 % of the rated Torque for 15 Secs  
 Outcome of the test: Pass/ Fail

### 6.0 Torque Test ( CI 19.5 of IS 12615 : 2011)

| Rated Torque     | Kgm            |            | Voltage                   |            | Volts                      |            |             |
|------------------|----------------|------------|---------------------------|------------|----------------------------|------------|-------------|
| Parameter        | Pull up torque |            | Breakaway Starting Torque |            | Breakaway Starting Current |            | Input Power |
| Unit             | Kgm            | (% of FLT) | Kgm                       | (% of FLT) | Amps                       | (% of FLC) | Watts       |
| Specified Values |                |            |                           |            |                            |            |             |
| Observed Values  |                |            |                           |            |                            |            |             |

### 7.0 Load test values

| Sl.No. | Load                    | Voltage | Current | Power Input | Speed | Freq. | Power Output | Slip | Eff. | Power Factor | Torque |
|--------|-------------------------|---------|---------|-------------|-------|-------|--------------|------|------|--------------|--------|
|        |                         | Volts   | Amps    | Watts       | rpm   | Hz    | Watts        | %    | %    |              | kgm    |
| 1.     | No Load                 |         |         |             |       |       |              |      |      |              |        |
| 2.     | 25 % Load               |         |         |             |       |       |              |      |      |              |        |
| 3.     | 50 % Load               |         |         |             |       |       |              |      |      |              |        |
| 4.     | 75 % Load               |         |         |             |       |       |              |      |      |              |        |
| 5.     | 100 % Load (Rated Load) |         |         |             |       |       |              |      |      |              |        |
| 6.     | 125 % Load              |         |         |             |       |       |              |      |      |              |        |

### 8.0 Temperature rise test

| Sl. No | Requirements                                    | Ambient temperature |                        |
|--------|---|---------------------|------------------------|
|        |   | Specified Limit     | Actual Observed Values |
|        |   | ° C                 | ° C                    |
| 1      | AC Windings of Motor by Resistance Method (max) |                     |                        |
|        |   |                     |                        |

**10.0 Degrees of protection by enclosure ( Clause 19.13 of IS 12615 : 2011)**

| Sl. No. | Name of the Test                                | Remarks |
|---------|---|---------|
| 1.      | <u>Marking</u> :                                |         |
|         | Specification / Test Requirements               |         |
| 2.      | <u>Test for first characteristic numeral</u> :  |         |
|         | Specification / Test Requirements               |         |
| 3.      | <u>Test for second characteristic numeral</u> : |         |
|         | Specification / Test Requirements               |         |
|         | Test Results                                    |         |

Tested by

Approved by

Sign

Sign

Name :

Name :

Designation :

Designation :

Date :

Date :