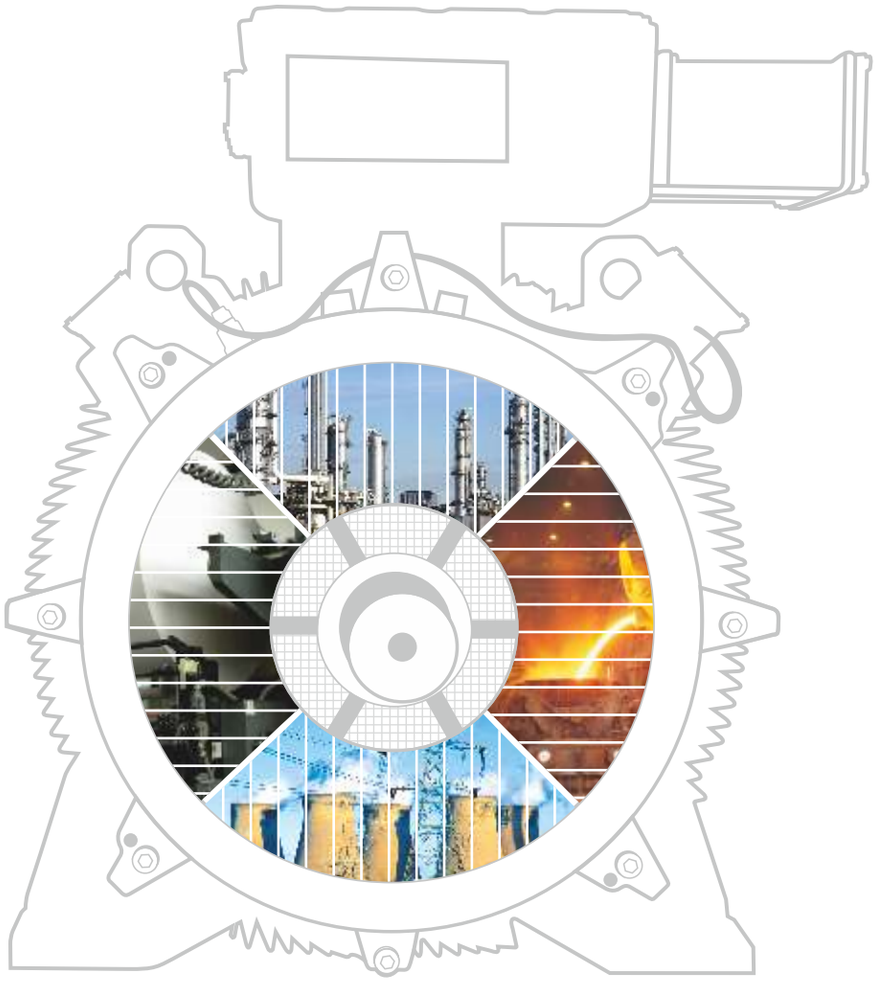
Powered by Trust™

Bharat Bijlee

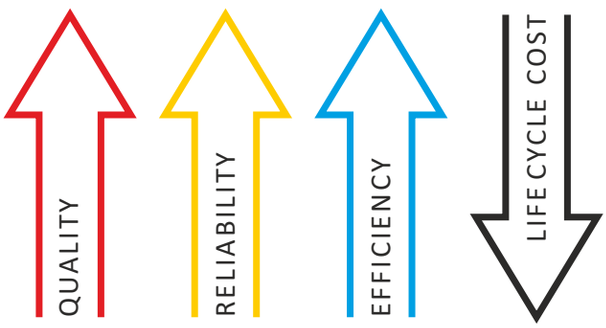
IE3 Premium Efficiency Motors



The Next level of Efficiency

Makes Better Business Sense!

INTERNATIONAL EFFICIENCY IE3 MOTOR



Our core competencies lie in our in house design facility and testing laboratory, confirming to the international quality standards.

Over the last 65 years we have become a reflection of the strength and purpose that today represent Indian industry and its growing power internationally. Bharat Bijlee has evolved from a pioneer of electrical engineering in India to one of the most trusted names in the Industry.

Our motors are the prime movers for various applications across industries. They are designed to operate reliably with low life cycle cost no matter how challenging the application. In-depth industry specific expertise enables motors to be custom engineered for demanding and specialized applications. Bharat Bijlee has always been a front runner in the field of energy efficient products conforming to latest national and international standards. We are represented at BIS (Bureau of Indian Standards), International Electrotechnical Commission (IEC) and research test houses like ERDA.

Need for premium efficiency motors

Ever increasing energy costs and increasing concerns about environment are the main focus areas across the globe.

Electric motors consume about 65-70% of electrical energy used in the industry. Therefore, improvement in motor efficiency will result in significant reduction in energy consumption.

Purchase cost and running cost of motor

Purchase cost of the motor is insignificant when compared to the running cost of the motor over a period of 20 years. This can be seen in the table below:

	IE3	IE1
Power Rating (kW)	37	
Purchase Cost of Motor ( )	104200	77260
Motor Efficiency	93.90%	91.20%
Per Hour kW Consumption	39.40	40.57
Annual running Hours (24Hrs X 313 Days)	7500	7500
Power Consumption/Annum (kW)	295527	304276
Average energy cost (/kWH)	7	7
Average energy cost/annum ( )	2068690	2129934
Annual Saving ( )	61244	
Payback period for added cost	5.3 months	
Total Saving Over Motor's 20 year Life ( )	1224882 (Approximately 11.75 times of Motor purchase cost)	

Reducing energy costs is one way organizations can cut their overheads to remain competitive. Significant savings can be made by installing energy efficient motors either new installations or equipment packages, replacing oversized and under-loaded motors, making major modifications to facilities or processes, or instead of repairing or rewinding a failed motor.

IE3 Efficiency class of motors from Bharat Bijlee:

Bharat Bijlee's new IE3 efficiency class of motors, is an improvement over IE2 efficiency class of motors. An energy efficient solution to save energy, these motors are designed for loss reduction of 15-20 % over IE2 efficiency class of motors. Therefore the energy saving by using these motors is much higher when compared to IE1 class of efficiency motors running in the plant.

Upgradation to IE3 motors is smooth and easy since the frame size is same and there is no change in mandatory mounting dimensions, shaft diameter and shaft extension length.

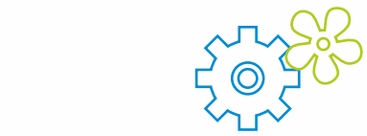
Advantages:

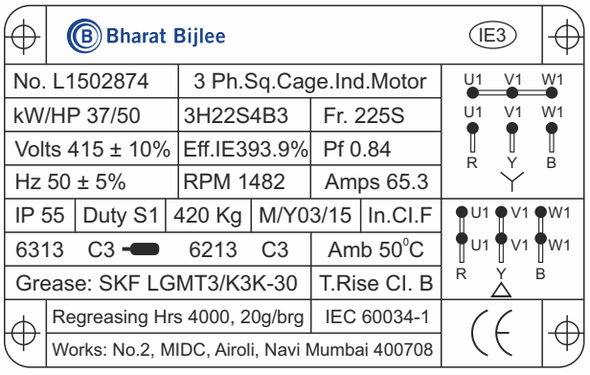
- High Efficiency
- Inverter Grade Winding
- Optimized ventilation system for cooler operation and reduced Noise
- Reduced Vibration Levels
- Highly reliable under most demanding conditions
- Reduced Life Cycle Cost

Standards compliance:

These motors comply with the latest efficiency standards and requirements. Bharat Bijlee closely follows the developments in the global regulatory environments and develops the product complying to these requirements. Some of these standards are:

IEC 60034-1:2010	Rotating electrical machines - Rating and performance
IEC 60034-30:2008	Rotating electrical machines Efficiency classes of line operated AC motors (IE code)
IEC 60034-2-1:2014	Rotating electrical machines - Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)
IEC 60034-5:2006	Rotating electrical machines - Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification
IEC 60034-9:2007	Rotating electrical machines - Part 9: Noise limits
IEC 60034-14:2007	Rotating electrical machines - Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity
IEC 60072-1:1991	Dimensions and output series for rotating electrical machines - Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080
IS 1231:1974	Dimensions of Three-phase Foot - mounted Induction Motors
IS 2223:1983	Dimensions of flange mounted ac induction motors
IS 12615:2011	Energy Efficient Induction Motors - Three Phase Squirrel Cage





Efficiency values defined in IEC 60034-30:2008

	2P			4P			6P		
kW	IE1	IE2	IE3	IE1	IE2	IE3	IE1	IE2	IE3
0.75	72.1	77.4	80.7	72.1	79.6	82.5	70.0	75.9	78.9
1.1	75.0	79.6	82.7	75.0	81.4	84.1	72.9	78.1	81.0
1.5	77.2	81.3	84.2	77.2	82.8	85.3	75.2	79.8	82.5
2.2	79.7	83.2	85.9	79.7	84.3	86.7	77.7	81.8	84.3
3.0	81.5	84.6	87.1	81.5	85.5	87.7	79.7	83.3	85.6
4.0	83.1	85.8	88.1	83.1	86.6	88.6	81.4	84.6	86.8
5.5	84.7	87.0	89.2	84.7	87.7	89.6	83.1	86.0	88.0
7.5	86.0	88.1	90.1	86.0	88.7	90.4	84.7	87.2	89.1
11	87.6	89.4	91.2	87.6	89.8	91.4	86.4	88.7	90.3
15	88.7	90.3	91.9	88.7	90.6	92.1	87.7	89.7	91.2
18.5	89.3	90.9	92.4	89.3	91.2	92.6	88.6	90.4	91.7
22	89.9	91.3	92.7	89.9	91.6	93.0	89.2	90.9	92.2
30	90.7	92.0	93.3	90.7	92.3	93.6	90.2	91.7	92.9
37	91.2	92.5	93.7	91.2	92.7	93.9	90.8	92.2	93.3
45	91.7	92.9	94.0	91.7	93.1	94.2	91.4	92.7	93.7
55	92.1	93.2	94.3	92.1	94.0	94.6	91.9	93.7	94.1
75	92.7	93.8	94.7	92.7	94.2	95.0	92.6	93.7	94.6
90	93.0	94.1	95.0	93.0	94.5	95.2	92.9	94.3	94.9
110	93.3	94.3	95.2	93.3	94.5	95.4	93.3	94.3	95.1
132	93.5	94.6	95.4	93.5	94.7	95.6	93.5	94.6	95.4
160	93.8	94.8	95.6	93.8	94.9	95.8	93.8	94.8	95.6
200	94.0	95.0	95.8	94.0	95.1	96.0	94.0	95.0	95.8
250 to 375	94.0	95.0	95.8	94.0	95.1	96.0	94.0	95.0	95.8

Note: Tolerance applicable on the efficiency values as per IEC 60034-1

Range and Standard features:

Range in kW	0.75kW to 355kW
Polarity	2P, 4P & 6P
Frame size	80 to 355L
Insulation	Class F, temperature rise limited to class B
Supply condition	415V+/ -10%, 50Hz +/-5%
Ambient temperature	50 deg C
Protection	IP 55
Mounting	B3 & B5 (Dual mounting hole)
Regreasing facility	From 225 frame and onwards

Optional features available

- Rated frequency 60Hz
- Rated voltages from 220V to 690V
- Class H insulation
- Roller bearings / Insulated Bearing
- Forced cooling arrangement / Encoder Mounting
- RTD in the winding, BTD on the bearings,
- Space Heaters
- Larger Size Terminal Box
- Non Standard Shaft Extension
- Re-greasing facility from 132 to 200 frame

PREMIUM EFFICIENCY IE3 SERIES MOTORS - TYPE 3H

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 355L

IE3

Applicable standard for testing & efficiency determination: IS 15999
Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 50 °C
Duty : S1(Continuous)

Ins. Class : F
Temp. Rise : B
Protection : IP55

3000 rpm (2-Pole)

Rated Output		Frame size	Rated Speed	Rated Current	Operating Characteristics at Rated output Rated Torque	Power Factor			% Efficiency			With DOL Starting Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio	Pullout Torque to Rated Torque Ratio	Rotor GD²
kW	HP	IEC	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²
0.75	1.0	80	2830	1.58	0.26	0.82	0.78	0.68	80.7	80.7	77.4	6.5	3.3	3.5	0.009
1.1	1.5	80	2830	2.26	0.38	0.82	0.78	0.68	82.7	82.7	79.4	6.5	3.3	3.5	0.011
1.5	2.0	90S	2885	2.85	0.51	0.87	0.83	0.75	84.2	84.2	82.7	6.5	3.0	3.3	0.013
2.2	3.0	90L	2885	4.10	0.74	0.87	0.83	0.75	85.9	85.9	84.4	6.5	3.0	3.3	0.016
3.7	5.0	100L	2885	6.74	1.25	0.87	0.83	0.75	87.8	87.8	86.5	6.5	3.0	3.3	0.021
5.5	7.5	132S	2935	9.64	1.83	0.89	0.86	0.82	89.2	89.2	86.5	6.5	2.3	2.5	0.134
7.5	10.0	132S	2935	13.0	2.49	0.89	0.86	0.82	90.1	90.1	87.4	6.5	2.3	2.5	0.150
9.3	12.5	160M	2935	16.0	3.09	0.89	0.86	0.82	90.7	90.7	88.2	6.5	2.4	2.7	0.190
11	15.0	160M	2935	18.9	3.65	0.89	0.86	0.82	91.2	91.2	88.7	6.5	2.4	2.7	0.220
15	20.0	160M	2935	25.5	4.98	0.89	0.87	0.82	91.9	91.9	89.4	6.5	2.4	2.7	0.300
18.5	25.0	160L	2935	31.3	6.14	0.89	0.87	0.82	92.4	92.4	89.9	6.5	2.4	2.7	0.374
22	30.0	180M	2955	37.5	7.25	0.88	0.85	0.78	92.7	92.7	91.0	7.0	2.5	2.7	0.50
30	40.0	200L	2965	50.8	9.85	0.88	0.85	0.78	93.3	93.3	91.5	7.0	2.5	2.7	0.91
37	50.0	200L	2965	62.4	12.2	0.88	0.85	0.78	93.7	93.7	91.9	7.0	2.5	2.7	1.13
45	60.0	225M	2965	74.0	14.8	0.90	0.88	0.85	94.0	94.0	92.0	7.0	2.5	2.7	2.11
55	75.0	250M	2965	89.2	18.1	0.91	0.89	0.86	94.3	94.3	92.3	7.0	2.5	2.7	2.60
75	100	280S	2970	121	24.6	0.91	0.89	0.86	94.7	94.7	92.7	7.0	2.0	2.7	3.08
90	120	280M	2970	145	29.5	0.91	0.89	0.86	95.0	95.0	93.0	7.0	2.0	2.7	3.69
110	150	315S	2985	183	35.9	0.88	0.86	0.80	95.2	95.2	93.2	7.0	2.4	2.7	5.0
132	180	315M	2985	219	43.1	0.88	0.86	0.80	95.4	95.4	93.4	7.0	2.4	2.7	6.2
160	215	315L	2985	265	52.2	0.88	0.86	0.80	95.6	95.6	93.6	7.0	2.4	2.7	7.7
180	240	355L	2985	297	58.7	0.88	0.86	0.80	95.7	95.7	93.7	7.0	1.6	2.4	12.0

Note : Efficiency class 'IE3' will be punched on the nameplate as per IS:12615-2011
All perfromance values are subject to tolerance as per IS/IEC 60034-1

PREMIUM EFFICIENCY IE3 SERIES MOTORS - TYPE 3H

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 355L

IE3

Applicable standard for testing & efficiency determination: IS 15999
Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 50 °C
Duty : S1(Continuous)

Ins. Class : F
Temp. Rise : B
Protection : IP55

1500 rpm (4-Pole)

Rated Output		Frame size	Rated Speed	Rated Current	Operating Characteristics at Rated output Rated Torque	Power Factor			% Efficiency			With DOL Starting Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio	Pullout Torque to Rated Torque Ratio	Rotor GD²
kW	HP	IEC	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²
0.75	1.0	80	1430	1.64	0.51	0.77	0.68	0.53	82.5	82.5	79.5	6.0	2.5	2.8	0.015
1.1	1.5	90S	1435	2.27	0.75	0.80	0.72	0.58	84.1	84.1	82.1	6.0	2.5	2.8	0.017
1.5	2.0	90L	1435	3.06	1.02	0.80	0.72	0.58	85.3	85.3	83.3	6.0	2.5	2.8	0.023
2.2	3.0	100L	1435	4.36	1.49	0.81	0.74	0.60	86.7	86.7	84.7	6.0	2.6	3.0	0.028
3.7	5.0	112M	1455	7.28	2.48	0.80	0.76	0.62	88.4	88.4	86.5	6.5	2.7	3.0	0.066
5.5	7.5	132S	1470	10.4	3.64	0.82	0.78	0.68	89.6	89.6	87.6	6.5	2.6	2.8	0.141
7.5	10.0	132M	1470	13.9	4.97	0.83	0.80	0.70	90.4	90.4	88.5	6.5	2.6	2.8	0.193
9.3	12.5	160M	1470	17.3	6.16	0.82	0.78	0.70	91.0	91.0	89.2	6.5	2.7	3.0	0.340
11	15	160M	1470	19.9	7.29	0.84	0.80	0.72	91.4	91.4	89.7	6.5	2.7	3.0	0.375
15	20	160L	1470	27.0	9.94	0.84	0.80	0.72	92.1	92.1	90.6	6.5	2.7	3.0	0.520
18.5	25	180M	1470	33.1	12.26	0.84	0.78	0.68	92.6	92.6	90.6	7.0	2.6	2.8	0.750
22	30	180L	1470	38.7	14.6	0.85	0.80	0.70	93.0	93.0	91.0	7.0	2.6	2.8	0.86
30	40	200L	1475	51.3	19.8	0.87	0.84	0.77	93.6	93.6	91.6	7.0	2.6	2.6	1.38
37	50	225S	1482	65.3	24.3	0.84	0.80	0.70	93.9	93.9	91.9	7.0	2.6	2.6	2.30
45	60	225M	1482	79.1	29.6	0.84	0.80	0.70	94.2	94.2	92.2	7.0	2.6	2.6	2.83
55	75	250M	1482	96.3	36.1	0.84	0.80	0.70	94.6	94.6	92.6	7.0	2.6	2.6	3.06
75	100	280S	1482	128	49.3	0.86	0.82	0.74	95.0	95.0	93.5	6.5	2.5	2.5	5.53
90	120	280M	1482	153	59.1	0.86	0.82	0.74	95.2	95.2	93.7	6.5	2.5	2.5	6.36
110	150	315S	1488	189	72.0	0.85	0.83	0.74	95.4	95.4	93.9	6.8	2.5	3.0	11.70
132	180	315M	1488	226	86.4	0.85	0.83	0.74	95.6	95.6	94.1	6.8	2.5	3.0	14.0
160	215	315L	1488	273	105	0.85	0.83	0.76	95.8	95.8	94.3	6.5	2.5	3.0	16.9
180	240	315L	1488	307	118	0.85	0.82	0.74	95.9	95.9	94.4	6.5	2.5	3.0	17.8
200	270	355L	1490	329	131	0.88	0.85	0.76	96.0	96.0	95.0	6.5	2.0	2.4	23.3
250	335	355L	1490	412	163	0.88	0.85	0.76	96.0	96.0	95.0	6.5	2.0	2.4	32.7
315	422	355L	1490	519	206	0.88	0.85	0.76	96.0	96.0	95.0	6.5	2.0	2.4	37.9

Note : Efficiency class 'IE3' will be punched on the nameplate as per IS:12615-2011
All perfromance values are subject to tolerance as per IS/IEC 60034-1

PREMIUM EFFICIENCY IE3 SERIES MOTORS - TYPE 3H

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 90 to 355L

IE3

Applicable standard for testing & efficiency determination: IS 15999
Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 50 °C
Duty : S1(Continuous)

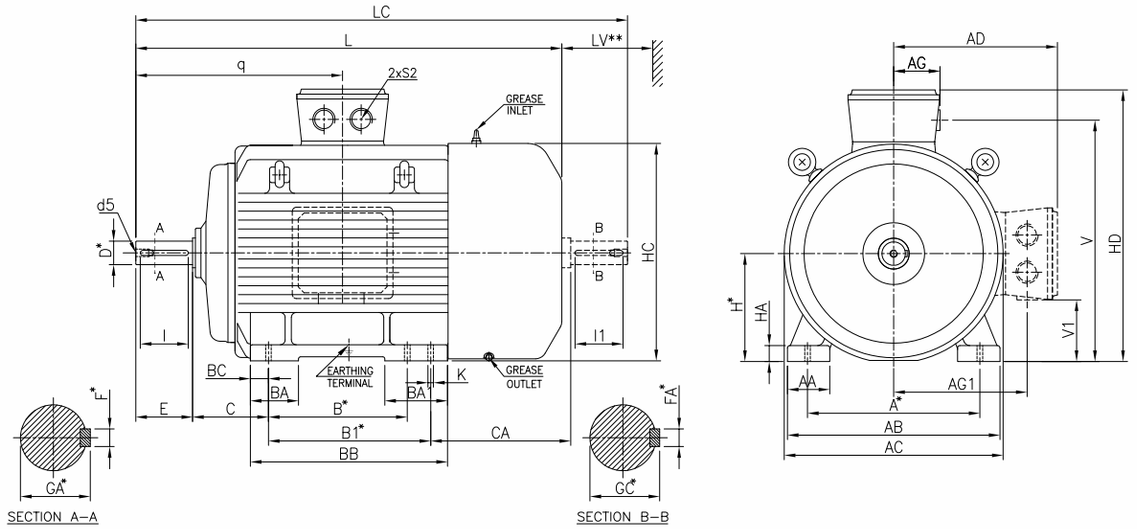
Ins. Class : F
Temp. Rise : B
Protection : IP55

1000 rpm (6-Pole)

Rated Output		Frame size	Rated Speed	Operating Characteristics at Rated output					% Efficiency			With DOL Starting			
				Rated Current	Rated Torque	Power Factor						Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio	Pullout Torque to Rated Torque Ratio	Rotor GD²
kW	HP	IEC	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²
0.75	1.0	90S	945	1.84	0.77	0.72	0.61	0.50	78.9	78.9	75.4	4.0	2.2	2.5	0.017
1.1	1.5	90L	945	2.62	1.13	0.72	0.61	0.50	81.0	81.0	78.0	4.0	2.2	2.5	0.025
1.5	2.0	100L	945	3.51	1.55	0.72	0.61	0.50	82.5	82.5	79.5	4.5	2.0	2.5	0.029
2.2	3.0	112M	960	4.72	2.23	0.77	0.70	0.56	84.3	84.3	81.3	5.0	2.0	2.5	0.074
3.7	5.0	132S	960	7.63	3.75	0.78	0.76	0.64	86.5	86.5	84.5	5.5	2.0	2.5	0.202
5.5	7.5	132M	960	11.1	5.58	0.78	0.76	0.64	88.0	88.0	86.0	5.5	2.0	2.5	0.276
7.5	10.0	160M	965	14.6	7.57	0.80	0.77	0.66	89.1	89.1	87.1	5.5	2.5	2.5	0.450
9.3	12.5	160L	965	18.0	9.39	0.80	0.77	0.66	89.8	89.8	87.8	5.5	2.5	2.5	0.56
11	15	160L	965	21.2	11.1	0.80	0.77	0.66	90.3	90.3	88.3	5.5	2.5	2.5	0.65
15	20	180L	970	27.9	15.1	0.82	0.78	0.70	91.2	91.2	89.2	5.5	2.5	2.5	1.20
18.5	25	200L	975	32.6	18.5	0.86	0.82	0.74	91.7	91.7	89.7	6.5	2.6	2.3	1.81
22	30	200L	975	37.7	22.0	0.88	0.84	0.76	92.2	92.2	90.2	6.5	2.6	2.3	2.10
30	40	225M	978	51.1	29.9	0.88	0.86	0.82	92.9	92.9	90.9	6.5	2.5	2.3	3.51
37	50	250M	978	62.7	36.8	0.88	0.86	0.82	93.3	93.3	91.3	6.5	2.5	2.3	3.72
45	60	280S	984	79.5	44.5	0.84	0.80	0.72	93.7	93.7	92.0	6.5	2.5	2.4	5.11
55	75	280M	984	94.6	54.4	0.86	0.83	0.76	94.1	94.1	92.4	6.0	2.4	2.4	6.16
75	100	315S	989	131	73.9	0.84	0.80	0.72	94.6	94.6	92.9	6.0	2.3	2.5	12.4
90	120	315M	989	157	88.6	0.84	0.80	0.72	94.9	94.9	93.2	6.0	2.3	2.5	15.5
110	150	315M	990	192	108	0.84	0.80	0.72	95.1	95.1	93.4	6.0	2.3	2.5	18.0
132	180	315L	990	224	130	0.86	0.82	0.75	95.4	95.4	93.7	6.0	2.3	2.5	21.5
160	215	355L	990	277	157	0.84	0.81	0.71	95.6	95.6	93.0	6.0	2.0	2.5	28.7
180	240	355L	990	319	177	0.82	0.78	0.66	95.7	95.7	94.0	6.0	2.0	2.5	28.7
200	270	355L	991	346	197	0.84	0.80	0.7	95.8	95.8	94.1	6.0	2.0	2.5	35.5
250	335	355L	991	432	246	0.84	0.80	0.7	95.8	95.8	94.1	6.0	2.0	2.5	43.3

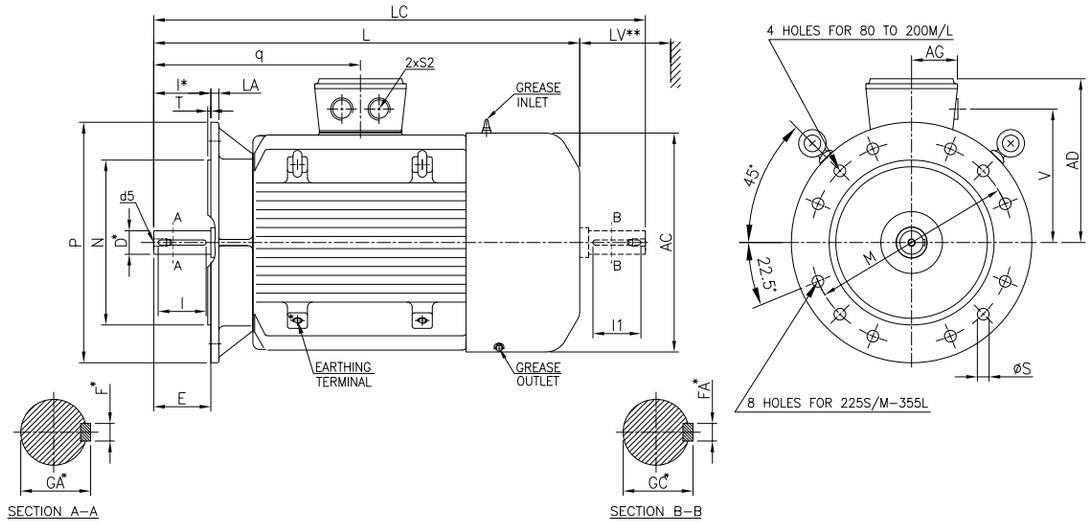
Note : Efficiency class 'IE3' will be punched on the nameplate as per IS:12615-2011
All perfromance values are subject to tolerance as per IS/IEC 60034-1

PREMIUM EFFICIENCY IE3 SERIES MOTORS - TYPE 3H, B3, TEFC, FRAME 80-355L



		FIXING						GENERAL															TERMINAL BOX						SHAFT					
IEC Fr. Size	Pole	A*	B*	B1*	C	H*	K*	AB	BB	AA	BA	BA1	BC	HA	HC	HD	AD	L	LC	CA	LV**	AC	V	q	AG	V1	AG1	S2 BSC	D* DA*	E EA	F* FA*	GA* GC*	I I1	d5
80	2,4&6	125	100	—	50	80	10	150	124	32	36	—	12	12	168	220	—	286	330	100	30	174	191	118	40	—	—	3/4"	19	40	6	21.5	35	M6
90S/L	2,4&6	140	100	125	56	90	10	168	150	34	38	61	12.5	12	188	240	—	355	410	129	35	195	209	138	52	—	—	3/4"	24	50	8	27	45	M8
100L	2&4 6	160	140	—	63	100	12	190	174	43.5	36	—	21	12	198	257	179	387 366	469 448	146 125	40	195	225	152	56	66	138	1"	28	60	8	31	55	M10
112M	4&6	190	140	—	70	112	12	220	174	47	36	—	21	12	222	282	191	419	502	172	45	220	249	157	56	80	151	1"	28	60	8	31	55	M10
132S/M	2,4&6	216	140	178	89	132	12	256	218	50	53	91	20	17	279	340	208	533	618	191	50	294	305	204	63	69	173	1"	38	80	10	41	70	M12
160M/L	2,4&6	254	210	254	108	160	15	310	294	58	70	105	20	20	334	398	238	673	790	208	60	348	363	345	63	97	203	1"	42	110	12	45	105	M16
180M/L	2,4&6	279	241	279	121	180	15	344	319	65	70	108	20	26	377	470	290	728	845	225	70	394	414	371	97	83	234	1 1/2"	48	110	14	51.5	100	M16
200M/L	2,4&6	318	267	305	133	200	19	398	355	85	85	120	25	32	419	536	336	803	920	262	80	438	468	396	155	—	268	2"	55	110	16	59	100	M20
225S/M	2 4&6	356	286	311	149	225	19	437	361	85	85	85	25	34	461	579	354	855 885	972 1032	292	90	472	511	445	155	—	286	2"	55 60	110 140	16 18	59 64	100 130	M20
250M	2 4&6	406	349	—	168	250	24	506	425	100	115	—	49	42	495	665	415	983 914	1134 1065	337 268	100	489	578	352	243	—	328	2"	60 65	140 140	18 18	64 69	130 130	M20
280S/M	2 4&6	457	368	419	190	280	24	540	490	100	110	149	40	42	552	725	445	1010	1160	271	115	544	638	360	243	—	358	2"	65 75	140 140	18 20	69 79.5	130 130	M20
315S/M	2 4&6	508	406	457	216	315	28	625	540	120	120	155	46	45	615	830	515	1137 1167	1293 1353	240	130	604	728	386 416	278	—	413	2"	65 80	140 170	18 22	69 85	130 160	M20
315L	2 4&6	508	508	—	216	315	28	625	593	120	120	—	46	45	615	830	515	1302 1332	1458 1518	454	130	604	728	386 416	278	—	413	2 1/2"	65 80	140 170	18 22	69 85	130 160	M20
355L	2 4&6	610	630	—	254	355	28	710	770	110	170	—	73	45	693	939	584	1461 1491	1622 1682	458	145	695	850	434 464	403	—	495	3"	75 95	140 170	20 25	79.5 100	130 160	M24

PREMIUM EFFICIENCY IE3 SERIES MOTORS - TYPE 3H, B5, TEFC, FRAME 80-355L



		FIXING					GENERAL							TERMINAL BOX				SHAFT					
IEC Fr. Size	Pole	P	N*	M*	i*	S	T	LA	AD	L	LC	LV**	AC	V	q	AG	S2 BSC	D* DA*	E EA	F* FA*	GA* GC*	I I1	d5
80	2,4&6	200	130	165	40	12	3.5	10	140	286	330	30	174	111	118	40	3/4"	19	40	6	21.5	35	M6
90S/L	2,4&6	200	130	165	50	12	3.5	10	150	355	410	35	195	119	138	52	3/4"	24	50	8	27	45	M8
100L	2&4 6	250	180	215	60	15	4	11	157	387 366	469 448	40	195	125	152	56	1"	28	60	8	31	55	M10
112M	4&6	250	180	215	60	15	4	11	170	419	502	45	220	137	157	56	1"	28	60	8	31	55	M10
132S/M	2,4&6	300	230	265	80	15	4	12	208	533	618	50	294	173	204	63	1"	38	80	10	41	70	M12
160M/L	2,4&6	350	250	300	110	19	5	13	238	673	790	60	348	203	345	63	1"	42	110	12	45	105	M16
180M/L	2,4&6	350	250	300	110	19	5	13	290	728	845	70	394	234	371	97	1 1/2"	48	110	14	51.5	100	M16
200M/L	2,4&6	400	300	350	110	19	5	15	336	803	920	80	438	268	396	155	2"	55	110	16	59	100	M20
225S/M	2 4&6	450	350	400	110 140	19	5	16	354	885	972 1032	90	472	286	445	155	2"	55 60	110 140	16 18	59 64	100 130	M20
250M	2 4&6	550	450	500	140	19	5	18	415	983 914	1134 1065	100	489	328	352	243	2"	60 65	140 140	18 18	64 69	130 130	M20
280S/M	2 4&6	550	450	500	140	19	5	18	445	1010	1160	115	544	358	360	243	2"	65 75	140 140	18 20	69 79.5	130 130	M20
315S/M	2 4&6	660	550	600	140 170	24	6	22	515	1137 1167	1293 1353	130	604	413	386 416	278	2"	65 80	140 170	18 22	69 85	130 160	M20
315L	2 4&6	660	550	600	140 170	24	6	22	515	1302 1332	1458 1518	130	604	413	386 416	278	2 1/2"	65 80	140 170	18 22	69 85	130 160	M20
355L	2 4&6	800	680	740	140 170	24	6	25	584	1461 1491	1622 1682	145	695	495	434 464	403	3"	75 95	140 170	20 25	79.5 100	130 160	M24

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Product Ran

General Technical Specifications - Voltage: 415V ± 10%, Frequency: 50 Hz ± 5% , Combined Variation : ± 10%, Cooling - IC

Motor Type	Frame	Power (kW)	Polarity		Specific Technical Specification
Standard Motors IE2 Motors NEW IE3 Motors Large LT Motors (DCCA)	63 to 355 71 to 355 80 to 355 355 to 450	0.18 to 315 0.37 to 375 0.75 to 315 280 to 1250	2, 4, 6, 8 2, 4, 6 2, 4, 6 2, 4, 6, 8		690V ± 10% from 710kW to 1250kW Non Standard Voltage : 250 - 550V Ambient - 50° C and for DCCA - 40° C Mounting : B3/B5/B35/V1 Mounting (DCCA) : B3/B5/B35 IE2, IE3 and DCCA - Inverter Grade Winding Polarity - up to 24 Duty - S1
Standard Flame Proof Motors IE2 Flame Proof Motors NEW IE3 Flame Proof Motors	80 to 315 80 to 315 80 to 315	0.37 to 200 0.37 to 200 0.75 to 180	2, 4, 6, 8 2, 4, 6 2, 4, 6		Ambient - 45° C Non Standard Voltage : 250 - 550V Mounting - B3/B5/B35/V1 Polarity - up to 24 IE2 and IE3 - Inverter Grade Winding Duty - S1
Non - Sparking Motors IE2 Non - Sparking Motors Increased Safety Motors	63 to 400 63 to 400 63 to 355	0.12 to 560 0.37 to 375 0.12 to 400	2, 4, 6, 8 2, 4, 6 2, 4, 6, 8		Ambient - 45° C Non Standard Voltage : 250 - 550V Mounting - B3/B5/B35/V1 (B14 up to 132) Polarity - up to 24 IE2 - Inverter Grade Winding Duty - S1
Crane & Hoist Duty Motors	71 to 355	0.37 to 400	4, 6, 8		Ambient - 45° C Non Standard Voltage : 250 - 550V Mounting - B3/B5/B35/V1 (B14 up to 132) Duty - S2/S3/S4/S5 Offered in two Series DOL & Converter Fed
Slip Ring Motors	100 to 160	1.1 to 10	4, 6		Ambient - 45° C Non Standard Voltage : 250 - 550V Mounting - B3/B35 Duty - S2/S3/S4/S5
Textile Motors - Ring Frame	100 to 160	1.1 to 15	4		Ambient - 50° C Non Standard Voltage : 250 - 550V Mounting - B3/B5/B35 Duty - S1
Cane Unloader Motors	160 to 225	11 to 30	6		Ambient - 45° C Start/Stop per Hour - 900 Mounting - B3/B5 F orced Cooling Thermostat Duty - S5, 50% CDF
Brake Motors	71 to 132	0.25 to 9.3	2, 4, 6, 8		Ambient - 50° C Duty - S1,S2/S3/S4/S5 Mounting - B3/B5 (B14 up to 132) Integral DC Brake

ge - Motors

411, Temperature Rise : Limited to Class B, Insulation Class F, Altitude : up to 1000 m above MSL, Rotation - Bi-directional

Optional Features		Applications
Double Shaft Extension Shaft Material EN19/EN24/EN57/SS316 Enclosure - IP56/ 65/66 Forced Cooling - 132 to 450 Frame Space Heater - Frame 90 onwards Roller Bearing - 160 Frame onwards High Temperature Grease - Molykote HP 300 (Suitable up to 250° C) RTD (Standard for DCCA)	Motors for Inverter Duty Non Std Single Shaft Extension Non Standard Painting Provision for Encoder Mounting Insulation - Class H Low Vibration Insulated Bearing - 160 Frame onwards BTD - 250 Frame & above	Pump, Fan, Compressor, Packaging 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
Double Shaft Extension Shaft Material EN19/EN24/EN57/SS 316 Enclosure - IP56/ 65 Space Heater - Frame 90 onwards Roller Bearing - 160 Frame onwards Intermittent Duty (S3, S4) - 80 to 132 Fr Combined Testing with VFD Thermistor	Motors for Inverter Duty Non Std Single Shaft Extension Non Standard Painting Insulation - Class H Low Vibration Insulated Bearing - 160 Frame onwards	Pump, Fan, Compressor, Material Handling, Agitator, LPG Bottling Plant, Pharma Machinery, Chemical Plant Machinery
Double Shaft Extension Shaft Material EN19/EN24/EN57/SS316 Enclosure - IP56/ 65 Space Heater - Frame 90 onwards Roller Bearing - 160 Frame onwards Intermittent Duty (S3, S4) - 80 to 132 Fr Combined Testing with VFD	Motors for Inverter Duty Non Std Single Shaft Extension Non Standard Painting Insulation - Class H LowVibration InsulatedBearing - 160 Frame onwards Thermistor	Pump, Fan, Compressor, Material Handling, Agitator, Pharma Machinery
Double Shaft Extension Shaft Material EN19/EN24/EN57/SS316 Enclosure - IP56/ 65 Space Heater - Frame 90 onwards Roller Bearing - 160 Frame onwards BTD - 250 Frame & above Combined Testing with VFD	Motors for Inverter Duty Non Std Single Shaft Extension Non Standard Painting Insulation - Class H Low Vibration Insulated Bearing - 160 Frame onwards	Crane, Hoist, Lift, Material Handling, Car Stacker, Door Opening
Non Standard Paint Enclosure - IP56/65	Low Vibration	Crane, Hoist, Lift, Material Handling
Non Standard Paint Motors for Inverter Duty	Insulation Class - H Low Vibration	Ginning, Textile Machinery
Non Standard Paint	Insulation Class - H	Cane Loading-Unloading Machine
Non Standard Paint Motors for Inverter Duty	Higher Braking Torque	Crane, Textile, Pharma Machinery

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BBL/CAT/002 Sep. 2015