

Powered by Trust®

 Bharat Bijlee

# LV Motors: IE2 Safe Area

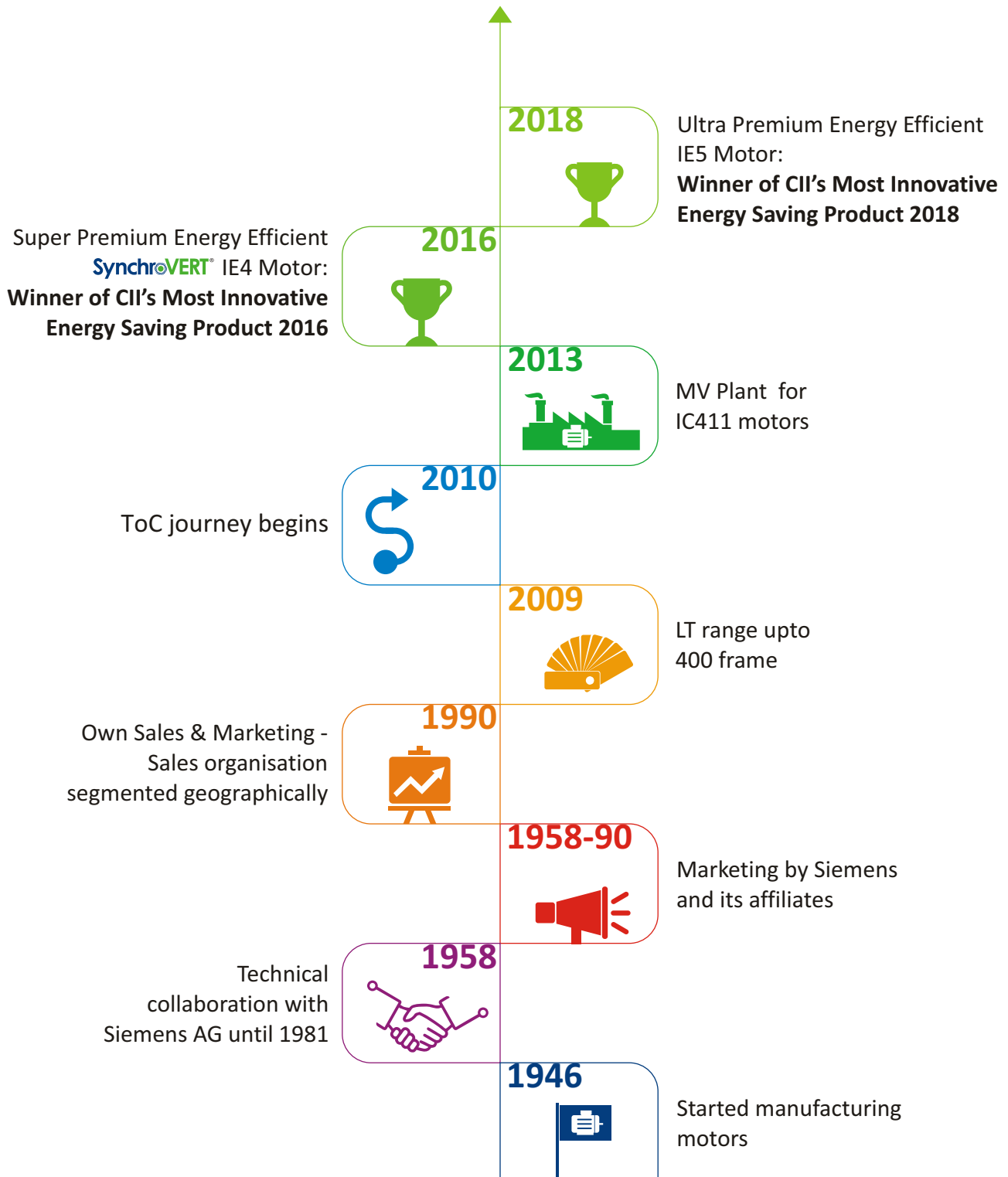
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Reliable | Long lasting



**A MOTOR FOR EVERY NEED**

## BHARAT BIJLEE MOTORS: MILESTONES



The industrial sector accounts for over half the total electricity consumption, of which 60 to 70% is utilized by electric motors. This indicates that the electric motors consume more energy than any other application.

A typical electric motor's average lifespan ranges anywhere between 15 to 20 years depending on the quality of raw material and manufacturing process. The operational cost of a motor is around 95% of the total life cycle cost. With a steadily increasing installed base of electric motors, our nation has a tremendous opportunity to save energy.

The purpose of energy efficiency labelling is to overcome the lack of awareness and also help end users in selecting from a range of energy-efficient products. While the developed world has kept pace with energy efficiency measures, the developing countries have been slower in implementing them for electric motors.

Minimum Energy Performance Standards (MEPS) was voluntary in the past but as per the recent mandate by the Indian Government, the minimum efficiency of 3 phase squirrel cage induction motors that can be manufactured and sold in the country needs to be IE2 efficiency level conforming to IS standards

Bharat Bijlee has always advocated the concept of energy saving for a sustainable future. It has always been our persistent endeavour to develop a wide range of motors in premium efficiency series thus rendering choice to customers to select from the wide range of energy efficient motors.

Established in 1946, Bharat Bijlee has evolved over the decades to provide a wide range of motors suitable even for the most severe of applications. Having gained the trust of our customers over the years, we continue to be the most preferred brand as a result of our unique offering to the industry.

### Why Bharat Bijlee?



Preferred brand across multiple sectors like Cement, Construction, Steel, Food & Beverages, Water & Wastewater, Sugar & Distilleries to name a few



Motors suited for all applications i.e. Pumps, Compressors, Fans & Blowers, Conveyors, Lifts, Screen, Vibrators, Centrifuges, Stone crusher & many more



The most suitable solutions to extremely harsh and severe applications



Customized motors designed and manufactured to suit application specific needs



Motors conform to relevant IS/IEC standards



Annual Production capacity upto 2,50,000 motors



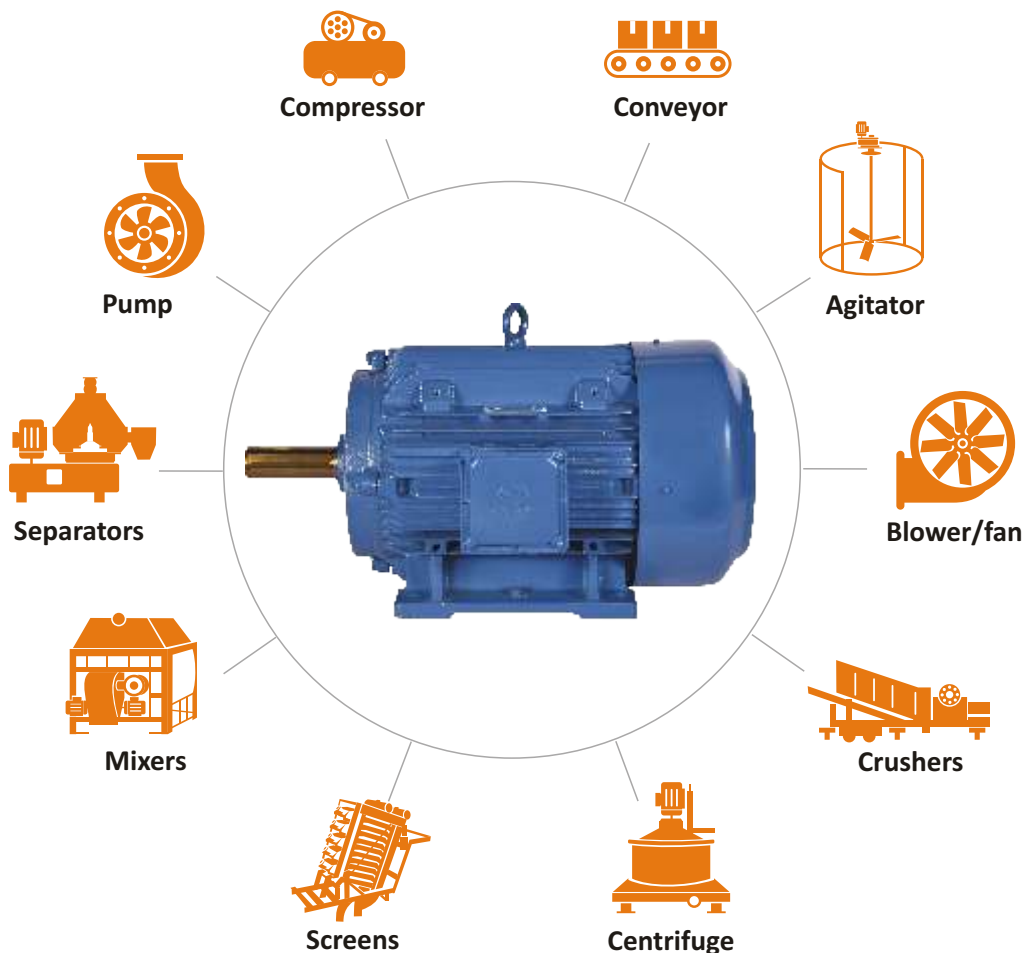
**A MOTOR FOR EVERY NEED**

## REFERENCE STANDARDS

IS/IEC 60034-1	Three Phase Induction motor specifications ("Rotating Electrical Machines - Part 1: Rating & Performance")
IS : 900	Code of practice for installation & maintenance of induction motors
IS: 1231	Dimensions of foot mounted A.C induction motors
IS: 2223	Dimensions of flange mounted A.C induction motors
IS: 4029	Guide for testing three phase induction motors (For Standard TEFC SCR Motors)
IS: 4889	Methods of determination of efficiency of rotating electric machines (For Standard TEFC SCR Motors)
IS/IEC 60034-5	Degree of protection provided by the integral design of Rotating Electrical Machines (IP code classification)
IS: 6362/IEC 60034-6	Designation of method of cooling for Rotating Electrical Machines / Method of cooling (IC code)
IS:12065/IEC 60034-9	Permissible limits of noise level for Rotating Electric Machines
IS : 12075	Mechanical Vibration of Rotating Electrical Machines
IS : 12615	Energy Efficient Induction Motors Three phase Squirrel Cage
IEC 60034-30	Rotating Electrical Machines - Efficiency classes of line operated AC motors (IE code)
IEC 60072-1	Dimension & Output rating of Rotating Electrical machines
IS:15999 (Part 2 /Sec 1)	Standard Methods for determining Losses and Efficiency from Tests (For IE Series Motors)

## BEARING CHART

Fr. Size	Bearing Nos.	
	D.E.	N.D.E.
71	6202 2Z	6202 2Z
80	6004 2Z	6004 2Z
90 S & L	6205 2Z	6205 2Z
100L	6206 2Z	6205 2Z
112M	6206 2Z	6205 2Z
132 S / M	6208 2Z	6208 2Z
160 M/L	6309 2Z	6209 2Z
180 M/L 4P	6310 2Z	6309 2Z
180 M/L (2, 6, 8 Pole)	6310 2Z	6210 2Z
200 L	6312 2Z	6212 2Z
225 S/M	6313	6213
250M	6315	6215
280S/M (2 Pole)	6316	6316
280S/M (4, 6, 8 Pole)	6317	6316
315S/M & L	6319	6319
355L	6322	6322



## GENERAL TECHNICAL SPECIFICATIONS

### Range

- **Series:** 3 Phase Squirrel Cage Induction, IE2 Safe Area Motors
- **kW Rating:** 0.37 to 355
- **Frame:** 71 to 355
- **Polarity:** 2, 4, 6



Standard Feature	Optional Feature
Voltage: 415V	Any other voltage on request
Frequency: 50 Hz	60 Hz
IP55	IP56, IP65, IP66
B3 Mounting	B5, B35, B14 (upto 132 Frame)
Ambient: 50°C ; For DCCA motors: 40°C	Any other on request
Top TB: Upto 160 Frame, 250 to 355 Frame RHS TB: 180 to 225 Frame	Any other on request
Aluminium Construction: 63 to 132 Frame Cast Iron Construction: 160 Frame & Above	Cast Iron construction: 90 to 132 Frame
Insulation: Class F	Insulation: Class H
IC411: Totally Enclosed Fan Cooled	IC410: Natural Ventilation IC416: Forced Cooling for 132 Frame & above
Sealed Bearing: upto 200 Frame Online Greasing Arrangement: 225 Frame & Above	Online Greasing Arrangement: 160 to 200 Frame
Paint Shade: Acrylic base, RAL5000	Any other shade or material on request
Fan Cover: Steel	
Thermal Protection in DCCA Motors: 3 nos. simplex RTD	Duplex RTD: For DCCA Motors Simplex & duplex RTD: 250 Frame & Above BTD: 250 Frame & above Thermister: 80 Frame & Above
Space Heater for DCCA Motors	Space Heater: 90 Frame & Above
Inverter Duty Application: 315 Frame & Above	Inverter Duty Application: Upto 280 Frame
Packing: Thermocol / Corrugated Boxes: Upto 132 Frame Packing: Wooden Packing Boxes: 160 Frame & Above	Wooden Pallets Sea Worthy / Export Packing Case
For standard bearings, kindly refer to the bearing chart	Insulated Bearing / Hybrid Bearing: 132 frame & above Cylindrical Roller Bearing with Locking Arrangement on DE Side : 160 frame & above

#### Our other optional features:

- Higher polarity
- Motors suitable for inverter duty application for all voltages
- Motors suitable for S2 to S9 duty operation
- VPI upto 280 frame
- Non standard shaft material, diameter & extension
- Front bearing locking arrangement
- SS Hardware, Canopy, non standard paint & paint shade, cable gland
- Provision for hollow shaft encoder mounting
- High temperature grease
- Reduced & Special grades of vibration as per IS 12075 can be provided on request

## LV MOTORS: IE2 SAFE AREA

### Performance Data : IE2 Efficiency Series for Safe Area Application

Applicable standard for testing & efficiency determination : IS15999

Voltage: 415V +/- 10%

Frequency: 50Hz +/- 5%

Combined Variation: +/- 10%

Ambient: 50°C

Duty: S1 (Continuous)

3000 rpm (2 Pole)

Insulation: Class F

Temperature Rise: Class B

Protection: IP55

Rated Output		Frame size	Type Reference	Operating characteristics at rated output				With DOL starting				Rotor GD <sup>2</sup> kgm <sup>2</sup>	Net Weight B3 constr. kg				
kW	HP			Rated Speed RPM	Rated Current Amps.	Rated Torque kg-m	Power Factor			% Efficiency	Starting Current Ratio			Starting Torque Ratio	Pullout Torque Ratio		
			B3 construction	FL	3/4L	1/2L	FL	3/4L	1/2L	FL	3/4L	1/2L					
0.37	0.50	71	2H0712A300000	2850	0.99	0.126	0.72	0.60	0.55	72.2	72.2	66.0	5.0	2.6	3.0	0.0019	7
0.55	0.75	71	2H07123300000	2805	1.29	0.191	0.79	0.72	0.58	74.8	74.8	70.0	5.0	2.7	3.0	0.0019	7
0.75	1.0	80	2H08021300000	2830	1.64	0.258	0.82	0.74	0.62	77.4	76.5	73.5	5.0	2.5	2.8	0.0037	10
1.1	1.5	80	2H08023300000	2830	2.34	0.379	0.82	0.75	0.63	79.6	79.6	75.5	6.0	2.7	3.0	0.0051	11
1.5	2	90S	2H09S243AT000	2835	3.09	0.52	0.83	0.77	0.66	81.3	81.3	80.0	6.0	2.6	2.8	0.0053	15
2.2	3	90L	2H09L273AT000	2835	4.33	0.75	0.85	0.80	0.70	83.2	83.2	82.5	6.0	2.8	3.0	0.0066	17
3.7	5	100L	2H10L233AT000	2890	6.84	1.25	0.88	0.83	0.73	85.5	85.5	83.0	6.5	2.8	3.1	0.0142	24
5.5	7.5	132S	2H13S2G3AT000	2930	9.88	1.83	0.89	0.86	0.79	87	87	84.5	6.5	2.5	3	0.0515	47
7.5	10	132S	2H13S2N3AT000	2935	13.3	2.49	0.89	0.86	0.8	88.1	87.7	86	6.5	2.5	3	0.0800	59
9.3	12.5	160M	2H16M23300000	2940	16.5	3.08	0.88	0.86	0.81	88.9	88.6	86.0	6.0	2.0	2.5	0.1420	98
11	15.0	160M	2H16M25300000	2940	19.5	3.64	0.88	0.85	0.79	89.4	89.4	87.0	6.5	2.1	2.6	0.1600	104
15	20.0	160M	2H16M26300000	2930	26.3	4.99	0.88	0.87	0.82	90.3	90.0	88.0	6.5	2.0	2.5	0.1910	115
18.5	25.0	160L	2H16L29300000	2930	31.5	6.15	0.90	0.89	0.86	90.9	90.9	89.0	6.5	2.0	2.5	0.2440	137
22	30.0	180M	2H18M23300000	2935	37.7	7.30	0.89	0.87	0.82	91.3	91.0	88.8	7.0	2.4	2.7	0.3400	177
30	40.0	200L	2H20L2A300000	2955	51.0	9.89	0.89	0.86	0.80	92.0	92.0	90.0	7.0	2.6	3.0	0.6100	274
37	50.0	200L	2H20L27300000	2955	64.0	12.20	0.87	0.84	0.76	92.5	92.5	91.0	7.0	2.2	2.5	0.6400	275
45	60.0	225M	2H22M25300000	2965	76.6	14.78	0.88	0.85	0.78	92.9	92.7	91.0	7.0	2.5	2.5	1.13	353
55	75.0	250M	2H25M23300000	2965	90.2	18.07	0.91	0.89	0.86	93.2	92.7	90.0	7.0	2.3	2.7	2.60	550
75	100	280S	2H28S23300000	2970	122	24.60	0.91	0.89	0.86	93.8	93.6	92.0	6.5	2.0	2.8	3.01	669
90	120	280M	2H28M25300000	2970	146	29.52	0.91	0.89	0.86	94.1	93.9	90.9	6.5	2.0	2.8	3.42	750
110	150	315S	2H31S23300000	2982	180	35.93	0.90	0.86	0.80	94.3	94.1	91.5	7.0	2.2	2.5	5.00	898
125	170	315M	2H31M2A300000	2982	207	40.83	0.89	0.85	0.78	94.5	93.5	91.5	7.0	2.2	2.6	5.00	940
132	180	315M	2H31M23300000	2982	216	43.11	0.90	0.86	0.80	94.6	93.6	91.3	7.0	2.0	2.5	5.00	940
150	200	315L	2H31L2A300000	2982	248	48.99	0.89	0.84	0.78	94.7	93.7	92.2	7.0	2.0	2.5	6.20	1100
160	215	315L	2H31L25300000	2985	261	52.21	0.90	0.86	0.80	94.8	94.1	93.0	7.0	2.4	2.5	6.20	1100
180	240	315L	2H31L2B300000	2982	300	58.79	0.88	0.82	0.75	94.9	94.1	93.0	7.0	2.0	2.5	7.70	1390
200	270	355L	2H35L2A300000	2985	325	65.26	0.90	0.87	0.82	95	94.2	92.2	7.0	1.6	2.4	12.00	1680
250	335	355L	2H35L21300000	2985	407	81.57	0.90	0.88	0.84	95.0	94.5	92.8	7.0	1.6	2.4	12.00	1680
315	425	355L	2H35L23300000	2985	513	102.78	0.90	0.88	0.84	95	94.5	93.0	7.0	1.6	2.4	14.70	1870

Note: All performance values are subject to tolerances as per IS/IEC 60034-1



## LV MOTORS: IE2 SAFE AREA

### Performance Data : IE2 Efficiency Series for Safe Area Application

Applicable standard for testing & efficiency determination : IS15999

Voltage: 415V +/- 10%

Frequency: 50Hz +/- 5%

Combined Variation: +/- 10%

Ambient: 50°C

Duty: S1 (Continuous)

1500 rpm (4 Pole)

Insulation: Class F  
Temperature Rise: Class B  
Protection: IP55

Rated Output		Frame size	Type Reference	Operating characteristics at rated output				With DOL starting				Rotor GD <sup>2</sup> kgm <sup>2</sup>	Net Weight B3 constr. kg		
kW	HP			Rated Speed RPM	Rated Current Amps.	Rated Torque kg-m	Power Factor			% Efficiency	Starting Current Ratio			Starting Torque Ratio	Pullout Torque Ratio
			B3 construction	FL	3/4L	1/2L	FL	3/4L	1/2L	FL	3/4L	1/2L			
0.37	0.50	71	2H07143300000	0.71	0.62	0.50	70.1	70.1	65.0	70.1	70.1	65.0	2.5	0.0033	7
0.55	0.75	80	2H08043300000	0.74	0.64	0.50	75.1	75.1	68.0	75.1	75.1	68.0	3.0	0.0072	11
0.75	1.0	80	2H08045300000	0.75	0.66	0.53	79.6	79.6	74.0	79.6	79.6	74.0	3.0	0.0082	12
1.1	1.5	90S	2H09S423AT000	0.78	0.69	0.55	81.4	81.4	79.0	81.4	81.4	79.0	2.7	0.0106	15
1.5	2.0	90L	2H09L473AT000	0.78	0.68	0.56	82.8	82.8	80.5	82.8	82.8	80.5	2.8	0.0130	17
2.2	3	100L	2H10L473AT000	0.83	0.74	0.60	84.3	84.3	82.5	84.3	84.3	82.5	3.0	0.0211	24
3.7	5	112M	2H11M473AT000	0.81	0.76	0.64	86.3	86.3	85.0	86.3	86.3	85.0	3.0	0.0494	32
5.5	7.5	132M	2H13S4K3AT000	0.84	0.81	0.67	87.7	87.7	86.0	87.7	87.7	86.0	2.8	0.1026	48
7.5	10	132M	2H13M4T3AT000	0.84	0.76	0.65	88.7	88.7	87.0	88.7	88.7	87.0	2.8	0.1254	57
9.3	12.5	160M	2H16M4C3CT000	0.82	0.76	0.68	89.4	89.4	87.0	89.4	89.4	87.0	2.7	0.1870	99
11	15.0	160M	2H16M4K3CT000	0.83	0.78	0.68	89.8	89.8	88.5	89.8	89.8	88.5	2.4	0.2850	109
15	20.0	160L	2H16L4T3CT000	0.83	0.78	0.68	90.6	90.6	89.5	90.6	90.6	89.5	2.4	0.2930	132
18.5	25.0	180M	2H18M47300000	0.85	0.82	0.76	91.2	91.2	89.5	91.2	91.2	89.5	2.7	0.5400	188
22	30	180L	2H18L48300000	0.84	0.78	0.70	91.6	91.6	89.8	91.6	91.6	89.8	3.0	0.6100	200
30	40	200L	2H20L45300000	0.86	0.82	0.72	92.3	92.3	90.0	92.3	92.3	90.0	2.6	0.9300	275
37	50	225S	2H22S43300000	0.87	0.85	0.77	92.7	92.7	90.5	92.7	92.7	90.5	2.6	1.60	362
45	60	225M	2H22M45300000	0.87	0.85	0.77	93.1	93.1	91.0	93.1	93.1	91.0	2.6	1.85	377
55	75	250M	2H25M43300000	0.85	0.80	0.72	93.5	93.5	92.0	93.5	93.5	92.0	2.8	3.06	520
75	100	280S	2H28S42300000	0.85	0.82	0.74	94.0	94.0	93.0	94.0	94.0	93.0	2.8	5.53	670
90	120	280M	2H28M45300000	0.85	0.82	0.74	94.2	94.2	93.0	94.2	94.2	93.0	2.7	6.36	735
110	150	315S	2H31S41300000	0.86	0.83	0.76	94.5	94.5	92.3	94.5	94.3	92.3	3.0	9.97	862
125	170	315M	2H31M4A300000	0.85	0.81	0.74	94.6	94.6	92.7	94.6	94.3	92.7	3.0	11.70	965
132	180	315M	2H31M43300000	0.86	0.83	0.76	94.7	94.7	93.0	94.7	94.5	93.0	3.0	11.70	965
150	200	315L	2H31L4A300000	0.84	0.80	0.72	94.7	94.7	92.8	94.7	94.4	92.8	3.0	14.00	1145
160	215	315L	2H31L45300000	0.87	0.84	0.78	94.9	94.9	93.1	94.9	94.6	93.1	3.0	14.00	1145
180	240	315L	2H31L46300000	0.86	0.83	0.76	95.0	94.7	93.2	95.0	94.7	93.2	3.0	15.60	1225
200	270	315L	2H31L47300000	0.86	0.83	0.76	95.1	94.8	93.3	95.1	94.8	93.3	3.0	17.76	1290
250	335	355L	2H35L41300000	0.88	0.85	0.75	95.1	94.9	93.5	95.1	94.9	93.5	2.5	23.30	1680
315	422	355L	2H35L43300000	0.88	0.85	0.75	95.1	94.8	93.5	95.1	94.8	93.5	2.2	32.70	1855
355	475	355L	2H35L45300000	0.88	0.85	0.75	95.1	94.9	93.5	95.1	94.9	93.5	2.5	37.90	2025

Note: All performance values are subject to tolerance as per IS/IEC 60034-1

## LV MOTORS: IE2 SAFE AREA

### Performance Data: IE2 Efficiency Series for Safe Area Application

Applicable standard for testing & efficiency determination : IS15999

Voltage: 415V +/- 10%

Frequency: 50Hz +/- 5%

Combined Variation: +/- 10%

Ambient: 50°C

Duty: S1 (Continuous)

1000 rpm (6 Pole)

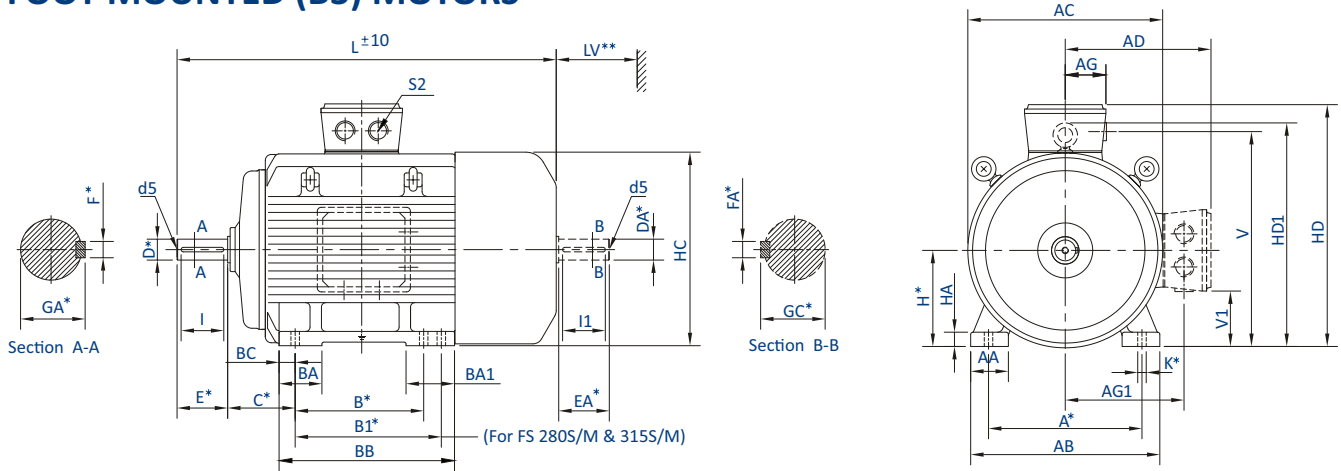
Insulation: Class F  
Temperature Rise: Class B  
Protection: IP55

Rated Output		Frame size	Type Reference	Operating characteristics at rated output				With DOL starting				Rotor GD <sup>2</sup> kgm <sup>2</sup>	Net Weight B3 constr. kg						
kW	HP			Rated Speed RPM	Rated Current Amps.	Rated Torque kg-m	Power Factor			% Efficiency				Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio	Pullout Torque to Rated Torque Ratio			
			B3 construction			FL	3/4L	1/2L	FL	3/4L	1/2L	FL	3/4L	1/2L					
0.37	0.5	80	2H08061300000	910	1.07	0.396	0.70	0.60	0.48	0.60	0.48	69.0	69.0	67.0	3.0	2.1	2.3	0.0060	10
0.55	0.75	80	2H08063300000	915	1.48	0.585	0.71	0.62	0.48	0.62	0.48	72.9	72.9	68.5	4.0	2.2	2.5	0.0084	11
0.75	1.0	90S	2H09S633AT000	920	1.90	0.790	0.72	0.61	0.50	0.61	0.50	75.9	75.9	72.3	4.0	2.0	2.5	0.0105	14
1.1	1.5	90L	2H09L653AT000	920	2.72	1.16	0.72	0.61	0.50	0.61	0.50	78.1	78.1	74.0	4.0	2.0	2.5	0.0155	17
1.5	2.0	100L	2H10L633AT000	935	3.63	1.56	0.72	0.62	0.52	0.62	0.52	79.8	79.8	76.0	4.5	2.0	2.5	0.0241	22
2.2	3.0	112M	2H11M653AT000	955	5.00	2.24	0.75	0.65	0.56	0.65	0.56	81.8	81.8	79.8	5.5	2.1	2.5	0.0609	32
3.70	5.00	132S	2H13S663AT000	960	7.83	3.75	0.78	0.73	0.60	0.73	0.60	84.30	84.30	83.50	5.50	2.00	2.50	0.1093	46
5.50	7.50	132M	2H13M6T3AT000	960	11.60	5.58	0.77	0.71	0.60	0.71	0.60	86.00	86.00	85.00	5.50	2.00	2.50	0.1518	59
7.5	10	160M	2H16M63300000	965	15.3	7.57	0.78	0.73	0.62	0.73	0.62	87.2	87.2	86.0	5.5	1.9	2.3	0.2170	97
9.3	12.5	160L	2H16L66300000	965	18.6	9.39	0.79	0.74	0.64	0.74	0.64	88.0	88.0	86.7	5.5	1.9	2.3	0.2890	115
11	15	160L	2H16L67300000	965	22.1	11.1	0.78	0.73	0.62	0.73	0.62	88.7	88.7	87.0	6.0	2.0	2.5	0.3190	120
15	20	180L	2H18L63300000	965	29.1	15.1	0.80	0.75	0.62	0.75	0.62	89.7	89.7	87.2	5.5	2.6	2.3	0.8200	200
18.5	25	200L	2H20L63300000	975	34.7	18.5	0.82	0.77	0.69	0.77	0.69	90.4	90.4	88.3	5.5	2.6	2.3	1.20	254
22	30	200L	2H20L65300000	975	41.1	22.0	0.82	0.77	0.69	0.77	0.69	90.9	90.9	88.8	6.0	2.6	2.3	1.37	270
30	40	225M	2H22M64300000	975	52.9	30.0	0.86	0.84	0.76	0.84	0.76	91.7	91.2	88.7	7.0	2.5	2.2	2.41	358
37	50	250M	2H25M63300000	980	63.4	36.8	0.88	0.85	0.82	0.85	0.82	92.2	92.2	91.0	6.0	2.5	2.3	3.72	528
45	60	280S	2H28S61300000	984	80.4	44.5	0.84	0.80	0.72	0.80	0.72	92.7	92.7	91.2	6.0	2.5	2.4	5.11	573
55	75	280M	2H28M63300000	984	95.6	54.4	0.86	0.83	0.76	0.83	0.76	93.1	93.1	91.0	6.0	2.4	2.4	6.16	620
75	100	315S	2H31S61300000	988	133	73.9	0.84	0.82	0.75	0.82	0.75	93.7	93.7	92.5	6.0	2.4	2.5	10.70	830
90	120	315M	2H31M63300000	989	159	88.6	0.84	0.80	0.74	0.80	0.74	94.0	94.0	92.9	6.0	2.2	2.5	12.40	912
110	150	315M	2H31M65300000	989	193	108	0.84	0.81	0.74	0.81	0.74	94.3	94.3	93.3	6.0	2.3	2.5	15.50	1010
125	170	315L	2H31L6A300000	990	222	123	0.83	0.80	0.72	0.80	0.72	94.4	94.2	93.0	6.0	2.3	2.5	18.00	1175
132	180	315L	2H31L67300000	990	231	130	0.84	0.81	0.74	0.81	0.74	94.6	94.6	93.8	6.0	2.3	2.5	18.00	1175
150	200	315L	2H31L68300000	990	269	148	0.82	0.79	0.70	0.79	0.70	94.7	94.3	92.8	6.0	2.0	2.5	21.50	1231
160	215	315L	2H31L69300000	990	280	157	0.84	0.81	0.71	0.81	0.71	94.8	94.5	93.0	6.0	2.0	2.5	21.50	1231
180	240	355L	2H35L6A300000	990	322	177	0.82	0.77	0.65	0.77	0.65	94.9	94.6	93.3	6.0	2.0	2.5	28.70	1670
200	270	355L	2H35L61300000	990	349	197	0.84	0.80	0.7	0.80	0.7	95.0	94.7	93.5	6.0	2.0	2.5	28.70	1670
250	335	355L	2H35L63300000	990	436	246	0.84	0.80	0.7	0.80	0.7	95.0	94.7	93.4	6.0	2.0	2.5	35.50	1780

Note: All performance values are subject to tolerance as per IS/IEC 60034-1



## DIMENSIONAL DRAWING: IE2 EFFICIENCY SERIES FOR SAFE AREA APPLICATION FOOT MOUNTED (B3) MOTORS

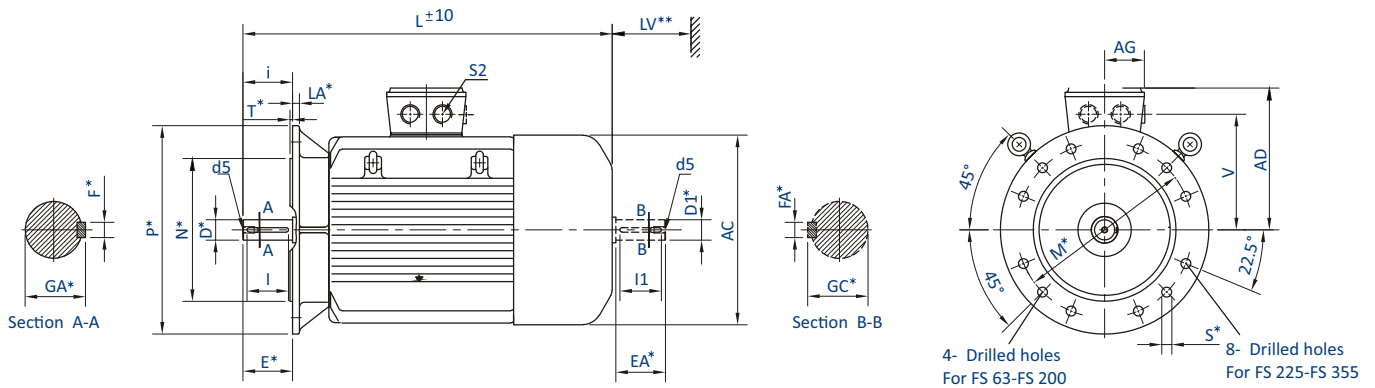


IEC Fr. Size	Pole	FIXING				GENERAL										TERMINAL BOX					SHAFT											
		A*	B*	B1*	C*	H*	K*	AB	BB	AA	BA	BA1	BC	HA	HC	HD	AD	L	LV**	AC	V	AG	HD1	V1	AG1	S2 BSC	D* DA*	E* EA*	F* FA*	GA* GC*	I 1	d5
63	2&4	100	80	—	40	63	7	126	100	28	30	—	10	7	125	179	—	206	30	124	149	40	—	—	—	1x3/4"	11	23	4	12.5	18	M4
71	2,4&6	112	90	—	45	71	7	135	110	31	30	—	10	7	141	195	—	234	30	140	166	40	—	—	—	1x3/4"	14	30	5	16	25	M5
80	2,4&6	125	100	—	50	80	10	150	124	31	35	—	12	9	159	214	—	267	30	157	185	40	—	—	—	1x3/4"	19	40	6	21.5	35	M6
90S	2&6	140	100	—	56	90	10	168	125	34	31.5	—	13	12	177	230	—	302	35	174	199	52	—	—	—	2x3/4"	24	50	8	27	45	M8
	4		125																													
90L	2&6	140	125	—	56	90	10	168	150	34	31.5	—	13	12	177	230	—	302	35	174	199	52	—	—	—	2x3/4"	24	50	8	27	45	M8
100L	2,4&6	160	140	—	63	100	12	190	174	43.5	36	—	17	12	198	257	—	366	40	195	225	56	—	—	—	2x1"	28	60	8	31	55	M10
112M	4&6	190	140	—	70	112	12	220	174	47	36	—	17	12	222	282	—	388	45	220	246	56	—	—	—	2x1"	28	60	8	31	55	M10
132S	2(7.5kW)	216	140	—	89	132	12	256	180	54	50	—	20	16	262	328	—	475	50	260	291	63	—	—	—	2x1"	38	80	10	41	70	M12
	2&4																															
132M	4	178	140	—	89	132	12	256	180	54	50	—	20	16	262	328	—	475	50	260	291	63	—	—	—	2x1"	38	80	10	41	70	M12
	6																															
160M	2(15kW)	254	210	—	108	160	15	310	250	58	70	—	20	20	318	383	220	605	60	316	346	63	366	98	186	2x1"	42	110	12	45	105	M16
	4&6																															
160L	2&4	254	210	—	108	160	15	310	250	58	70	—	20	20	318	383	220	605	60	316	346	63	366	98	186	2x1"	42	110	12	45	105	M16
	6																															
180M#	2	279	241	—	121	180	15	344	281	65	70	—	20	26	357	—	271	679	70	354	—	—	412	83	216	2x1 1/2"	48	110	14	51.5	100	M16
	4																															
180L#	4	279	241	—	121	180	15	344	281	65	70	—	20	26	357	—	271	679	70	354	—	—	412	83	216	2x1 1/2"	48	110	14	51.5	100	M16
	6																															
200L	2	318	305	—	133	200	19	398	355	85	85	—	25	32	397	—	319	772	80	394	—	—	466	—	249	2x2"	55	110	16	59	100	M20
	4&6																															
225S	4	356	286	—	149	225	19	436	336	85	85	—	25	34	450	—	343	837	90	445	—	—	509	—	275	2x2"	55	110	16	59	100	M20
	2																															
225M	4	311	311	—	149	225	19	436	361	85	85	—	25	34	450	—	343	837	90	445	—	—	509	—	275	2x2"	55	110	16	59	100	M20
	6																															
250M	2	406	349	—	168	250	24	506	425	100	115	—	46	42	495	665	—	993	100	489	578	243	—	—	—	2x2"	60	140	18	64	130	M20
	4&6																															
280S/M	2	457	368	419	190	280	24	540	490	100	110	149	37	42	552	725	—	1010	115	544	638	243	—	—	—	2x2"	65	140	18	69	130	M20
	4&6																															
315S/M	2	508	406	457	216	315	28	605	540	120	120	—	43	45	617	834	—	1175	130	604	728	278	—	—	—	2x2"	65	140	18	69	130	M20
	4&6																															
315L	2	508	406	457	216	315	28	605	540	120	120	—	43	45	617	834	—	1175	130	604	728	278	—	—	—	2x2 1/2"	65	140	18	69	130	M20
	4&6																															
355L	2	610	630	—	254	355	28	710	770	110	170	—	70	45	703	939	—	1461	145	695	850	403	—	—	—	2x3"	75	140	20	79.5	160	M24
	4&6																															

**Notes:** \* This is a mandatory dimension for all standard motors  
 \*\*Minimum distance for efficient cooling of motor to be maintained by user  
 # For 180 Frame/4Pole, dimensions DA=42, FA=12, GC=45; All other dimensions will remain as mentioned in the table  
 1. All dimensions are in mm unless otherwise specified  
 2. Tolerances on mandatory dimensions are as per IS: 1231  
 3. For non standard motors, dimensions may change. Please contact our nearest sales office for details

**Notes:** 1. Eyebolt is not provided in motors of 63 to 90 frame  
 2. TB Position: To be read as: when viewed from DE side / when viewed parallel to shaft / Cable Entry  
 (a) Frame 63 & 71; 160 Frame, 4 Pole: Top / Center of body / RHS when viewed from DE side  
 (b) 80 to 132 Frame & 250 to 355 Frame: Top / Towards Drive End / RHS when viewed from DE side  
 (c) 160 Frame, 2 & 6 Pole; 180 Frame: RHS / Center of Body / Downward Side  
 (d) 200 to 225 Frame: RHS / Center of Body / NDE Side

## DIMENSIONAL DRAWING: IE2 EFFICIENCY SERIES FOR SAFE AREA APPLICATION FLANGE MOUNTED (B5) MOTORS

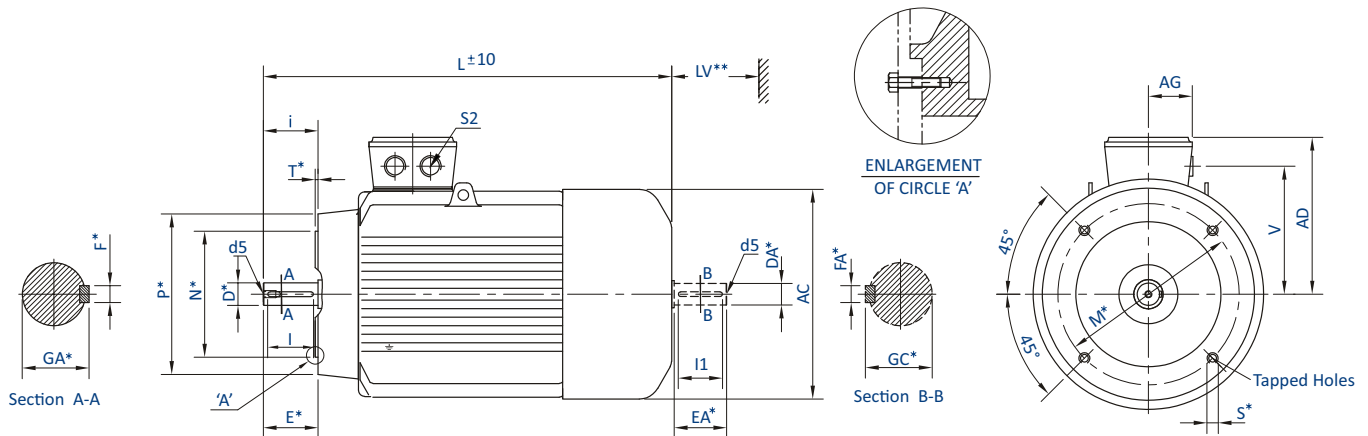


IEC Fr. Size	Pole	FIXING						GENERAL					TERMINAL BOX			SHAFT					
		p*	N*	M*	i	S*	T*	LA*	AD	L	LV**	AC	V	AG	S2 BSC	D* DA*	E* EA*	F* FA*	GA* GC*	I I1	d5
63	2&4	140	95	115	23	10	3	9	116	225	30	124	86	40	1x3/4"	11	23	4	12.5	18	M4
71	2,4&6	160	110	130	30	10	3.5	9	124	261	30	140	95	40	1x3/4"	14	30	5	16	25	M5
80	2,4&6	200	130	165	40	12	3.5	10	134	267	30	157	105	40	1x3/4"	19	40	6	21.5	35	M6
90S	2&6	200	130	165	50	12	3.5	10	140	302	35	174	109	52	2x3/4"	24	50	8	27	45	M8
	4									336											
90L	2&6	200	130	165	50	12	3.5	10	140	327	35	174	109	52	2x3/4"	24	50	8	27	45	M8
	4									361											
100L	2,4&6	250	180	215	60	15	4	11	157	366	40	195	125	56	2x1"	28	60	8	31	55	M10
112M	4&6	250	180	215	60	15	4	11	170	388	45	220	134	56	2x1"	28	60	8	31	55	M10
132S	2(7.5kW)	300	230	265	80	15	4	12	196	518	50	260	159	63	2x1"	38	80	10	41	70	M12
	2&4									475											
132M	6	300	230	265	80	15	4	12	196	459	50	260	159	63	2x1"	38	80	10	41	70	M12
	4									513											
160M	6	350	250	300	110	19	5	13	220	497	60	316	186	63	2x1"	42	110	12	45	105	M16
	2(15kW)									635											
160L	2	350	250	300	110	19	5	13	220	605	60	316	186	63	2x1"	42	110	12	45	105	M16
	4&6									585											
180M#	2&4	350	250	300	110	19	5	13	271	679	70	354	216	97	2x1 1/2"	48	110	14	51.5	100	M16
	6									629											
180L#	2	350	250	300	110	19	5	13	271	679	70	354	216	97	2x1 1/2"	48	110	14	51.5	100	M16
	4									698											
200L	4	400	300	350	110	19	5	15	319	737	80	394	250	158	2x2"	55	110	16	59	100	M20
	2									717											
225S	4	450	350	400	140	19	5	16	343	795	90	445	275	158	2x2"	55	110	16	59	100	M20
	2									772											
225M	4	450	350	400	110	19	5	16	343	837	90	445	275	158	2x2"	55	110	16	59	100	M20
	6									877											
250M	4	550	450	500	140	19	5	18	415	857	100	489	328	243	2x2"	60	140	18	64	130	M20
	2									993											
280S/M	4&6	550	450	500	140	19	5	18	445	914	115	544	358	243	2x2"	65	140	18	69	130	M20
	2									1010											
315S/M	2	660	550	600	140	24	6	22	519	1175	130	604	413	278	2x2"	65	140	18	69	130	M20
	4&6									1167											
315L	2	660	550	600	140	24	6	22	519	1342	130	604	413	278	2x2 1/2"	65	140	18	69	130	M24
	4&6									1332											
355L	2	800	680	740	140	24	6	25	584	1461	145	695	495	403	2x3"	75	140	20	79.5	130	M20
	4&6									1491											

**Notes:** \* This is a mandatory dimension for all standard motors  
 \*\*Minimum distance for efficient cooling of motor to be maintained by user  
 # For 180 Frame/4Pole, dimensions DA=42, FA=12, GC=45 ; All other dimensions will remain as mentioned in the table.  
 1. All dimensions are in mm unless otherwise specified  
 2. Tolerances on mandatory dimensions are as per IS: 2223  
 3. For non standard motors, dimensions may change. Please contact our nearest sales office for details

**Notes:** 1. Eyebolt is not provided from 63 to 90 frame  
 2. TB Position: To be read as: when viewed parallel to shaft / Cable Entry  
 (a) **Frame 63 & 71; 160 to 180 Frame:** Center of body / RHS when viewed from DE side & TB is at Top  
 (b) **80 to 132 Frame & 250 to 355 Frame:** Towards Drive End / RHS when viewed from DE side & TB is at Top  
 (c) **200 to 225 Frame:** Center of Body / NDE Side

## DIMENSIONAL DRAWING: IE2 EFFICIENCY SERIES FOR SAFE AREA APPLICATION FACE MOUNTED (B14) MOTORS



IEC Fr. Size	Pole	FIXING					GENERAL					TERMINAL BOX			SHAFT					
		P*	N*	M*	i	S*	T*	AD	L	LV**	AC	V	AG	S2 BSC	D* DA*	E* EA*	F* FA*	GA* GC*	I I1	d5
63	2&4	90	60	75	23	M5X10	2.5	116	206	30	124	86	40	1x3/4"	11	23	4	12.5	18	M4
71	2,4&6	105	70	85	30	M6X10	2.5	124	234	30	140	95	40	1x3/4"	14	30	5	16	25	M5
80	2,4&6	120	80	100	40	M6X13	3	134	267	30	157	105	40	1x3/4"	19	40	6	21.5	35	M6
90S	2&6	140	95	115	50	M8X12	3	140	302	35	174	109	52	2x3/4"	24	50	8	27	45	M8
	4								336											
90L	2&6	140	95	115	50	M8X12	3	140	327	35	174	109	52	2x3/4"	24	50	8	27	45	M8
	4								361											
100L	2,4&6	160	110	130	60	M8X12	3.5	157	366	40	195	125	56	2x1"	28	60	8	31	55	M10
112M	4&6	160	110	130	60	M8X12	3.5	170	388	45	220	134	56	2x1"	28	60	8	31	55	M10

**Notes:** \* This is a mandatory dimension for all standard motors  
 \*\*Minimum distance for efficient cooling of motor to be maintained by user  
 1. All dimensions are in mm unless otherwise specified  
 2. Tolerances on mandatory dimensions are as per IS: 2223  
 3. For non standard motors, dimensions may change. Please contact our nearest sales office for details

**Notes:** 1. Eyebolt is not provided from 63 to 90 frame  
 2. For the dimensional drawing of 132 frame, B14 mounting kindly contact our nearest sales office  
 3. TB Position: To be read as: when viewed parallel to shaft / Cable Entry  
 (a) **63, 71, 160 & 180 Frame:** Center of body / RHS when viewed from DE side & TB is at Top  
 (b) **80 to 132 Frame & 250 to 355 Frame:** Towards Drive End / RHS when viewed from DE side & TB is at Top



## LV MOTORS PRODUCT RANGE

Motors Conform to relevant Indian Standards (IS) & IEC 60034 series  
Voltage: 415V +/- 10%, Frequency: 50 Hz +/- 5%, Combined Variation: +/- 10%

Motor Type	Frame	Power (kW)	Polarity		Standard Technical Specifications
IE2 Motors	71 to 355	0.37 to 355	2, 4, 6		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Ambient for DCCA: 40° C</li> <li>• Mounting: B3, B5, B35, V1</li> <li>• Inverter Grade Winding: For IE3 and DCCA</li> <li>• Duty: S1</li> <li>• RTD &amp; BTD: For DCCA motors</li> </ul>
IE3 Motors	80 to 355	0.55 to 355	2, 4, 6		
Large LT Motors (DCCA)	355 to 450	250 to 1250	2, 4, 6, 8		
IE4 MOTORS	112 to 225	1.5 to 45	4		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Mounting: B3, B5, B35, V1</li> <li>• Inverter Duty Winding</li> <li>• Duty: S1</li> <li>• VPI: With Class H solvent less Resin</li> </ul>
Standard Flame Proof Motors	80 to 315	0.37 to 200	2, 4, 6, 8		<ul style="list-style-type: none"> <li>• Ambient: 45° C</li> <li>• Mounting: B3, B5, B35, V1</li> <li>• Inverter Grade Winding: For IE3 Motors</li> <li>• Duty: S1</li> </ul>
IE2 Flame Proof Motors	80 to 315	0.37 to 200	2, 4, 6, 8		
IE3 Flame Proof Motors	80 to 315	0.75 to 180	2, 4, 6		
IE2 Non - Sparking Motors	71 to 355	0.37 to 355	2, 4, 6		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Mounting: B3, B5, B35, V1 (B14 upto 132 Frame)</li> <li>• Duty: S1</li> </ul>
Crane & Hoist Duty Motors	71 to 355	0.37 to 400	4, 6, 8		<ul style="list-style-type: none"> <li>• Ambient: 45° C</li> <li>• Mounting: B3, B5, B35, V1 (B14 upto 132 Frame)</li> <li>• Duty: S2, S3, S4, S5</li> <li>• Offered in DOL &amp; Converter Fed Supply</li> </ul>
Brake Motors (With Integral DC Brake)	71 to 132	0.37 to 9.3	2, 4, 6, 8		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Duty: S1, S2, S3, S4, S5</li> <li>• Mounting: B3, B5, B35</li> <li>• Integral DC Brake</li> </ul>
Brake Motors (With External Mounted Brake)	71 to 200	0.37 to 22	2, 4, 6		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Duty: S1, S2, S3, S4, S5</li> <li>• Mounting: B3, B5, B35</li> <li>• External Mounted DC Brake/Arrangement</li> </ul>
Slip Ring Motors	100 to 160	1.1 to 10	4, 6		<ul style="list-style-type: none"> <li>• Ambient: 45° C</li> <li>• Mounting: B3, B5, B35</li> <li>• Duty: S3, S4, S5</li> </ul>
Textile Motors	100 to 160	1.1 to 15	4, 6, 8		<ul style="list-style-type: none"> <li>• Ambient: 50° C</li> <li>• Mounting: B3, B5, B35</li> <li>• Duty: S1</li> </ul>
Cane Unloader Motors	160 to 225	11 to 30	6		<ul style="list-style-type: none"> <li>• Ambient: 45° C</li> <li>• Start/Stop per Hour: upto 900</li> <li>• Mounting: B3, B5, B35</li> <li>• Forced Cooling</li> <li>• Thermostat</li> <li>• Duty: S5, 50% CDF</li> <li>• Shaft Material: EN24</li> </ul>

Insulation: Class 'F' with temperature rise limited to Class 'B', Rotation: Bi-directional  
Cooling: IC411, Degree of Protection: IP55, Altitude: upto 1000m above MSL

Optional Features		Applications
<ul style="list-style-type: none"> <li>• Non Standard Voltage: upto 690V</li> <li>• Shaft Material: EN24</li> <li>• Enclosure: IP56 / 65 / 66</li> <li>• Forced Cooling: 132 to 450 Frame</li> <li>• Space Heater: 90 Frame onwards</li> <li>• Roller Bearing: 160 Frame onwards</li> <li>• RTD &amp; BTD: 250 Frame onwards</li> <li>• Insulation: Class H</li> <li>• Thermistor: 80 to 355L</li> </ul>	<ul style="list-style-type: none"> <li>• Insulated Bearing: 160 Frame onwards</li> <li>• High Temperature Grease: Suitable up to 200° C</li> <li>• Higher Polarity on request</li> <li>• SS Hardware</li> <li>• Non std shaft diameter / extension (subject to confirmation)</li> <li>• Non Standard Paint</li> <li>• Provision for Encoder Mounting</li> <li>• Low Vibration as per IS or IEC</li> </ul>	<p>Most common applications comprising of: Pump, Fan, Compressor, Packing Machinery, Coiler/De-coiler, Agro Equipment, Food Processing Equipment, Paper Machinery, Agitator, Dairy Equipment, Machine Tool, Air Conditioning, Material Handling, Plastic Machinery, Textile Machinery, Cooling Tower, Crusher, Material Handling</p>
<ul style="list-style-type: none"> <li>• Shaft Material: EN24</li> <li>• Enclosure: IP56 / 65 / 66</li> <li>• Roller Bearing: 160 Frame onwards</li> <li>• Insulation: Class H</li> <li>• Space Heater: 90 frame onwards</li> <li>• Thermistor: 80 to 225 Frame</li> </ul>	<ul style="list-style-type: none"> <li>• Non std shaft diameter / extension (subject to confirmation)</li> <li>• Non Standard Paint</li> <li>• Provision for Encoder Mounting</li> <li>• Low Vibration as per IS or IEC</li> </ul>	<p>Fans, HVAC, Pumps, Textiles, hydraulic press</p>
<ul style="list-style-type: none"> <li>• Non Standard Voltage: 550V</li> <li>• Shaft Material: EN24</li> <li>• Enclosure: IP56 / 65 / 66</li> <li>• Space Heater: 90 Frame onwards</li> <li>• Roller Bearing: 160 Frame onwards</li> <li>• Insulation: Class H</li> <li>• 8 pole motor on request</li> <li>• Thermistor: 80 to 315 L</li> </ul>	<ul style="list-style-type: none"> <li>• Insulated Bearing: 160 Frame onwards</li> <li>• Intermittent Duty S3, S4: 80 to 132 Frame in 4 pole only</li> <li>• Non std shaft diameter / extension</li> <li>• Motors for Inverter Duty</li> <li>• Test facility for combined Testing with VFD</li> <li>• Non Standard Paint</li> <li>• Low Vibration as per IS or IEC</li> </ul>	<p>Most common applications comprising of: Pump, Fan, Compressor, Material Handling, Agitator, LPG Bottling Plant, Pharma Machinery, Chemical Plant Machinery, Machinery for mines</p>
<ul style="list-style-type: none"> <li>• Shaft Material: EN24</li> <li>• Enclosure: IP56 / 65 / 66</li> <li>• Roller Bearing: 160 Frame onwards</li> <li>• Insulation: Class H</li> </ul>	<ul style="list-style-type: none"> <li>• Insulated Bearing: 160 Frame onwards</li> <li>• Higher Polarity on request</li> <li>• Non std shaft diameter / extension</li> <li>• Motors for Inverter Duty</li> <li>• Test facility for combined testing with VFD</li> <li>• Non Standard Paint</li> <li>• Low Vibration as per IS or IEC</li> </ul>	<p>Pump, Fan, Compressor, Material Handling, Agitator, Pharma Machinery</p>
<ul style="list-style-type: none"> <li>• Non Standard Voltage: 380 to 460V</li> <li>• Shaft Material: EN24</li> <li>• Enclosure: IP56 / 65 / 66</li> <li>• Space Heater: 90 Frame onwards</li> <li>• Roller Bearing: 160 Frame onwards</li> <li>• BTD: 250 Frame &amp; above</li> <li>• Insulation: Class H</li> <li>• Thermistor: 80 to 355 L</li> </ul>	<ul style="list-style-type: none"> <li>• Insulated Bearing: 160 Frame onwards</li> <li>• Non std shaft diameter &amp; extension</li> <li>• Motors for Inverter Duty</li> <li>• Non Standard Paint</li> <li>• Low Vibration as per IS or IEC</li> </ul>	<p>Crane, Hoist, Lift, Material Handling, Car Stacker, Door Opening</p>
<ul style="list-style-type: none"> <li>• Non Standard Voltage: upto 460V</li> <li>• Manual Release Arrangement: For 90 to 132 Frame</li> <li>• Motors for Inverter Duty</li> </ul>	<ul style="list-style-type: none"> <li>• Non std shaft diameter &amp; extension</li> <li>• Double Shaft Extension for brake arrangement</li> <li>• Non Standard Paint</li> </ul>	<p>Crane, Hoist, Material Handling, Textile, Pharma to name a few</p>
<ul style="list-style-type: none"> <li>• Non Standard Voltage: upto 460V</li> <li>• Manual Release Arrangement</li> <li>• Motors for Inverter Duty</li> </ul>	<ul style="list-style-type: none"> <li>• Double Shaft Extension for brake arrangement</li> <li>• Non Standard Paint</li> <li>• Higher Braking Torque</li> </ul>	<p>Crane, Hoist, Material Handling, Textile, Pharma to name a few</p>
<ul style="list-style-type: none"> <li>• Non std shaft diameter &amp; extension</li> </ul>	<ul style="list-style-type: none"> <li>• Non Standard Paint</li> </ul>	<p>Crane, Hoist, Lift, Material Handling</p>
<ul style="list-style-type: none"> <li>• Non Standard Voltage: upto 500V</li> <li>• Insulation: Class H</li> </ul>	<ul style="list-style-type: none"> <li>• Motors for Inverter Duty</li> <li>• Non Standard Paint</li> <li>• Low Vibration as per IS</li> </ul>	<p>Ginning, Textile Machinery</p>
<ul style="list-style-type: none"> <li>• Insulation: Class H</li> <li>• Thermistor</li> </ul>	<ul style="list-style-type: none"> <li>• Insulated Bearing: 160 Frame onwards</li> <li>• Non Standard Paint</li> </ul>	<p>Cane Loading-Unloading Machine</p>







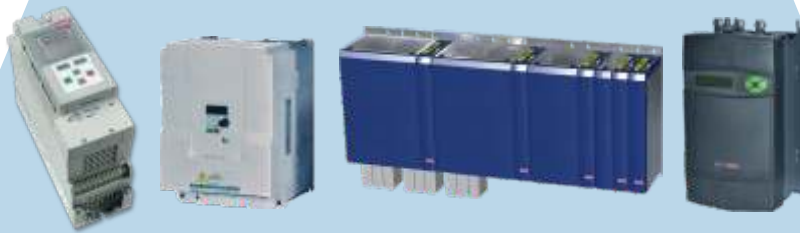
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**Controls**



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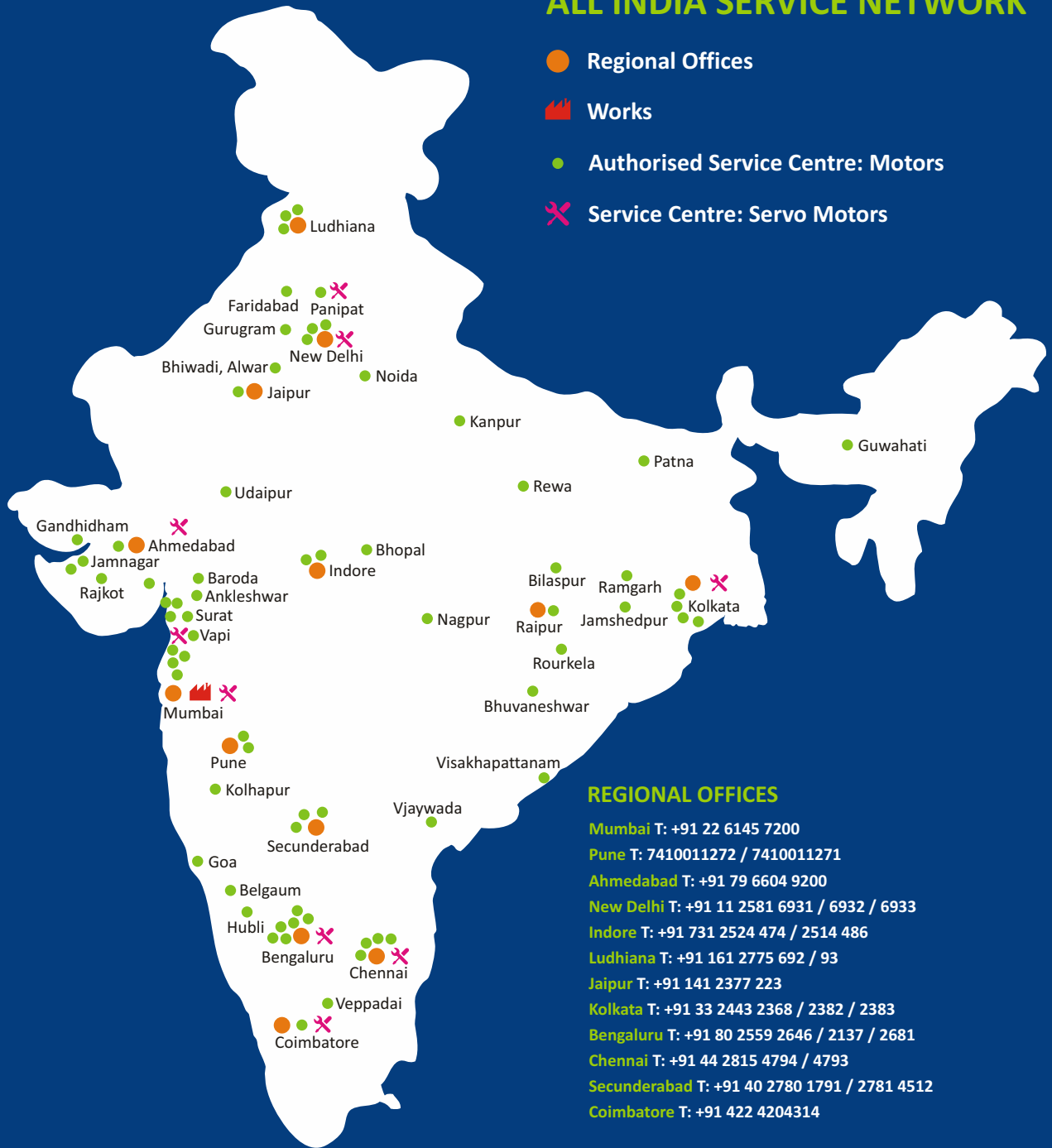


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