

# IE3 Premium Efficiency Motors

- Save energy
- Protect environment
- Enhance profits

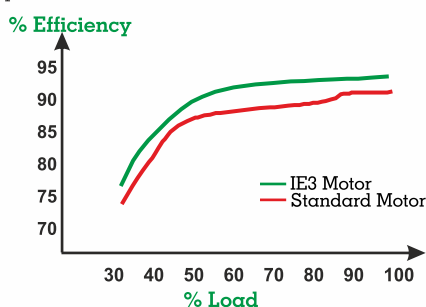


## IEC Motors

### Considerations for selection and usage of IE3 motors

#### Motor Size

The load factor should be chosen between 65% to 100%, so that the advantage of saving will be achieved. The efficiency under such condition standard motor efficiency curve will be in drooping nature, but energy efficient motors have flat efficiency curve, Hence, fall in efficiency is marginal. Thus energy saving is significant even in partial loads.



#### Special Application

The benefits using these motors are maximum in continuous duty applications like blowers, compressors, fans, exhausters & pumps etc.

#### Assessing cost effectiveness

##### Saving:

Savings concluded as follows:

kW = Output of motor

E1 = Efficiency of standard motors

E2 = Efficiency of IE3 motos.

$$X = \frac{kW}{E1} - \frac{kW}{E2}$$

Savings = (X × Working hrs × working days × Tariff)

#### Method of testing efficiency

The efficiency method used to evaluate the efficiency of IE3 motors is more stringent than the method used in case of standard motors.

#### Operating Speed

IE3 motors have less slip compared to standard motors. Hence, their operating speed is more.

#### VFD application

When IE3 motors are used for variable loads the use of VFD results in effective energy saving. Further, the higher inrush current is not encountered by the motor because the VFD modifies the starting current of the motor. It applies low voltage, low frequency supply at the time of starting.

**So it makes a great deal of sense to choose LHPL IE3 level motors whenever a motor is needed to drive any application.**

# IE3 Motors



## About LHP

Established in 1981, LHP is a reputed manufacturer of a wide range of high-quality motors up to 355 L frame (375 kW). The range includes various types of motors such as Standard Induction, Flame-proof, Geared, Brake, Dual Speed, Non-Sparking, Crane & Hoist Duty and Special Purpose Motors to name only a few. The range has been proving its worth for different applications in various industries. LHP motors are the preferred choice of major corporates, MNCs & OEMs due to the product quality, performance, timely deliveries and competitive prices.

The ISO 9001 - 2008 certification, CE mark, 3 BIS licences and National Awards for Quality Products have made LHP Motors the customer's 'First Choice'.

## LHP IE3 motors conform to IEC 60034-30:2008 and IS:12615-2011

- > Suitable for continuous process industries where high energy saving is essential
- > Short payback period for replacement
- > Enhanced motor life
- > Less maintenance

## Applications

Machine tools, Textile, Air conditioning, Dairy equipment, Packing machinery, Material handling equipment, Geared Motors, Wood seasoning plants, Solvent extraction plants, Edible oil factories, Cement plants, Paper plants, Sugar plants, Steel plants, Petroleum, Pharma and Chemical Industries.

## Specifications

Range	Up to 1000 kW
RPM	3000, 1500, 1000 (synchronous) at 50Hz
Mounting	Foot (B-3), Flange (B5), Face (B-14) and combinations
Frame	65 to 450
Protection	IP : 55
Insulation	F class
Voltage	415V, 380V or as per requirement
Frequency	50 Hz / 60 Hz or as per requirement

## Applicable standards

IS : 325 (IEC 34 - 1)	Specifications for 3 phase induction motors
IS : 12615 (IEC 34 - 30)	Specifications for Energy Efficiency Induction Motors
IS : 4722 (BS 4999)	Specifications for rotating electrical machines
IS/IEC 60034-5	Degree of protection provided by enclosure for rotating electrical machines
IS : 4889 (IEC 34 - 2)	Method of determination of efficiency of rotating electrical machines

The values of efficiency for motors to classify as IE3 in accordance with the new IEC 60034-30-2008/IS:12615-2011/IEC 60034-30 are as under

kW	2 Pole		4 Pole		6 Pole	
	Frame size	Efficiency %	Frame size	Efficiency %	Frame size	Efficiency %
0.37	71	75.5	71	73.0	80	71.9
0.55	71	78.1	80	78.0	80	75.9
0.75	80	80.7	80	82.5	90S	78.9
1.1	80	82.7	90S	84.1	90L	81.0
1.5	90S	84.2	90L	85.3	100L	82.5
2.2	90L	85.9	100L	86.7	112M	84.3
3	100L	87.1	112M	87.7	132S	85.6
3.7	100L	87.8	112M	88.4	132S	86.5
4	112M	88.1	132S	88.6	132M	86.8
5.5	132S	89.2	132S	89.6	132M	88.0
7.5	132S	90.1	132M	90.4	160M	89.1
11	160M	91.2	160M	91.4	160L	90.3
15	160M	91.9	160L	92.1	180L	91.2
18.5	160L	92.4	180M	92.6	200L	91.7
22	180M	92.7	180L	93.0	200L	92.2
30	200L	93.3	200L	93.6	225M	92.9
37	200L	93.7	225S	93.9	250M	93.3
45	225M	94.0	225M	94.2	280S	93.7
55	250M	94.3	250M	94.6	280M	94.1
75	280S	94.7	280S	95.0	315S	94.6
90	280M	95.0	280M	95.2	*315M	94.9
110	315S	95.2	315S	95.4	*315M	95.1
132	*315M	95.4	*315M	95.6	*315L	95.4
160	*315L	95.6	*315L	95.8	355L	95.6
200	315L	95.8	315L	96.0	355L	95.8
250	355S	95.8	355S	96.0	355L	95.8
315	355S	95.8	355L	96.0	400M	95.8

Notes : 1. IS : 1231 defines frame size to output correlation only up to Frame size 315M  
2. (\*) These frames are indicated as "preferred" in IS:12615-2011