



3 Phase TEFC Cage Motors



The Company

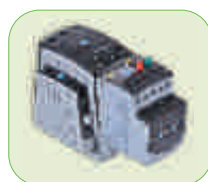
Larsen & Toubro infuses engineering with imagination. The Company offers a wide range of advanced solutions in the field of Engineering, Construction, Electrical & Automation, Machinery and Information Technology.

L&T Switchgear, a part of the Electrical & Automation business, is India's largest manufacturer of low voltage switchgear, with the scale, sophistication and range to meet global benchmarks. With over five decades of experience in this field, the Company today enjoys a leadership position in the Indian market with a growing international presence.

It offers a complete range of products including powergear, controlgear, industrial automation, building electricals & automation, reactive power management, energy meters, and protective relays. These products conform to Indian and International Standards.

SUPERNOVA™

When imagination meets engineering a Supernova is born. L&T introduces its Supernova range of low-tension AC motors suitable for various market segments namely Industry, OEM, Energy & Infrastructure, Buildings and Agriculture. These power pack motors with an innovative manufacturing technique, enable high performance, energy efficiency and sustainability.

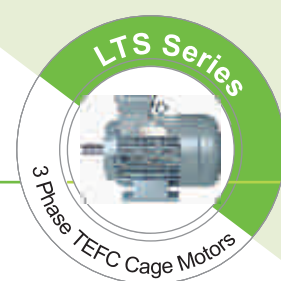


L&T offers complete range of motor starting and protection solutions, through SUPERNOVA™ range of Soft Starters, Drives, Controlgear Products, MPCBs, Fuses, Switches & MCCBs.

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3 Phase TEFC Cage Motors - LTS Series



Range	Frame size	Speed	Rating
	63 - 400L	3000 rpm	0.12 - 560 kW
	63 - 400L	1500 rpm	0.12 - 630 kW
	71 - 400L	1000 rpm	0.18 - 500 kW
	80 - 400L	750 rpm	0.18 - 360 kW
	General Features		
Supply Conditions	415V ± 10%, 50 Hz ± 5% and combined variation of ± 10%		
Body	Aluminium body in frames 63 - 90 and Cast Iron body in frames 100 - 400		
Ambient	50°C		
Insulation	Class F with temperature rise restricted to class B (as per IS 12802)		
CC marking	YES		
Mounting (Others on Request)	B3 / B5 / B14 / V1 / V5 / B35 / V3		
Efficiency	EFF2 as per IS12615 (EFF1 on Request)		
Grease	Lithium based grease AP3 or equivalent		
Duty	S1		
Reference	IS 325		
Paint	RAL 7011		
	Salient Features		
Construction	TEFC enclosure with true IP55 Protection (Motors with regreasable bearings are provided with labyrinth seal)		
Cooling	Shaft Mounted Fan - IC 411		
Winding and Impregnation System	1) VPI with polyesterimide Class H resin 2) Dual coated winding wires (Suitable for high temperature with standing capability of 200°C)		
Terminal	1) 6 leads for 415 Volts Y / 230 Volts Δ till frame 90 2) 6 leads for 415 Volts Δ from frame 100 and above		
Bearings	1) Till frame 160:- Pre-lubricated sealed bearings 2) For frame 180 - 250:- Regreasable bearing with online regreasing arrangement or sealed bearings 3) For frame 280 - 400 :- Regreasable bearing with online regreasing arrangement 4) Pre-lubricated till frame 132 (62 series) 5) Regreasable bearings for frame 160 - 400 (63 series)		
Applications	• Suitable for all general purpose applications • Suitable along with inverter for variable torque applications like fans, pumps, blowers even for smaller cable lengths (Inverter to Motor)		

High efficiency

- Low loss M45 grade stampings for frame 180 and above
- Higher efficiency thanks to labyrinth seal (low frictional losses) as compared to oil seal

Inverter compatibility

- All "LTS" motors are suitable for VFD compatibility for voltage < 500V at the Motor terminals
- VPI treatment for higher thermal and mechanical strength
- Dual coat winding for higher electrical strength
- 6 terminal connections in terminal box for all frames for inverter compatibility

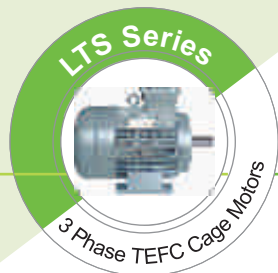
Flexibility

- Aluminum body available from 63-132 and Cast Iron body available from 100-400
- Large terminal box for easy cable termination
- Multimounting flexibility

Special labyrinth seal (in place of oil seal) for ensuring True IP55 protection against water & solid particles

Maintenance friendly

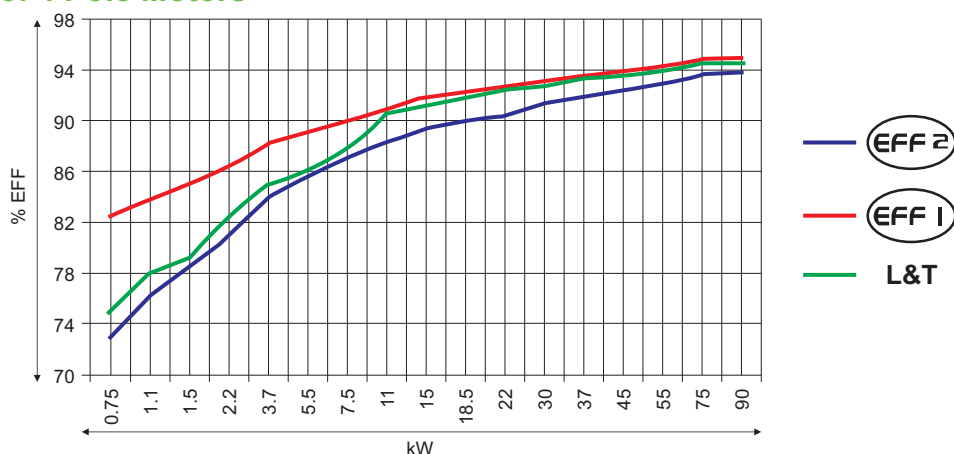
- Sealed bearings till frame 160
- Online re-greasing arrangement for frame 180 & above



Higher Efficiencies

LTS Motors have been designed for higher efficiency at a designed ambient of 50° C. Efficiency figures are well ahead of relevant IEC & IS standards resulting in lower energy consumption, reduced operational costs and ultimately faster return on investment. Ratings covered in frame 180 and above are provided with M45 Grade Stamping resulting in low iron losses and enhancing efficiency. All ratings covered in frame 315S/M/L are EFF1 as per IS12615.

Efficiencies of 4 Pole Motors



Better Returns & Better Life * without Investing Extra with “L&T Motors”

kW	Pole	L&T Make EFF2	XYZ Make EFF2	Nett Rate XYZ	Nett Rate L&T	Working Hrs Per Year	Power Rate Per kWh	Saving in Rs Per Year
2.2	4	82.5	82.0	Same Market Rate		4800	5	390
3.7	4	85.2	85.0			4800	5	245
5.5	4	86.0	86.0			4800	5	0
7.5	4	88.0	87.0			4800	5	2351
11	4	89.8	89.0			4800	5	2643
15	4	91.1	88.5			4800	5	11610
18.5	4	91.4	90.6			4800	5	4289
22	4	92.0	91.5			4800	5	3136
30	4	92.6	92.6			4800	5	0
37	4	93.5	92.8			4800	5	7164
45	4	93.6	93.3			4800	5	3710
55	4	93.8	93.8			4800	5	0
75	4	94.5	93.0			4800	5	14215
90	4	94.7	94.0			4800	5	16985

* Dual coat winding wire and VPI (Vacuum Pressure Impregnation)

Protection

Motors are provided with Labyrinth Seals which ensure true IP55 protection against the ingress of water and dust. Higher degrees of protection like IP56 can also be made available on request.

Insulation scheme

All Motors provided with Class H dual coated winding conductor suitable for high temperature withstanding capability of 200°C. VPI is used for all machines with a Polyesterimide Class H resin for the best electro-mechanical protection of the windings. All Motors are with class F insulation scheme with temperature rise restricted to Class B.

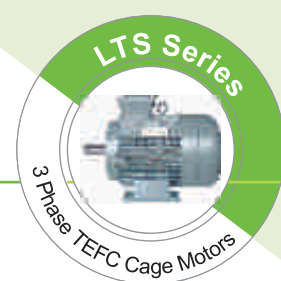
Terminal box

Terminal box position is on TOP. The spacious terminal box makes the motor quick and easy to connect. The terminal box can be rotated in steps of 90° upto 160 frame so that cables can be connected from the right or the left.

Bearings

Motors are offered with appropriately selected ball bearings with high temperature Lithium base grease to give increased life and reliability. For high radial loads and belt driven applications roller bearings are provided against requirement. Motors from frame 180 and above are provided with re-greasing facility on DE side.

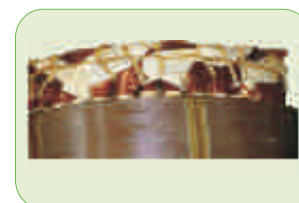
Special Features of L&T Motors



Higher Mechanical strength

VPI as Standard-Vacuum Pressure Impregnation

VPI is used for all machines with a Polyesterimide Class H resin for the best electro-mechanical protection of the windings.



Higher Electrical strength

Dual Coat winding Wires

All Motors provided with dual coat winding conductor of class H suitable for high temperature withstand capability of 200°C.



Maintenance friendly

Labyrinth Seal

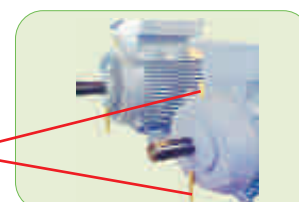
Introduced Labyrinth Seal in place of oil seal for ensuring True IP55 protection against water and solid particles.



Online Re-greasing Arrangement

Motors from frame 180 and above are equipped with re-greasable bearings which are lubricated with lithium based grease type AP3.

Re-greasing
Nipples

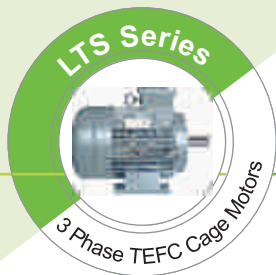


Bearing & Lubrication

All Motors upto 160 frame are equipped with life time pre-lubricated bearing as a standard feature.

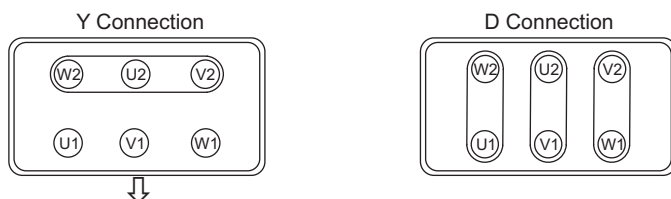


Frame	Size of Bearings	
	DE	NDE
63	6202 2Z	6202 2Z
71	6203 2Z	6203 2Z
80	6204 2Z	6204 2Z
90	6205 2Z	6205 2Z
100	6206 2Z	6206 2Z
112	6306 2Z	6306 2Z
132	6208 2Z	6208 2Z
160	6309 2Z	6309 2Z
180	6310 C3	6310 C3
200	6312 C3	6312 C3
225	6313 C3	6313 C3
250	6315 C3	6315 C3
280 (2P)	6316 C3	6316 C3
280 (4, 6, 8P)	6317 C3	6317 C3
315	6318 C3	6318 C3
355 (2P)	NU318	6318 C3
355 (4, 6, 8P)	NU322	6322 C3



Terminal Box Connections

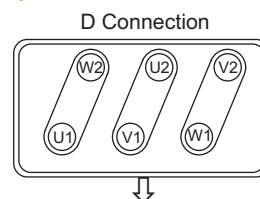
(A) For Frame 63-90



(i) Suitable for 415 Volts 3 Phase Supply in Star (Y) Connection.

(ii) Suitable for 230 Volts 3 Phase Supply in Delta (Δ) Connection.

(B) For Frame 100-400



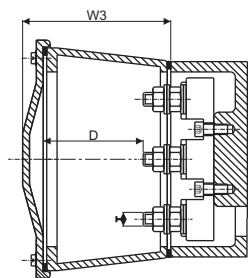
Suitable for 415 Volts 3 Phase Supply in Delta (Δ) Connection.

Terminal Arrangements

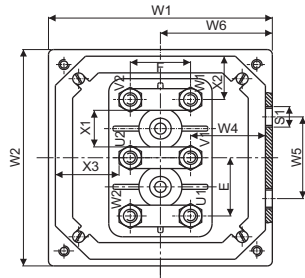
Motors upto 160 frame are provided with a spacious Aluminum terminal box which can be rotated in steps of 90° . Above 160 frame, Fabricated or Aluminum TB is provided which is rotatable in steps of 180 degree. Terminal Box on Top as standard.

Motors in all frames are provided with six terminals for flexibility of star/delta starting

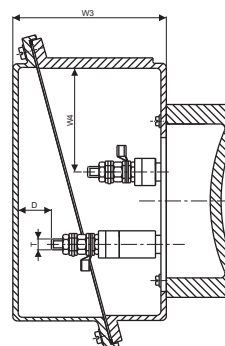
- Motors from frame 63-90 are suitable for 415V Star (Y) or 230V (Δ) Delta connection
- Motors from frame 100 and above are suitable for 415V (Δ) Delta connection



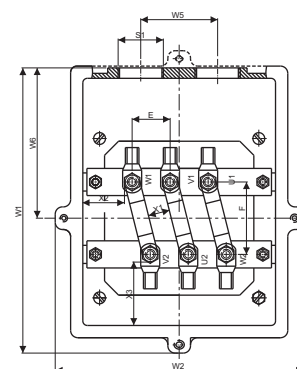
Terminal
Connection
Frame 63-160



Drawing View
without
Terminal Cap



Terminal
Connection
Frame 180-355



Drawing View
without
Terminal Cap

Frame Size	Terminal Box Dimensions										Clearance			
	W1	W2	W3	W4	W5	W6	S1	T	E	F	X1	X2	X3	D
63	95	95	39	32	31	42.5	M16	M5	17	17	7	24	26	17
71	95	95	39	32	31	42.5	M16	M5	17	17	7	24	26	17
80	108	108	49	39	40	54	M20	M5	17	17	7	30	32.5	25
90	108	108	49	39	40	54	M20	M5	17	17	7	30	32.5	25
100	108	108	49	39	40	54	M20	M5	17	17	7	30	32.5	25
112	108	108	49	39	40	54	M20	M5	17	17	7	30	32.5	25
132	116	116	61	35	50	58	M25	M6	25	25	12	22	25	25
160	130	130	82	36	60	65	M32	M8	35	35	21	19	29	54
180	240	194	115	85	65	150	M32	M8	32	60	18	38	53	25
200	240	194	115	85	65	150	M32	M8	32	60	18	38	53	25
225	315	274	170	126	85	166	M50	M10	42	80	25	55	74	53
250	315	274	170	126	85	166	M50	M10	42	80	25	55	74	53
280	400	310	212	140	110	202	M50	M12	58	104	36	52	94	69
315	400	310	212	140	110	202	M50	M12	58	104	36	52	94	69
355	482	422	380	240	-	350	-	M16	86	100	40	90	125	110

Governing Standards

Indian Standards

- IS 325 : Three phase Induction motors
- IS 1231 : Dimensions of three phase foot mounted AC Induction motors
- IS 2223 : Dimensions of Flange mounted AC Induction motors
- IS 2253 : Designation for type of construction & mounting arrangements of rotating machines
- IS 4029 : Guide for testing three phase Induction motors
- IS 4691 : Degree of protection of electrical rotating machines
- IS 4722 : Rotating electric machines
- IS 4889 : Methods of determination of efficiency of rotating electrical machines
- IS 6362 : Designation of methods for cooling of rotating electrical machines
- IS 8789 : Values of performance characteristics for three phase Induction motors
- IS 12065 : Permissible limits of noise levels for rotating electrical machines
- IS 12075 : Mechanical vibration of rotating electrical machines
- IS 12615 : Energy efficient Induction motors - Three phase squirrel cage

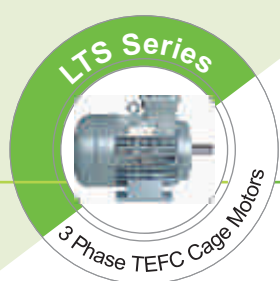
International Standards

- IEC 34-1 : Recommendation for rotating electrical machines
- IEC 72-1 : Recommendation, Dimensions & output rating of electrical machines for foot mounting
- IEC 72-2 : Recommendation of the dimensions and output rating of electrical machines for flange mounting

Packing Weight & Dimensions

All LTS motors are provided with Corrugated carton packing for frames till 132. Beyond 132 size frame, motors are provided in robust wooden packing. The packing weight & dimensions are as indicated in the table below:

Frame	Length (mm)	Width (mm)	Height (mm)	Net Wt. (Kg)	Gross Wt. (Kg)
63	230	160	200	4.5	5
71	250	180	220	6.5	7
80	290	220	250	10	11
90S	360	220	260	13	14
90L	360	220	260	15	16
100L	432	305	330	21	22
112M	457	330	356	30	45
132S	559	356	406	42	55
132M	559	356	406	53	65
160M	711	381	432	135	160
160L	711	381	432	148	160
180	810	455	575	212	230
200	890	500	620	293	320
225	975	550	730	366	400
250	1065	600	780	500	550
280S	1123	650	790	667	710
280M	1174	650	790	685	735
315S	1220	718	910	900	960
315M	1300	718	910	960	1020
315L	1330	718	910	1000	1070
355L	2000	1190	900	1810-2470	1900-2550



Selection & Ordering Data

Performance Figures For (EFF 2) Motors

415 Volts, 50Hz, IP55, IC411, Amb : 50°C, Ins. Class 'F', Temp. Rise Class 'B', Alt 1000m, Duty S1

2 Pole = 3000 RPM

kW	HP	Frame	Efficiency			Current [A]	Power factor (PF)			Speed [rpm]	Torque			Starting current [pu]	Gd2 kgm²
			100%	75%	50%		100%	75%	50%		Rated [Kgm]	Starting [pu]	Pullout [pu]		
0.18	0.25	63	63.0	59.7	53.6	0.50	0.80	0.72	0.61	2760	0.063	2.0	2.5	5.0	0.0006
0.25	0.33	63	63.9	62.8	56.4	0.68	0.80	0.70	0.60	2760	0.088	2.0	2.5	5.0	0.0008
0.37	0.5	71	69.5	64.4	58.6	0.88	0.84	0.75	0.64	2800	0.129	2.4	2.7	5.0	0.0014
0.55	0.75	71	72.3	66.4	58.6	1.25	0.85	0.78	0.70	2800	0.191	2.4	2.7	5.5	0.0018
0.75	1.0	80	75.0	73.0	72.3	1.60	0.87	0.80	0.69	2810	0.260	2.0	2.5	5.5	0.0027
1.1	1.5	80	78.0	77.0	75.3	2.25	0.87	0.81	0.70	2820	0.380	2.0	2.6	5.5	0.0036
1.5	2.0	90S	80.1	79.0	75.0	3.00	0.87	0.81	0.70	2850	0.512	1.9	2.6	5.5	0.006
2.2	3.0	90L	82.4	82.0	81.0	4.20	0.89	0.83	0.72	2855	0.750	1.9	2.7	6.0	0.007
3.7	5.0	100L	85.0	85.0	83.5	6.90	0.88	0.86	0.75	2860	1.30	1.9	3.0	6.0	0.015
5.5	7.5	132S	86.0	85.0	82.0	10.4	0.86	0.82	0.71	2880	1.90	2.0	2.8	6.0	0.041
7.5	10.0	132M	88.0	88.0	84.0	13.5	0.88	0.86	0.78	2880	2.50	2.0	3.0	6.0	0.054
9.3	12.5	160M	89.3	87.0	85.0	16.0	0.90	0.88	0.85	2890	3.10	2.1	2.8	6.0	0.130
11	15.0	160M	89.5	88.0	85.0	19.0	0.90	0.89	0.84	2925	3.70	2.2	2.9	6.0	0.133
15	20.0	160M	90.2	89.0	87.0	25.7	0.90	0.89	0.86	2925	5.00	2.0	2.7	6.0	0.184
18.5 *	25.0	160L	90.8	90.5	89.0	31.5	0.90	0.89	0.86	2930	6.10	2.0	2.7	6.0	0.220
22 *	30.0	180M	91.2	90.5	88.0	37.3	0.90	0.89	0.85	2930	7.30	2.1	2.9	6.0	0.297
30	40.0	200L	92.0	92.0	90.5	50.5	0.90	0.89	0.85	2900	10.1	2.0	2.5	6.0	0.510
37	50.0	200L	92.6	92.3	91.5	61.8	0.90	0.89	0.87	2935	12.3	2.0	2.5	6.0	0.640
45	60.0	225M	93.1	92.4	91.0	74.8	0.90	0.89	0.87	2940	14.9	2.0	2.7	6.0	1.07
55	75.0	250M	93.5	93.0	91.2	91.0	0.90	0.89	0.88	2955	18.1	1.9	2.2	6.0	1.44
75	100	280S	93.9	93.6	92.5	123.5	0.90	0.89	0.88	2960	24.7	2.0	2.3	6.0	2.48
90	120	280M	94.0	93.5	92.0	148.0	0.90	0.89	0.88	2970	29.5	2.0	2.2	6.0	2.96
110	150	315S	95.0	95.0	92.0	180.0	0.90	0.89	0.88	2970	36.0	1.7	2.5	7.0	5.80
132	180	315M	95.3	95.3	92.5	214.8	0.90	0.89	0.88	2980	43.1	1.7	2.5	7.0	6.98
160	215	315L	95.5	95.5	93.5	260.0	0.90	0.89	0.88	2980	52.2	1.7	2.5	7.0	8.46
180*	240	315L	95.6	95.3	93.8	291.0	0.90	0.87	0.81	2980	58.8	2.0	2.5	7.0	10.20
200*	270	315L	95.6	95.3	93.8	323.5	0.90	0.87	0.81	2980	65.3	2.0	2.5	7.5	10.20
250	335	355BM1	95.6	95.3	94.0	404.3	0.90	0.87	0.81	2980	81.6	1.5	2.0	7.5	17.00
315	425	355DM1	95.8	95.4	94.5	508.5	0.90	0.88	0.81	2980	102.9	1.5	2.0	7.5	23.00
355	475	355EM1	96.0	95.6	95.2	572.0	0.90	0.87	0.81	2980	115.9	1.5	2.0	7.5	26.10
400	535	355FM1	96.0	95.8	95.7	644.0	0.90	0.87	0.81	2980	130.6	1.5	2.0	7.5	28.00

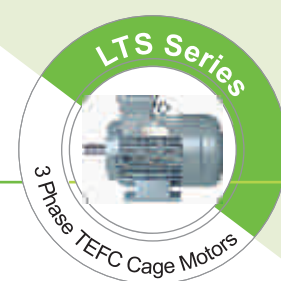
*Class F - Class F temperature rise

4 Pole = 1500 RPM

kW	HP	Frame	Efficiency			Current [A]	Power factor (PF)			Speed [rpm]	Torque			Starting current [pu]	Gd2 kgm²
			100%	75%	50%		100%	75%	50%		Rated [Kgm]	Starting [pu]	Pullout [pu]		
0.12	0.16	63	58.4	52.2	44.6	0.44	0.65	0.56	0.47	1376	0.085	2.5	2.6	4.0	0.0009
0.18	0.25	63	65.0	62.0	55.0	0.60	0.65	0.57	0.41	1360	0.129	2.4	2.5	4.0	0.0012
0.25	0.33	71	66.7	62.0	56.0	0.80	0.65	0.56	0.49	1370	0.178	2.2	2.4	4.0	0.0023
0.37	0.5	71	68.6	65.7	60.4	1.15	0.67	0.63	0.49	1370	0.263	2.3	2.4	4.0	0.003
0.55	0.75	80	72.3	69.7	65.1	1.50	0.73	0.64	0.53	1380	0.388	2.0	2.0	4.0	0.0044
0.75	1.0	80	73.5	72.4	66.2	2.00	0.73	0.65	0.53	1390	0.525	1.9	2.0	4.0	0.0059
1.1	1.5	90S	78.0	76.1	72.4	2.70	0.73	0.62	0.49	1400	0.765	1.9	2.6	5.0	0.009
1.5	2.0	90L	79.3	79.0	76.2	3.50	0.75	0.65	0.55	1405	1.04	2.0	2.8	5.0	0.013
2.2	3.0	100L	82.4	82.0	78.0	4.80	0.78	0.72	0.60	1410	1.52	1.8	2.7	5.0	0.024
3.7	5.0	112M	85.2	84.8	82.9	7.50	0.81	0.74	0.62	1435	2.51	2.0	2.5	6.0	0.049
5.5	7.5	132S	86.0	85.9	84.3	11.0	0.81	0.74	0.62	1440	3.72	2.0	3.0	6.0	0.094
7.5	10.0	132M	88.0	88.0	87.1	14.3	0.83	0.78	0.70	1450	5.03	2.0	3.1	6.0	0.128
9.3	12.5	160M	88.9	88.0	87.0	17.3	0.84	0.80	0.70	1450	6.24	1.8	2.9	6.0	0.248
11.0	15.0	160M	89.8	90.0	88.0	20.8	0.82	0.73	0.62	1455	7.36	1.9	2.9	6.0	0.25
15.0	20.0	160L	91.1	91.1	89.0	28.0	0.82	0.76	0.64	1465	9.96	1.9	3.0	6.0	0.336
18.5	25.0	180M	91.4	91.0	89.0	34.4	0.82	0.76	0.66	1470	12.2	1.8	2.7	6.0	0.515
22.0	30.0	180L	92.0	91.2	90.0	40.0	0.83	0.77	0.68	1470	14.6	1.8	2.7	6.0	0.618
30.0	40.0	200L	92.6	92.0	92.0	52.5	0.86	0.85	0.79	1472	19.8	2.1	2.9	6.0	1.11
37.0	50.0	225S	93.5	93.4	92.0	64.0	0.86	0.84	0.75	1475	24.4	2.1	2.5	6.0	1.44
45.0	60.0	225M	93.6	93.4	92.0	76.9	0.87	0.85	0.78	1472	29.7	2.2	2.6	6.0	1.74
55.0	75.0	250M	93.8	93.5	92.5	92.7	0.88	0.86	0.79	1480	36.2	1.9	2.7	6.0	3.07
75.0	100	280S	94.5	94.0	93.0	126.9	0.87	0.83	0.75	1485	49.1	2.0	2.5	6.0	4.79
90.0	120	280M	94.7	94.0	92.8	152.0	0.87	0.84	0.78	1485	59.0	1.9	2.4	6.0	5.75
110	150	315S	95.2	95.2	94.4	185.0	0.87	0.86	0.82	1485	72.1	1.8	2.6	7.0	10.0
132	180	315M	95.5	95.5	94.5	219.2	0.88	0.87	0.81	1485	86.5	1.8	2.6	7.0	10.7
160	215	315L	95.8	95.8	94.5	264.9	0.88	0.86	0.82	1485	104.8	1.8	2.6	7.0	13.5
180	240	315L	95.8	95.8	95.0	298.0	0.88	0.86	0.80	1485	117.9	1.7	2.6	7.0	15.6
200	270	315L	95.8	95.7	95.0	323.0	0.90	0.88	0.82	1485	131.0	1.7	2.6	7.0	17.0
250	335	355BM1	96.0	95.9	95.0	411.7	0.88	0.88	0.75	1487	163.6	1.8	2.6	7.0	26.0
315	425	355DM1	96.0	96.0	95.9	518.8	0.88	0.88	0.73	1488	206.0	2.0	2.6	7.0	32.0
355	475	355EM1	96.2	96.0	95.7	583.5	0.88	0.88	0.73	1488	232.1	1.7	2.7	7.0	35.0
400	535	355FM1	96.2	96.0	95.5	657.4	0.88	0.88	0.73	1488	261.6	1.7	2.7	7.0	39.0
450	600	355GM1	96.2	96.0	95.5	731.2	0.89	0.88	0.73	1488	294.3	1.7	2.7	7.0	45.0

All performance figures are subject to IS standard

Selection & Ordering Data



Performance Figures For $\text{EFF} \geq$ Motors

415 Volts, 50Hz, IP55, IC411, Amb : 50°C, Ins. Class 'F', Temp. Rise Class 'B', Alt 1000m, Duty S1

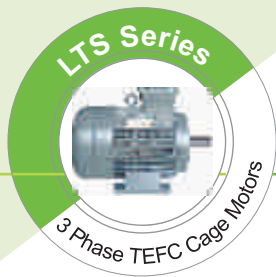
6 Pole =1000 RPM

kW	HP	Frame	Efficiency			Current [A]	Power factor (PF)			Speed [rpm]	Torque			Starting current [pu]	Gd2 kgm ²
			100%	75%	50%		100%	75%	50%		Rated [Kgm]	Starting [pu]	Pullout [pu]		
0.37	0.5	80	66.2	64.4	58.3	1.2	0.67	0.57	0.46	930	0.39	2.0	2.4	4.0	0.009
0.55	0.75	80	68.9	67.6	62.2	1.65	0.68	0.58	0.46	930	0.58	2.0	2.4	4.0	0.011
0.75	1.0	90S	71.2	69.0	66.5	2.22	0.66	0.58	0.46	935	0.78	1.9	2.1	4.0	0.015
1.1	1.5	90L	74.0	74.0	69.0	3.0	0.68	0.58	0.46	935	1.14	1.9	2.3	4.0	0.020
1.5	2.0	100L	76.1	75.5	71.5	4.0	0.70	0.61	0.49	940	1.55	2.2	2.2	4.0	0.042
2.2	3.0	112M	80.6	81.0	79.0	4.9	0.77	0.69	0.56	950	2.25	1.8	2.3	4.5	0.075
3.7	5.0	132S	83.8	83.8	81.5	8.2	0.75	0.67	0.55	955	3.77	1.8	2.3	4.5	0.15
5.5	7.5	132M	85.2	85.0	83.9	11.8	0.76	0.72	0.60	955	5.60	1.8	2.0	4.5	0.18
7.5	10.0	160M	87.0	86.6	85.0	15.0	0.80	0.73	0.60	965	7.56	1.8	2.8	5.5	0.38
11.0	15.0	160L	88.4	88.5	87.0	21.3	0.81	0.76	0.64	965	11.09	1.8	2.8	5.5	0.51
15.0	20.0	180M	89.4	89.5	88.0	30.5	0.76	0.66	0.06	975	14.97	1.8	3.0	6.0	0.87
18.5	25.0	200L	90.3	91.2	89.5	34.5	0.82	0.78	0.66	980	18.37	1.8	2.8	6.0	1.38
22.0	30.0	200L	90.8	91.5	90.0	40.8	0.82	0.77	0.66	980	21.84	1.8	2.9	6.0	1.59
30.0	40.0	225M	92.0	92.0	90.5	56.0	0.81	0.77	0.68	985	29.63	1.9	2.0	6.0	3.07
37.0	50.0	250M	92.4	92.2	91.5	68.0	0.82	0.77	0.67	985	36.55	1.8	2.1	6.0	5.7
45.0	60.0	280S	92.6	92.0	90.0	83.5	0.81	0.75	0.65	990	44.23	1.9	2.2	6.0	5.9
55.0	75.0	280M	93.1	93.0	90.2	101.5	0.81	0.78	0.69	990	54.06	1.9	2.2	6.0	7.1
75.0	100	315S	94.2	94.2	92.5	131.3	0.85	0.84	0.78	990	73.71	1.8	2.6	6.0	17.9
90.0	120	315M	94.5	94.5	93.5	156.7	0.85	0.84	0.78	990	88.45	1.8	2.4	6.0	22.0
110	150	315L	94.6	94.6	93.0	191.5	0.85	0.84	0.79	990	108.11	1.8	2.4	6.0	26.9
132	180	315L	94.9	94.9	93.5	225.0	0.86	0.84	0.80	990	129.73	1.8	2.4	6.0	32.9
160	215	315L	95.1	95.0	93.0	272.5	0.86	0.82	0.77	990	157.25	2.2	2.8	7.0	32.9
180	240	355BM1	95.1	94.8	93.6	306.2	0.86	0.84	0.77	990	176.91	2.0	2.5	7.0	38.3
200	270	355DM1	95.3	95.1	93.9	343.5	0.85	0.84	0.77	990	196.57	2.2	2.8	7.0	48.6
250	335	355BM1	95.6	95.5	94.5	428.0	0.85	0.84	0.77	990	245.71	2.2	2.7	7.0	54.0
315	425	355DM1	95.6	95.6	95.0	539.3	0.85	0.84	0.76	990	309.59	2.3	2.8	7.0	60.5
355	475	355EM1	95.6	95.6	95.1	607.8	0.85	0.82	0.72	990	348.90	2.3	2.8	7.0	68.0

8 Pole = 750 RPM

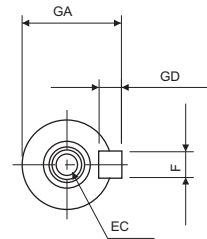
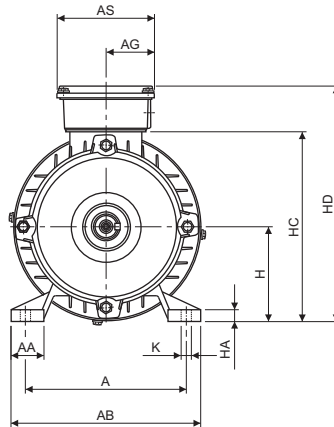
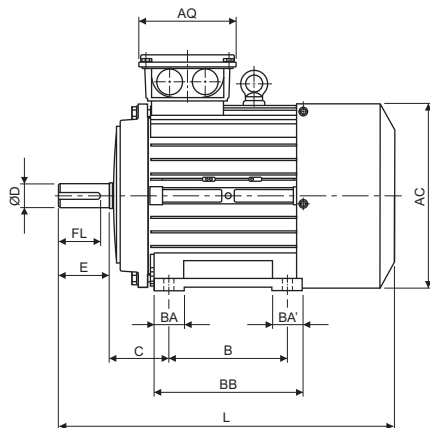
kW	HP	Frame	Efficiency			Current [A]	Power factor (PF)			Speed [rpm]	Torque			Starting current [pu]	Gd2 kgm ²
			100%	75%	50%		100%	75%	50%		Rated [Kgm]	Starting [pu]	Pullout [pu]		
0.18	0.25	80	57.2	52.1	44.5	0.71	0.62	0.55	0.45	695	0.252	1.8	2.3	3.0	0.0088
0.25	0.33	80	61.5	59.5	52.7	0.91	0.62	0.52	0.42	695	0.350	1.8	2.3	3.0	0.0114
0.37	0.5	90S	62.0	61.5	54.7	1.36	0.61	0.49	0.39	700	0.514	1.9	2.0	3.0	0.0152
0.55	0.75	90L	67.0	64.5	58.3	1.9	0.61	0.49	0.39	700	0.765	1.9	2.0	3.0	0.0202
0.75	1.0	100L	70.0	68.5	62.8	2.5	0.60	0.51	0.40	700	1.043	1.9	2.4	3.5	0.0312
1.1	1.5	100L	72.0	69.1	64.1	3.3	0.65	0.55	0.43	700	1.529	1.8	2.1	3.5	0.0416
1.5	2.0	112M	74.0	72.6	70.0	4.3	0.65	0.53	0.41	710	2.056	1.8	2.3	3.5	0.0755
2.2	3.0	132S	77.0	76.0	74.0	5.9	0.68	0.61	0.49	715	2.994	1.8	2.0	3.5	0.102
3.7	5.0	160M	80.0	79.0	77.0	8.7	0.74	0.65	0.52	722	4.986	1.8	2.5	4.5	0.322
5.5	7.5	160M	82.5	82.0	80.0	12.4	0.75	0.67	0.54	722	7.412	1.8	2.5	4.5	0.425
7.5	10.0	160L	84.0	84.0	82.0	16.6	0.75	0.67	0.54	722	10.107	1.8	2.5	4.5	0.579
11.0	15.0	180L	86.0	85.5	84.0	23.7	0.75	0.67	0.54	730	14.662	1.7	2.6	5.0	1.07
15.0	20.0	200L	87.0	87.0	85.5	31.2	0.77	0.71	0.60	730	19.993	1.7	2.2	5.0	1.59
18.5	25.0	225S	88.0	88.0	87.0	37.5	0.78	0.71	0.60	735	24.490	1.7	2.3	5.0	2.54
22.0	30.0	225M	88.5	88.2	90.5	44.4	0.78	0.71	0.60	735	29.124	1.7	2.3	5.0	3.07
30.0	40.0	250M	90.0	90.0	89.6	59.5	0.78	0.70	0.59	740	39.446	1.6	2.3	5.0	5.68
37.0	50.0	280S	90.5	90.0	88.0	71.0	0.80	0.76	0.64	740	48.650	1.9	2.5	6.0	7.80
45.0	60.0	280M	91.0	91.0	89.7	86.0	0.80	0.78	0.68	740	59.169	1.9	2.5	6.0	9.20
55.0	75.0	315S	92.8	92.8	90.9	105.9	0.79	0.75	0.63	740	72.318	1.9	2.3	6.0	17.90
75.0	100	315M	93.5	93.5	92.2	142.8	0.79	0.76	0.67	740	98.615	1.8	2.3	6.0	22.00
90.0	120	315L	93.9	93.9	92.5	168.3	0.80	0.76	0.66	740	118.338	1.8	2.3	6.0	26.85
110	150	315L	94.3	94.0	92.7	204.6	0.80	0.78	0.69	740	144.635	1.8	2.3	6.0	32.80
132	180	355AM1	94.0	93.8	92.0	238.3	0.82	0.78	0.69	740	173.562	1.8	2.3	6.5	39.8
160	215	355BM1	94.2	94.0	93.0	288.2	0.82	0.78	0.69	740	368.162	1.8	2.6	6.5	44.7
180	240	355CM1	94.5	94.2	93.2	323.2	0.82	0.78	0.69	740	328.716	1.6	2.4	6.5	50.9
200	270	355DM1	94.8	94.5	93.5	358.0	0.82	0.78	0.69	740	262.973	1.7	2.4	6.5	56.3
250	335	355EM1	95.0	94.8	93.9	446.5	0.82	0.78	0.69	740	236.676	1.6	2.5	6.5	69.5
280	375	355GM1	95.3	95.0	94.1	492.5	0.83	0.78	0.69	740	210.378	1.6	2.5	6.5	78

All performance figures are subject to IS standard



Foot Mounted Motors B3/B6/V5/V6 Mountings

Frame 63 - 160



Shaft Extension

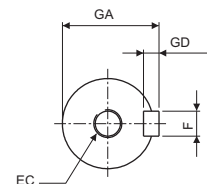
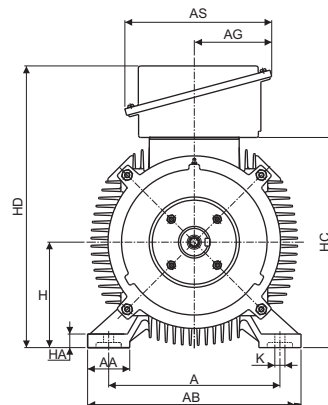
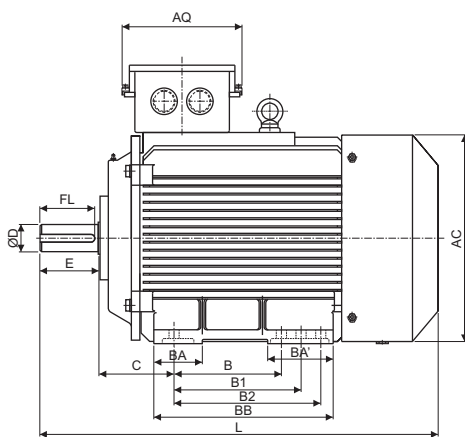
Tolerances:-
 $\varnothing D = \varnothing 11$ to $\varnothing 28$ ISO j6
 $\varnothing D = \varnothing 38$ to $\varnothing 48$ ISO k6
 F - ISO h9
 H - +0.0/-0.5

All Dimensions are in mm.
 Protection:- IP55
 Cooling:- IC411

B3-Foot Mounted Dimension Drawing:- 63-160

Frame	A	AA	AB	AC	AQ	AS	AG	B	BB	BA	BA'	C	f D ¹⁾	E	FL	F ¹⁾	GD	GA	H ¹⁾	HA	HC	HD	K	L	EC
63	100	28	122	126	95	95	48	80	104	20	20	40	11	23	18	4	4	13	63	8	126	173	7	215	M4
71	112	30	137	140	95	95	48	90	113	25	25	45	14	30	25	5	5	16	71	8	142	189	7	238	M4
80	125	35	156	160	95	95	48	100	135	35	35	50	19	40	34	6	6	22	80	10	160	207	10	281	M5
90S	140	35	175	177	115	115	58	100	130	30	30	56	24	50	40	8	7	27	90	14	181	231	10	401	M6
90L	140	35	175	177	115	115	58	125	155	30	30	56	24	50	40	8	7	27	90	14	181	231	10	426	M6
100L	160	40	196	194	115	115	58	140	176	36	36	63	28	60	50	8	7	31	100	12	202	252	12	481	M8
112M	190	47	226	218	125	125	58	140	176	36	36	70	28	60	50	8	7	31	112	12	224	274	12	503	M8
132S	216	55	260	258	126	126	63	140	214	36	74	89	38	80	60	10	8	41	132	15	265	326	12	596	M8
132M	216	55	260	258	126	126	63	178	214	36	74	89	38	80	60	10	8	41	132	15	265	326	12	596	M8
160M	254	56	307	308	140	140	70	210	256	45	45	108	42	110	100	12	8	45	160	18	325	407	15	706	M16
160L	254	56	307	308	140	140	70	254	300	45	45	108	42	110	100	12	8	45	160	18	325	407	15	750	M16

Frame 180 - 315



Shaft Extension

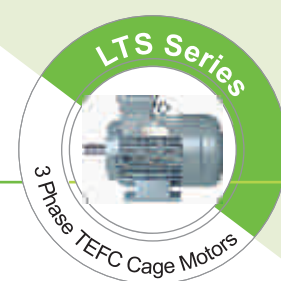
Tolerances:-
 $\varnothing D = \varnothing 38$ to $\varnothing 48$ ISO k6
 $\varnothing D = \varnothing 55$ to $\varnothing 65$ ISO m6
 F - ISO h9
 H - +0.0/-0.5

All Dimensions are in mm.
 Protection:- IP55
 Cooling:- IC411

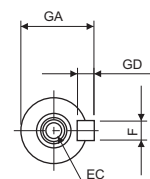
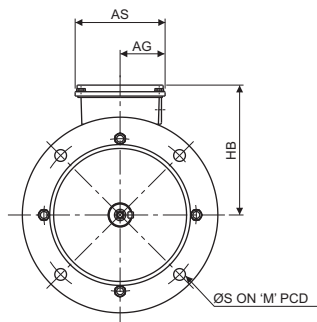
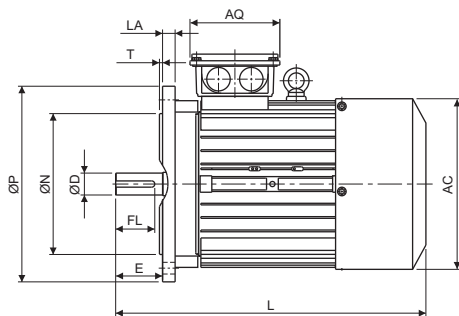
B3-Foot Mounted Dimension Drawing:- 180-315

Frame	A	AA	AB	AC	AQ	AS	AG	B	B1	B2	BB	BA	BA'	C	f D ¹⁾	E	FL	F ¹⁾	GD	GA	H ¹⁾	HA	HC	HD	K	L	EC
180M/L	279	66	330	352	204	250	145	241	279	-	330	63	105	121	48	110	103	14	9	51.5	180	22	359	475	15	714	M16
200L	318	80	398	388	204	250	145	305	-	-	355	85	85	133	55	110	105	16	10	59	200	25	399	515	19	775	M20
225M (2P)	356	80	436	442	284	347	192	-	311	-	366	100	100	149	55	110	105	16	10	59	225	25	448	618	19	828	M20
225M/S (4P & 8P)	356	80	436	442	284	347	192	286	311	-	366	100	100	149	60	140	135	18	11	64	225	25	448	618	19	858	M20
250M (2P)	406	100	506	490	284	347	192	349	-	-	425	115	115	168	60	140	135	18	11	64	250	32	498	668	24	944	M20
250M (4, 6, 8P)	406	100	506	490	284	347	192	349	-	-	425	115	115	168	65	140	135	18	11	69	250	32	498	668	24	944	M20
280S/M (2P)	457	124	548	544	370	436	233	368	419	-	490	100	151	190	65	140	130	18	11	69	280	40	564	776	24	1074	M20
280S/M (4, 6, 8P)	457	124	548	544	370	436	233	368	419	-	490	100	151	190	75	140	130	22	14	80	280	40	564	776	24	1074	M20
315S/M/L (4, 6, 8P)	508	131	608	632	370	436	233	406	457	508	602	125	220	216	80	170	150	22	14	85	315	50	632	846	28	1310	M20
315S/M/L (2P)	508	131	608	632	370	436	233	406	457	508	602	125	220	216	65	140	130	18	11	69	315	50	632	846	28	1280	M20

Flange Mounted Motors B5/V1/V3 Mountings



Frame 63 - 160



Shaft Extension

Tolerances:-

ØD = Ø11 to Ø28 ISO j6

ØD = Ø38 to Ø48 ISO k6

F - ISO h9

H - + 0.0/-0.5

N-ISO j6

All Dimensions are in mm.

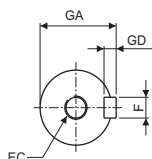
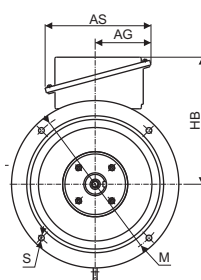
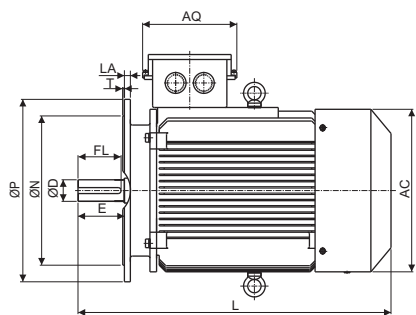
Protection:- IP55

Cooling:- IC411

B5-Flange Mounted Dimension Drawing:- 63-160

Frame	AC	AQ	AS	AG	f D ¹⁾	E	FL	F ¹⁾	GD	GA	HB	L	M	f N ¹⁾	f P	f S	T	LA	EC
63	123	100	100	50	11	23	18	4	4	12.5	105	214	115	95	140	9	3	9	M4
71	138	100	100	50	14	30	25	5	5	16	114	238	130	110	160	9	3.5	10	M4
80	156	115	115	58	19	40	34	6	6	21.5	138	277	165	130	200	12	3.5	11	M5
90S	177	115	115	58	24	50	40	8	7	27	141	303	165	130	200	12	3.5	10	M6
90L	177	115	115	58	24	50	40	8	7	27	141	328	165	130	200	12	3.5	10	M6
100L	194	115	115	58	28	60	50	8	7	31	152	379	215	180	250	15	4	12	M8
112M	218	125	125	58	28	60	50	8	7	31	162	397	215	180	250	15	4	12	M8
132S	258	126	126	63	38	80	60	10	8	41	194	497	265	230	300	15	4	12	M8
132M	258	126	126	63	38	80	60	10	8	41	194	497	265	230	300	15	4	12	M8
160M	308	140	140	70	42	110	100	12	8	45	247	608	300	250	350	19	5	13	M16
160L	308	140	140	70	42	110	100	12	8	45	247	652	300	250	350	19	5	13	M16

Frame 180 - 315



Shaft Extension

Tolerances:-

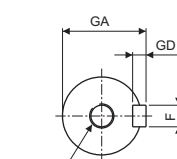
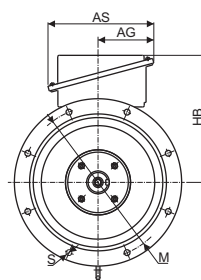
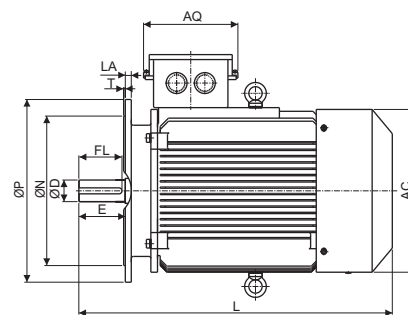
ØD = Ø38 to Ø48 ISO k6

ØD = Ø55 to Ø65 ISO m6

F - ISO h9

H - + 0.0/-0.5

N-ISO j6



Shaft Extension.

All Dimensions are in mm.

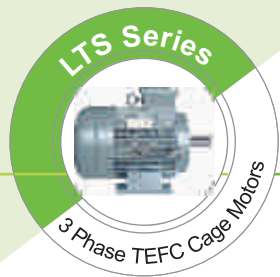
Protection:- IP55

Cooling:- IC411

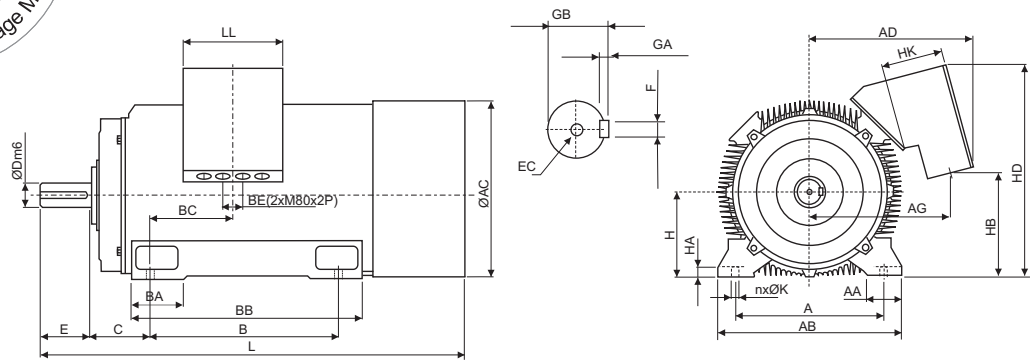
B5-Flange Mounted Dimension Drawing:- 180-200

B5-Flange Mounted Dimension Drawing:- 225-315

Frame	AC	AQ	AS	AG	f D ¹⁾	E	FL	F ¹⁾	GD	GA	HB	L	M	f N ¹⁾	f P	f S	T	LA	EC
180M/L	352	204	250	145	48	110	103	14	9	51.5	295	714	300	250	350	19	5	13	M16
200L	388	204	250	145	55	110	105	16	10	59	315	775	350	300	400	19	5	15	M20
225M (2P)	442	284	347	192	55	110	105	16	10	59	393	828	400	350	450	19	5	16	M20
225M/S (4P & 8P)	442	284	347	192	60	140	135	18	11	64	393	858	400	350	450	19	5	16	M20
250M (2P)	490	284	347	192	60	140	135	18	11	64	418	944	500	450	550	19	5	18	M20
250M (4, 6, 8P)	490	284	347	192	65	140	135	18	11	69	418	944	500	450	550	19	5	18	M20
280S/M (2P)	544	370	436	233	65	140	130	18	11	69	496	1074	500	450	550	19	5	18	M20
280S/M (4, 6, 8P)	544	370	436	233	75	140	130	22	14	80	496	1074	500	450	550	19	5	18	M20
315S/M/L (4, 6, 8P)	632	370	436	233	80	170	150	22	14	85	531	1310	600	550	660	24	6	22	M20
315S/M/L (2P)	632	370	436	233	65	140	130	18	11	69	531	1280	600	550	660	24	6	22	M20

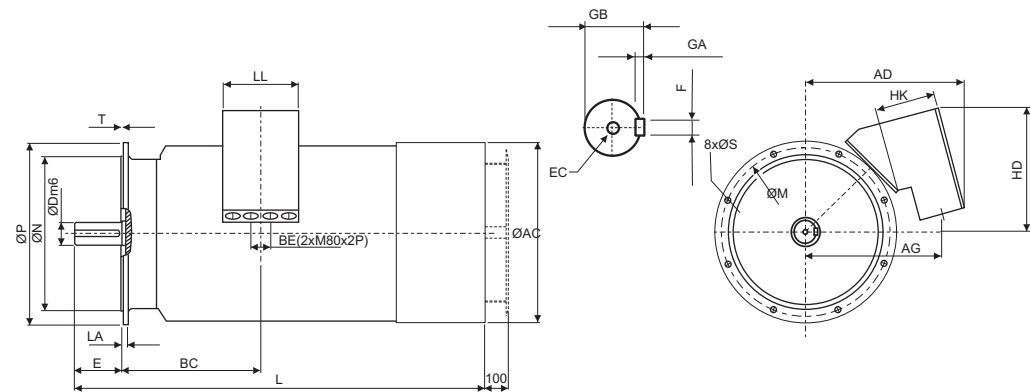


355 Frame - Foot Mounted Motors B3/B6/V5/V6 Mountings



Poles	A	AA	AB	ØAC	AD	AG	B	BA	BB	BC	BE	C	ØD	E	H	HA	HB	HD	HK	nxØK	L	LL	GA	GB	F	EC
4.6.8	630	150	780	790	710	600	800	220	980	200	135	254	100	210	355	40	450	900	280	4 x Ø35	1800	420	16	106	28	M24
2	630	150	780	790	710	600	800	220	980	200	135	254	75	140	355	40	450	900	280	4 x Ø35	1750	420	12	79.5	20	M20

355 Frame - Flange Mounted Motors B5/V1/V3 Mountings

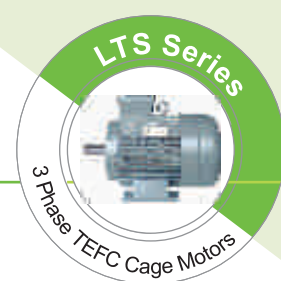


Poles	ØAC	AD	AG	BC	BE	ØD	E	HD	HK	L	LL	GA	GB	F	EC	M	ØN	ØP	ØS	LA	T
4.6.8	790	710	600	600	135	100	210	545	280	1800	420	16	106	28	M24	740	680	800	24	25	6
2	790	710	600	600	135	75	140	545	280	1750	420	16	106	28	M20	740	680	800	24	25	6

355 Frame Foot & Flange Motors



Mounting Arrangement



Mounting arrangement

The standard Motors are foot mounted (B3). Motors can also be offered in the following mountings with various configurations as under:

Foot : B3, B6, B7, B8, V5, V6, B5
Flange : V1, V3, B35, V15 & V36
(D) Face : B14, B34

Optional Features

Non Standard Winding

- Non standard Output
- Non standard Voltage or Frequency
- Dual Voltage
- Class "H" Insulation

Winding Protection

- Thermistor-PTC (3 numbers)
- RTD PT-100 (3 numbers)
- Thermitech Relay for thermistor (3 nos) only Trip
- Thermitech Relay for thermistor (3 nos) Alarm/Trip
- Epoxy Gel Coat on Overhang

Terminal Box

- Terminal Box on RHS
- Terminal Box on LHS
- Flying Leads (Extended Leads)
- Cast Iron Terminal Box

Shaft Related Modifications

- Standard Double Extension
- Non-Std Cylindrical Single Shaft Extension
- Non-Standard Double Extension
- Labyrinth Seal frame 180 and above
- Shafts made of EN-24 material
- Shafts made of Stainless Steel material

Bearings

- Roller Bearings (NU Bearing) at Drive end
- On line Regreasable Bearings for 180 and above frames
- Insulated Bearings at NDE side
- BTB for Bearings
- Insulated Housing at NDE side

Painting

- Epoxy Base Paint
- Epoxy Base Paint with special Shade
- Normal Paint with other Shade
- Special Paint Specification

Non Standard Fan and Fan Cowl

- Plastic Fan
- Metal Fan
- Fan Cowl with Canopy

Ingress Protection

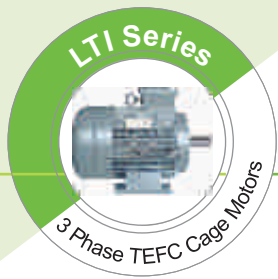
- Canopy for Vertical motor with shaft downwards
- Encoder Mounting Provision (above 90 frame)
- Space Heater
- Cable Glands
- Single Compression Glands
- Double Compression Glands

Name Plate Data

Terminal Box on RHS

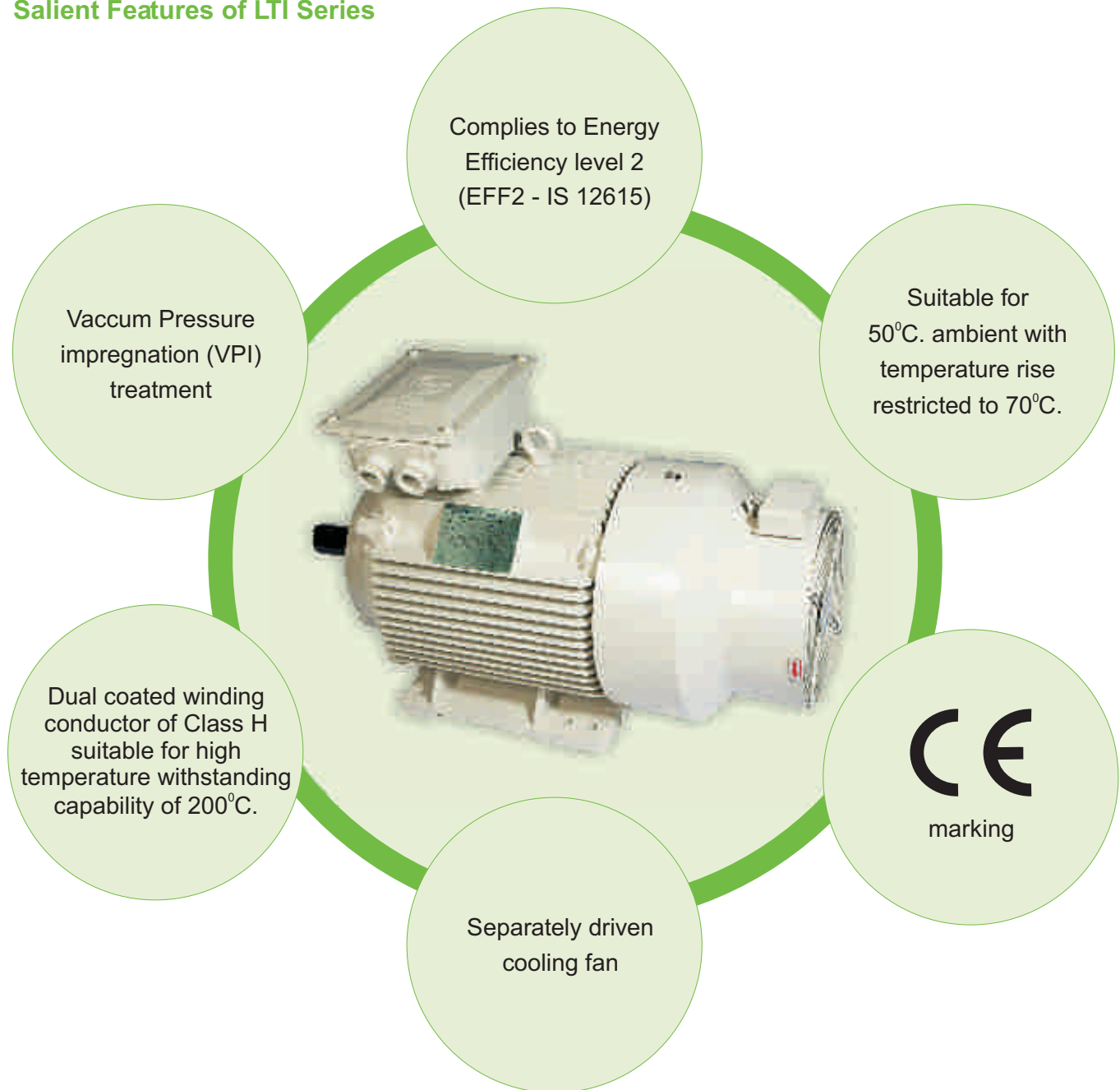
		LARSEN & TOUBRO			
3-phase Induction Motor - TEFC					
Sno: XXXXXXX		kW :		EFF% :	
		FRAME:			
Amb. 50°C		IP55		Ins.Class: F	
V	Hz	RPM	A	PF	Duty
				Wt.(kg)	
Connection:		Ref: IS.325, IS.12615, IEC.34-1		MADE IN INDIA	





3 Phase Inverter Duty Motors - LTI Series

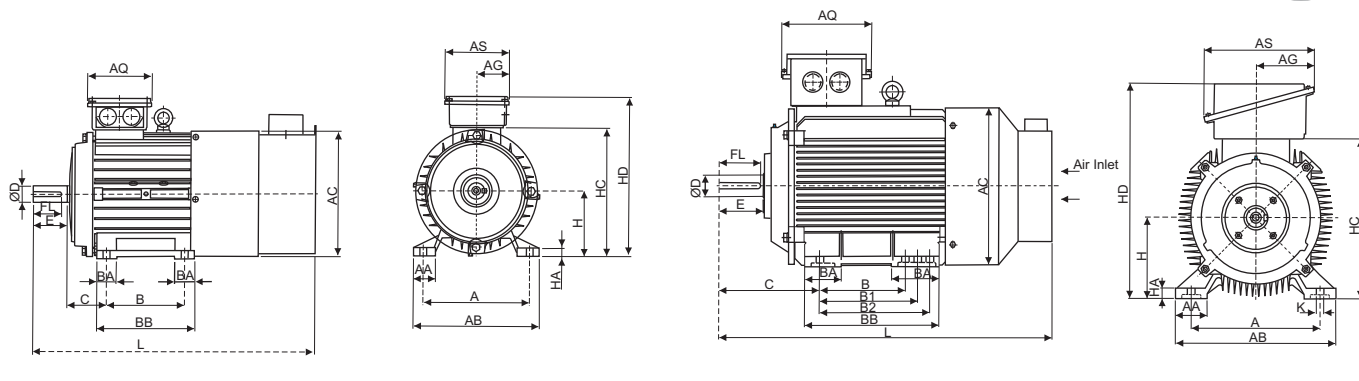
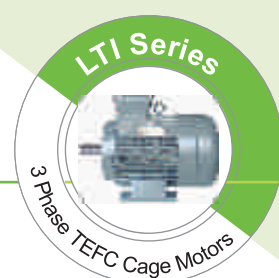
Salient Features of LTI Series



LTI Unique Offerings

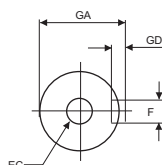
- LTI Motors can operate from its rated speed to 10% of rated speed without any reduction in torque
- LTI Motors are suitable for lower speed or lower frequency operation
 - a. By "Constant V/f" for constant torque applications like extruders, lifts etc.
 - b. By "Variable V/f" for variable torque applications like fans etc.
- LTI motors can be offered for constant power application in field weakening mode
Application : Winder - Rewinder
- LTI series offers specially designed Motors which will operate at desirable base speed, reducing the associated cost

LTI Series - Foot Mounted Motors B3/B6/V5/V6 Mountings



**B3 Foot Mounted Inverter Duty
Dimension Drawing: 90-160**

**B3 Foot Mounted Inverter Duty
Dimension Drawing: 180-315**



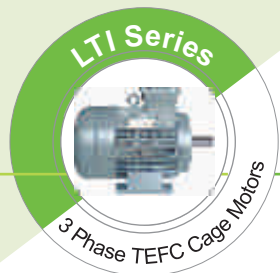
Tolerance
 $\varnothing D = \varnothing 38$ to $\varnothing 48$ -ISO k6
 $\varnothing D = \varnothing 55$ to $\varnothing 65$ -ISOm6
 F-ISOh9
 $H = -0.0 / -0.5$

All Dimensions are in mm
 Protection: IP55
 Cooling: IC416

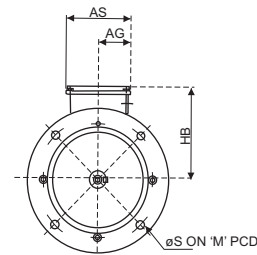
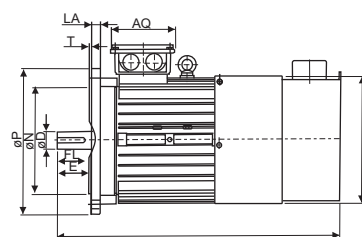
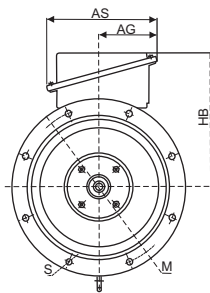
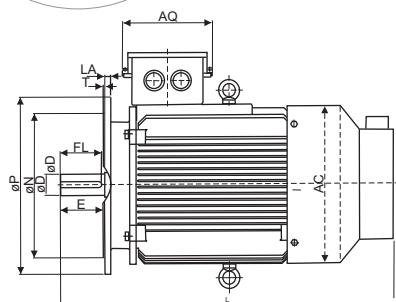
Shaft Extension

B3-Foot Mounted Inverter-Duty

Frame	A	AA	AB	AC	AQ	AS	AG	B	BB	BA	BA	C	f D	E	F	FL	GD	GA	H	HA	HC	HD	K	L	EC	UB
90S	140	35	170	177	95	95	48	100	155	30	55	56	24	50	40	8	7	27	90	10	180	227	10	430	M6	1XPG11
90L	140	35	170	177	95	95	48	125	155	30	55	56	24	50	40	8	7	27	90	10	180	227	10	430	M6	1XPG11
100L	160	40	196	200	95	95	48	140	176	36	36	63	28	60	50	8	7	31	100	10	200	247	12	480	M8	1XPG11
112M	190	47	226	224	117	117	59	140	176	36	36	70	28	60	50	8	7	31	112	12	224	288	12	504	M8	2X25
132S	216	55	260	264	117	117	59	140	214	36	74	89	38	80	60	10	8	41	132	12	266	328	12	600	M8	2X25
132M	216	55	260	264	117	117	59	178	214	36	74	89	38	80	60	10	8	41	132	12	266	328	12	600	M8	2X25
160M	254	56	307	320	140	140	70	210	300	45	90	108	42	110	100	12	8	45	160	16	324	380	15	764	M16	2X32
160L	254	56	307	320	140	140	70	254	300	45	90	108	42	110	100	12	8	45	160	16	324	380	15	764	M16	2X32
180M	279	66	330	355	204	250	145	241	330	63	105	121	48	110	103	14	9	51.5	180	22	359	475	15	800	M16	2X32
180L	279	66	330	355	204	250	145	279	330	63	105	121	48	110	103	14	9	51.5	180	22	359	475	15	800	M16	2X32
200L	318	80	398	400	204	250	145	305	355	85	85	133	55	110	105	16	10	59	200	25	399	520	19	870	M20	2X32
225M (2P)	356	80	436	450	234	320	205	311	366	100	100	149	55	110	105	16	10	59	225	25	448	629	19	925	M20	2X32
225S (4P & 8P)	356	80	436	450	234	320	205	286	366	100	100	149	60	140	135	18	11	64	225	25	448	629	19	955	M20	2X32
225M (4, 6, 8P)	356	80	436	450	234	320	205	311	366	100	100	149	60	140	135	18	11	64	225	25	448	629	19	955	M20	2X32
250M (2P)	406	100	506	500	234	320	205	349	425	115	115	168	60	140	135	18	11	64	250	32	498	679	24	1040	M20	2X32
250M (4, 6, 8P)	406	100	506	500	234	320	205	349	425	115	115	168	65	140	135	18	11	69	250	32	498	679	24	1040	M20	2X32
280S (4, 6, 8P)	457	124	548	546	314	336	202	368	439	100	151	190	75	140	130	22	14	80	280	40	535	740	24	1173	M20	2X36
280M (4, 6, 8P)	457	124	548	546	314	336	202	419	490	100	151	190	75	140	130	22	14	80	280	40	535	740	24	1210	M20	2X36
280S (2P)	457	124	548	546	314	336	202	368	439	100	151	190	65	140	130	18	11	69	280	40	535	740	24	1173	M20	2X36
280M (2P)	457	124	548	546	314	336	202	419	490	100	151	190	65	140	130	18	11	69	280	40	535	740	24	1210	M20	2X36
315S(4, 6, 8P)	508	131	618	645	314	336	202	406	527	125	176	216	80	170	150	22	14	85	315	50	690	890	28	1450	M24	2X36
315M (4, 6, 8P)	508	131	618	645	314	336	202	457	578	125	176	216	80	170	150	22	14	85	315	50	690	890	28	1500	M24	2X36
315L (4, 6, 8P)	508	131	618	645	314	336	202	508	578	125	176	216	80	170	150	22	14	85	315	50	690	890	28	1530	M24	2X36
315S (2P)	508	131	618	645	314	336	202	406	527	125	176	216	65	140	130	18	11	69	315	50	690	890	28	1450	M20	2X36
315M (2P)	508	131	618	645	314	336	202	457	578	125	176	216	65	140	130	18	11	69	315	50	690	890	28	1500	M20	2X36
315L (2P)	508	131	618	645	314	336	202	508	578	125	176	216	65	140	130	18	11	69	315	50	690	890	28	1530	M20	2X36

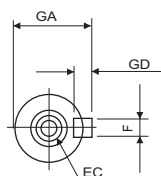


LTI Series - Flange Mounted Motors B5/V1/V3 Mountings



**B3 Foot Mounted Inverter Duty
Dimension Drawing: 180-315**

**B5 Flange Mounted Inverter
Duty Dimension Drawing: 90-160**



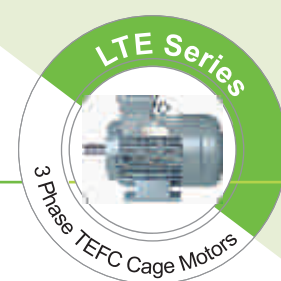
Tolerance:-
 $\varnothing D = \varnothing 11 \text{ TO } \varnothing 28\text{-ISO j6}$
 $\varnothing D = \varnothing 38 \text{ TO } \varnothing 48\text{-ISO k6}$
 F-ISO h9
 $H = +0.0 / -0.5$
 N-ISO j6

All Dimensions are in mm
 Protection: IP55
 Cooling: IC416

Shaft Extension

B5 -"B" Type Flange Mounted Inverter-Duty																			
Frame	AC	AQ	AS	AG	φD	E	FL	F	GD	GA	HB	M	φN	φP	φS	T	LA	EC	UB
90S	177	95	95	48	24	50	40	8	7	27	137	165	130	200	12	3.5	9	M6	1XPG11
90L	177	95	95	48	24	50	40	8	7	27	137	165	130	200	12	3.5	9	M6	1XPG11
100L	200	95	95	48	28	60	50	8	7	31	147	215	180	250	15	4	12	M8	1XPG11
112M	224	117	117	59	28	60	50	8	7	31	176	215	180	250	15	4	12	M8	2X25
132S	264	117	117	59	38	80	60	12	8	41	196	265	230	300	15	4	12	M8	2X25
132M	264	117	117	59	38	80	60	12	8	41	196	265	230	300	15	4	12	M8	2X25
160M	320	140	140	70	42	110	100	14	8	45	220	300	250	350	19	5	13	M16	2X32
160L	320	140	140	70	42	110	100	14	8	45	220	300	250	350	19	5	13	M16	2X32
180M	355	204	250	145	48	110	103	16	9	51.5	295	300	250	350	19	5	13	M16	2X32
180L	355	204	250	145	48	110	103	16	9	51.5	295	300	250	350	19	5	13	M16	2X32
200L	400	204	250	145	55	110	105	18	10	59	320	350	300	400	19	5	15	M20	2X32
225M (2P)	450	234	320	205	55	110	105	18	10	59	404	400	350	450	19	5	16	M20	2X32
225S (4P & 8P)	450	234	320	205	60	140	135	18	11	64	404	400	350	450	19	5	16	M20	2X32
225M (4, 6, 8P)	450	234	320	205	60	140	135	18	11	64	404	400	350	450	19	5	16	M20	2X32
250M (2P)	500	234	320	205	60	140	135	22	11	64	429	500	450	550	19	5	18	M20	2X32
250M (4, 6, 8P)	500	234	320	205	65	140	135	22	11	69	429	500	450	550	19	5	18	M20	2X32
280S (4, 6, 8P)	546	314	336	202	75	140	130	18	14	80	435	500	450	550	19	5	22	M20	2X36
280M(4, 6, 8P)	546	314	336	202	75	140	130	18	14	80	435	500	450	550	19	5	22	M20	2X36
280S (2P)	546	314	336	202	65	140	130	22	11	69	435	500	450	550	19	5	22	M20	2X36
280M (2P)	546	314	336	202	65	140	130	22	11	69	435	500	450	550	19	5	22	M20	2X36
315S (4, 6, 8P)	645	314	336	202	80	170	150	18	14	85	555	600	550	660	24	6	22	M24	2X36
315M (4, 6, 8P)	645	314	336	202	80	170	150	18	14	85	555	600	550	660	24	6	22	M24	2X36
315L (4, 6, 8P)	645	314	336	202	80	170	150	22	14	85	555	600	550	660	24	6	22	M24	2X36
315S (2P)	645	314	336	202	65	140	130	18	11	69	555	600	550	660	24	6	22	M20	2X36
315M (2P)	645	314	336	202	65	140	130	18	11	69	555	600	550	660	24	6	22	M20	2X36
315L (2P)	645	314	336	202	65	140	130	18	11	69	555	600	550	660	24	6	22	M20	2X36

Performance Figures for **EFF I** Motors



415 Volts, 50 Hz, IP55, IC411, Class 'F', Temp. Rise limited to 'B' Altitude 1000m, Duty S1, As per IS12615

2 Pole 300 RPM

Rating	Frame	Speed	FLC Amps	Efficiency			Pf	Starting Torque	Starting Current
				100%	75%	50%	100%		
9.3	LTE160M	2920	16	90	90	88	0.88	2.25	7
11	LTE160M	2920	19	90.5	90.5	88.5	0.88	2.25	7
15	LTE160M	2920	26	91.3	91.3	89.3	0.88	2.25	7
18.5	LTE160L	2920	32	91.8	91.8	89.8	0.88	2.25	7
22	LTE180M	2930	40	92.2	92.2	90.2	0.83	2.25	7
30	LTE200L	2950	50	92.9	92.9	90.9	0.9	2	7
37	LTE200L	2950	61	93.3	93.3	91.3	0.9	2	7
45	LTE225M	2955	71	93.7	93.7	91.7	0.94	2.25	7
55	LTE250M	2955	87	94	94	92	0.94	1.75	7
75	LTE280S	2975	123	94.6	94.6	92.6	0.9	2.25	7
90	LTE280M	2975	146	95	95	93	0.9	2.25	7
110	LTE315S	2970	180.0	95.0	95.0	92.0	0.90	1.7	7.0
132	LTE315M	2980	214.8	95.3	95.3	92.5	0.90	1.7	7.0
160	LTE315L	2980	260.0	95.5	95.5	93.5	0.90	1.7	7.0

4 Pole 1500 RPM

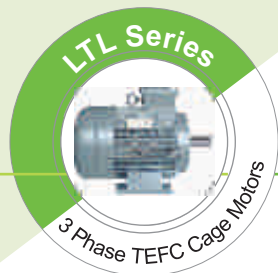
Rating	Frame	Speed	FLC Amps	Efficiency			Pf	Starting Torque	Starting Current
				100%	75%	50%	100%		
9.3	LTE160M	1460	17	90.5	90.5	88.5	0.84	1.75	7
11	LTE160M	1460	21	91	91	89	0.82	2	7
15	LTE160L	1460	27	91.8	91.8	89.8	0.85	2	7
18.5	LTE180M	1475	33	92.2	92.2	90.2	0.84	2	7
22	LTE180L	1475	39	92.6	92.6	90.6	0.84	2	7
30	LTE200L	1475	50	93.2	93.2	91.2	0.89	2.5	7
37	LTE225S	1480	62	93.6	93.6	91.6	0.89	2.5	7
45	LTE225M	1480	75	93.9	93.9	91.9	0.89	2.5	7
55	LTE250M	1475	91	94.2	94.2	92.2	0.89	2	7
75	LTE280S	1480	122	94.7	94.7	92.7	0.9	2.5	7
90	LTE280M	1480	146	95	95	93	0.9	2.5	7
110	LTE315S	1485	185.0	95.2	95.2	94.4	0.87	1.8	7.0
132	LTE315M	1485	219.2	95.5	95.5	94.5	0.88	1.8	7.0
160	LTE315L	1485	264.9	95.8	95.8	94.5	0.88	1.8	7.0

6 Pole 1000 RPM

Rating	Frame	Speed	FLC Amps	Efficiency			Pf	Starting Torque	Starting Current
				100%	75%	50%	100%		
9.3	LTE160L	975	18	89.3	89.3	87.3	0.8	2	7
11	LTE160L	975	21	89.7	89.7	87.7	0.8	2	7
15	LTE180L	975	29	90.5	90.5	88.5	0.79	2.25	7
18.5	LTE200L	975	34	91.3	91.3	89.3	0.84	2	7
22	LTE200L	975	40	91.8	91.8	89.8	0.84	2	7
30	LTE225M	980	53	92.6	92.6	90.6	0.85	2	7
37	LTE250M	980	66	93	93	91	0.84	2.5	7
45	LTE280S	980	79	93.4	93.4	91.4	0.85	2.5	7
55	LTE280M	980	95	93.8	93.8	91.8	0.86	1.75	7
75	LTE315S	990	131.3	94.2	94.2	92.5	0.85	1.8	6.0
90	LTE315M	990	156.7	94.5	94.5	93.5	0.85	1.8	6.0
110	LTE315M	990	191.5	94.6	94.6	93.0	0.85	1.8	6.0
132	LTE315L	990	225.0	94.9	94.9	93.5	0.86	1.8	6.0

8 Pole 750 RPM

Rating	Frame	Speed	FLC Amps	Efficiency			Pf	Starting Torque	Starting Current
				100%	75%	50%	100%		
9.3	LTE180L	720	20	87.3	87.3	85.3	0.74	1.75	7
11	LTE180L	720	23	88.1	88.1	86.1	0.74	1.75	7
15	LTE200L	725	33	89	89	87	0.71	2.25	7
18.5	LTE225S	725	38	89.8	89.8	87.8	0.75	1.75	7
22	LTE225M	725	45	90.2	90.2	88.2	0.75	1.75	7
30	LTE250M	735	61	91.5	91.5	89.5	0.75	1.75	7
37	LTE280S	735	75	91.9	91.9	89.9	0.75	2	7
45	LTE280M	725	90	92.4	92.4	90.4	0.75	1.75	7
55	LTE 315S	740	105.9	92.8	92.8	90.9	0.79	0.79	6.0
75	LTE 315M	740	142.8	93.5	93.5	92.2	0.79	0.79	6.0
90	LTE 315L	740	168.3	93.9	93.9	92.5	0.80	0.80	6.0
110	LTE 315L	740	204.6	94.3	94.0	92.7	0.80	0.80	6.0



Lam Yoke AC Motors (Vector Controlled)

1st Time
in India

Technical Specifications

Sr. No.	Description
MOUNTING	B35 (FOOT CUM FLANGE)
FREQUENCY	As per table on next page
VOLTAGE	400 Volts $\pm 10\%$ variation
COMBINED	$\pm 10\%$ variation
INSULATION	Class "F"
AMBIENT TEMP	50°C
COOLING	Separately Excited Radial Fan
DUTY	S1, Continuous
PROTECTION	IP23

Salient Features

- Fast response and better speed control due to low inertia
- Extremely compact motors hence ideal for OEMs
- Ideal replacement for DC motors
- Separate radial fan with 3 ph supply for effective cooling even at very low speeds for constant torque applications
- Suitable for running at speeds above synchronous speeds

Extremely Compact

We can offer 81 kW output in 160 frame (normally 75 kW is in 280 frame and 90 kW in 315 frame, i.e. shaft center height of 160 mm in place of 315 mm).

Large Savings in Project Costs

These motors can be offered for variety of base speed (speed at which equipment needs to run) to match the application requirement. This is achieved by changing the winding design of the motor, thus reducing the cost of inverter (if used), cables and switchgear.

High Rotational Speeds

Motors can go up to 6000 rpm. Can be utilized in special applications.

Replacement for DC machines

Fast response time and almost full torque output at lower speed make these suitable for replacement of DC machines. Hence reduced maintenance cost of the motor.



Features of LTL Series

These motors have been manufactured keeping in mind all normal customer requirements.

Special Copper: They are wound with special corona resistant copper which are essential to endure voltage spikes due to inverter operation "Thermex 200CR".

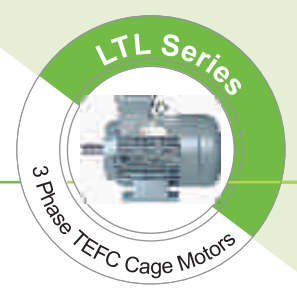
VPI Treatment: Vacuum Pressure Impregnation treatment is provided for the winding with a polyesterimide Class "H" resin for the best electro-mechanical protection of the windings.

Separately Excited Fan: Special arrangement is made for cooling by providing a separately excited fan.

Typical Applications of Lam-Yoke motors:

- Paper industry
- Steel & Rolling mills
- Wind tunnels
- Extruders, Conveyors etc.
- Metal forming printing presses
- Automotive industry
- Textile

3 Phase Lam-yoke Motors (Vector Controlled)

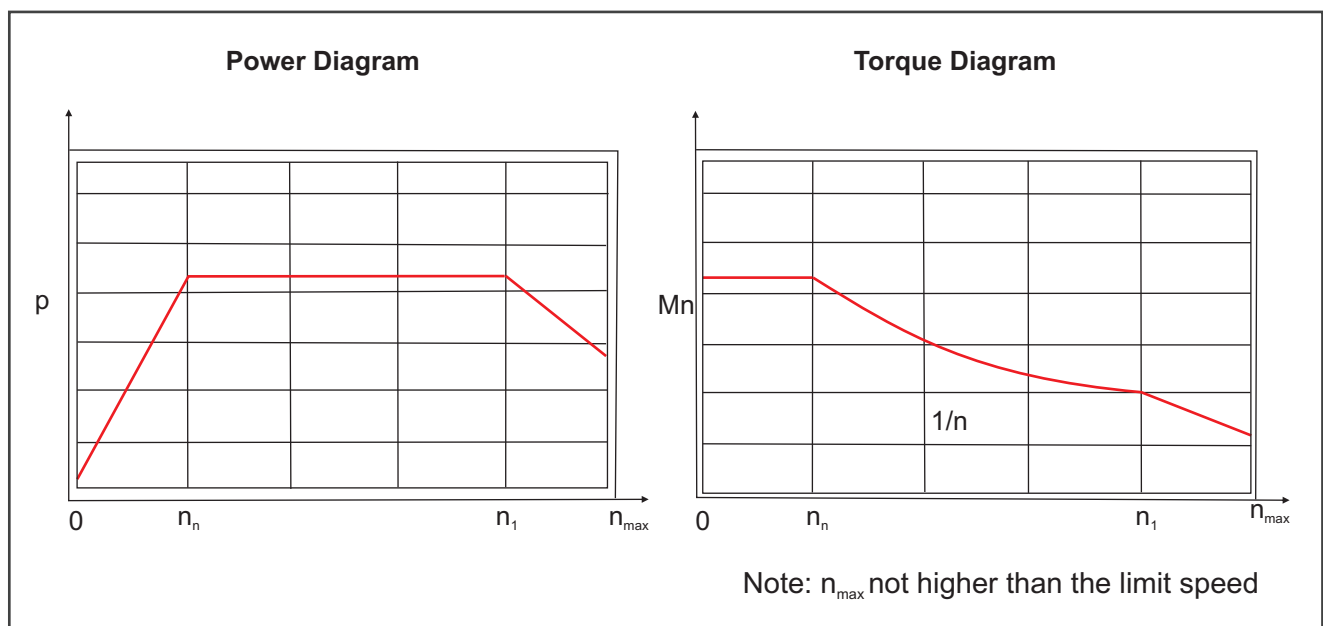


Selection & Ordering Data Performance Figures For Lam-yoke Motors

400 Volts, IP23, 50° Amb, Ins. Class 'F'

				112				132						160			
Frame size				S	M	L	P	X	S	M	L	P	X	S	M	L	P
Power [kW] @ 1500 rpm				7.5	11	15	18.5	22	28	32	37	37	43	56	63	75	81
Torque [Nm]				48	70	96	18	140	178	204	236	236	273	356	401	478	516
Rotor inertia J [kgm^2]				0.02-0.13				0.09-0.16						0.25-0.40			
600 RPM (21 Hz)					750 RPM (26 Hz)				1000 RPM (34.6 Hz)				1500 RPM (52 Hz)				
Frame	kW	Amps	pf	%n	kW	Amps	pf	%n	kW	Amps	pf	%n	kW	Amps	pf	%n	
112S	3.0	7.4	0.78	75.9	3.75	8.7	0.79	79.5	5.0	10.8	0.81	83.3	7.5	15.6	0.80	87.5	
112M	4.0	10.7	0.76	78.6	5.5	12.5	0.77	82.4	7.3	15.3	0.81	85.4	11.0	22.4	0.80	89.3	
112L	6.0	13.4	0.81	80.0	7.5	16.7	0.78	83.7	10.0	21.4	0.78	86.9	15.0	30.3	0.80	90.2	
112P	7.4	16.8	0.80	79.8	9.25	20.1	0.79	83.8	12.3	25.3	0.79	87.1	18.5	36.8	0.81	90.1	
112X	9.0	20.8	0.77	80.1	11.0	24.5	0.77	84.1	14.5	30.9	0.78	87.6	22.0	44.0	0.80	90.5	
132M	11.0	24.3	0.80	82.4	14.0	29.0	0.81	85.8	18.5	37.8	0.79	89.0	28.0	55.4	0.81	90.7	
132L	12.5	27.7	0.78	84.2	16.0	32.9	0.82	85.9	21.0	41.6	0.82	85.5	32.0	63.9	0.79	91.3	
132P	14.5	32.9	0.76	83.5	18.5	39.6	0.79	85.9	24.0	48.2	0.81	88.5	37.0	71.7	0.82	91.5	
132X	17.2	36.9	0.81	83.5	21.5	44.8	0.80	86.3	28.8	58.1	0.81	88.9	43.0	82.4	0.82	91.5	
160S	22.0	43.0	0.85	86.8	28.0	54.0	0.84	88.9	37.3	70.0	0.83	91.7	56.0	102.6	0.85	93.0	
160M	25.0	49.5	0.84	87.6	31.0	59.3	0.85	88.7	42.0	78.9	0.84	91.9	63.0	116.0	0.84	93.3	
160L	30.0	58.4	0.85	87.6	36.0	68.8	0.84	90.1	50.0	93.6	0.84	91.7	75.0	137.0	0.84	93.5	
160P	33.0	64.2	0.85	87.6	41.0	78.7	0.84	90.0	54.0	102.6	0.85	91.5	81.0	148.6	0.84	93.7	

Power Torque Characteristics

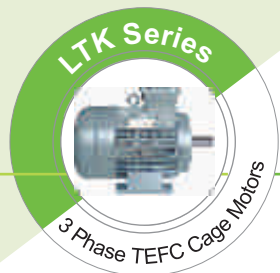


Where,

n_n is the rated speed

n_1 is the extended speed from base speed (field weakening mode)

n_{max} is the maximum speed (upto 6000 rpm)



Crane Duty Motors

Squirrel Cage Motors For Inverter (VVVF) Drive

- Enclosure - TEFC
- Protection - IP55
- 3 Ph, 415V $\pm$ 10%, 50Hz $\pm$ 5%
- Insulation - Class F
- Ambient Temperature - 50° C
- Temperature Rise - Class B limit

- IGBT- Drive
- Carrier Switching Frequency : 3-5 kHz
- Total Harmonic Distortion <2.5%
- Voltage Rise Time > 0.1 m sec.
- Peak Voltage: 1400 V (Max.)
- Max. Cable Length (without filter) - 30m
- Acceleration Time - 1.5 secs.

4 Pole

Frame Size	Output in kW S3 100% CDF	I (Amps)	S4-150 Equivalent Starts / Hour						S4-300 Equivalent Starts / Hour				Speed (RPM ^a)	T _{PO} [#] T _R	Motor Gd2 (Kgm ²)	Motor Weight (Kg)
			25% CDF	I A	40% CDF	I A	60% CDF	I A	40% CDF	I A	60% CDF	I A				
LTK071N	0.37	1.2	0.37	1.2	0.32	1.0	0.3	1.0	0.3	1.0	0.27	0.9	1370	2.4	0.0030	7
LTK080N	0.55	1.5	0.45	1.4	0.42	1.35	0.4	1.3	0.4	1.3	0.35	1.2	1380	2.2	0.0044	11
LTK080N	0.75	2.0	0.75	2.0	0.7	1.9	0.65	1.8	0.65	1.8	0.6	1.7	1390	2.2	0.0059	11
LTK090S	1.1	2.7	1.2	2.9	1.1	2.7	1.0	2.5	1.0	2.5	0.9	2.3	1400	2.5	0.0090	14
LTK090L	1.5	3.7	1.5	3.7	1.4	3.5	1.3	3.2	1.3	3.2	1.1	2.8	1400	2.5	0.0130	16
LTK100L	2.2	4.8	2.3	5.0	2.2	4.8	2.0	4.5	2.0	4.5	1.8	4.2	1405	2.6	0.0240	22
LTK112M	3.7	7.6	3.7	7.6	3.4	7.2	3.2	7.1	3.2	7.1	3.0	6.8	1435	2.5	0.0490	45
LTK132S	5.5	11.0	5.7	11.4	5.3	11	5.0	10.2	5.0	10.2	4.7	9.7	1440	2.8	0.0940	55
LTK132M	7.5	14.7	7.8	15.3	7.3	14.5	6.9	14	6.8	14	6.3	13.2	1445	2.8	0.1280	65
LTK160M	9.3	18.0	9.8	19	8.8	17	8.5	16.6	8.4	16.5	7.9	15.8	1450	2.8	0.2480	160
LTK160M	10.0	19.1	12.5	24	11	21	10	19.1	10	19.1	9.4	18.1	1455	2.8	0.2500	160
LTK160L	13.5	26.0	14	27	13	25	12.5	24.2	12.5	24.2	11.8	23.1	1465	2.8	0.3360	160
LTK180M	17.0	33.0	17.5	34	16.5	33	15.4	31	15	30.5	14	28.7	1470	2.7	0.5150	230
LTK180L	20.0	38.0	21	40	20	38	18.5	36	18.5	36	18	35	1470	2.7	0.6180	230
LTK200L	27.0	47.0	29	51	27	47	26	46	25	45	23	42	1470	2.7	1.110	320
LTK225S	33.0	59.0	34	61	32	58	30	54	29	52.5	27	50	1470	2.6	1.440	320
LTK225M	40.0	71.0	41	72	39	69	36	64	35	62	33	59	1478	2.6	1.740	400
LTK250M	50.0	87.0	52	90	47	81	45	78	43	75	40	70	1480	2.7	3.070	550
LTK280S	68.0	117.0	68	117	63	109	61	105	60	104	56	98	1485	2.6	4.790	710
LTK280M	80.0	140.0	78	137	73	128	70	123	68	120	64	114	1485	2.5	5.750	735
LTK315S	95.0	160.0	75	132	74	131	73	130	69	125	65	120	1485	2.5	10.000	960
LTK315M	115.0	195.0	92	162	90	160	88	159	86	157	73	140	1485	2.6	12.400	1020
LTK315L	160	267	115	195	112	190	110	188	95	165	85	150	1485	2.6	15.770	1070

Referred to S3 - 100% Output

6 Pole

Frame Size	Output in kW S3 100% CDF	I (Amps)	S4-150 Equivalent Starts / Hour						S4-300 Equivalent Starts / Hour				Speed (RPM ^a)	T _{PO} [#] T _R	Motor Gd2 (Kgm ²)	Motor Weight (Kg)
			25% CDF	I A	40% CDF	I A	60% CDF	I A	40% CDF	I A	60% CDF	I A				
LTK080N	0.55	1.7	0.6	1.9	0.55	1.7	0.5	1.6	0.5	1.6	0.5	1.6	930	2.4	0.0088	11
LTK090S	0.75	2.1	0.8	2.2	0.75	2.1	0.7	2.0	0.7	2.0	0.65	1.9	935	2.5	0.0150	14
LTK090L	1.1	3.0	1.2	3.2	1.1	3.0	1.0	2.7	1.0	2.7	0.9	2.6	935	2.5	0.020	16
LTK100L	1.5	4.1	1.7	4.4	1.5	4.1	1.3	3.6	1.3	3.6	1.2	3.4	935	2.5	0.042	22
LTK112M	2.2	5.4	2.4	5.9	2.2	5.4	2.0	4.6	2.0	5.0	1.7	4.3	945	2.6	0.075	45
LTK132S	3.7	8.3	4.0	8.8	3.7	8.3	3.5	7.9	3.3	7.6	3.1	7.2	960	2.5	0.154	55
LTK132M	5.5	12.2	6.0	13.3	5.8	13	5.2	11.5	4.9	11	4.6	10.5	960	2.5	0.184	65
LTK160M	7.5	15.5	8.0	16.6	7.5	15.5	6.9	14.6	6.3	13.6	6.0	13.2	970	2.8	0.377	160
LTK160L	11.0	23.0	12	25	10.8	23	9.5	21	9.0	20	8.0	18	970	2.6	0.514	160
LTK180M	13.5	29.0	17	37	15	32	13.3	29	12.5	27	11.8	26	975	2.8	0.867	230
LTK200L	16.5	33.5	19	39	17	34	16	33	15.2	32	14.2	29	975	2.8	1.38	320
LTK200L	20.0	39.0	23	46	21.5	42	20	39	18	36	17	35	975	2.8	1.59	320
LTK225M	27.0	52.0	29	56	27	52	25	49	22	43	21	41.5	980	2.6	3.07	400
LTK250M	33.0	63.0	34.5	66	32	61	31	60	28	55	27	54	985	2.6	5.68	550
LTK280S	40.0	76.0	42	80	40	76	38	74	32	64	30	60	990	2.6	5.88	710
LTK280M	50.0	94.0	52	98	50	94	49	93	36	70	35	69	990	2.6	7.10	735
LTK315S	68.0	121.0	70	125	69	122	65	117	47	90	46	89	990	2.6	17.9	960
LTK315M	81.0	144.0	84	148	82	146	78	140	70	126	67	121	990	2.6	22.0	960
LTK315M	99.0	175.0	102	180	97	172	92	164	74	134	70	127	990	2.6	26.9	1020
LTK315L	118	203	110	189	108	185	106	182	85	148	82	143	990	2.6	32.0	1070

Referred to S3 - 100% Output

Squirrel Cage Motors For Inverter (VVVF) Drive

8 Pole

Frame Size	Output in kW S ₃ 100% CDF	I (Amps)	S4-150 Equivalent Starts / Hour						S4-300 Equivalent Starts / Hour				Speed in (RPM [#])	T _{Po} [#] T _r	Motor Gd2 (Kgm ²)	Motor Weight (Kg)
			25% CDF	I A	40% CDF	I A	60% CDF	I A	40% CDF	I A	60% CDF	I A				
LTK090S	0.37	1.5	0.45	1.8	0.4	1.6	0.37	1.5	0.37	1.5	0.3	1.3	700	2.4	0.0152	14
LTK090L	0.55	2.0	0.65	2.4	0.6	2.2	0.55	2.0	0.55	2.0	0.45	1.7	700	2.4	0.0202	16
LTK100L	0.75	2.7	1.0	3.5	0.8	2.9	0.75	2.7	0.75	2.7	0.6	2.2	700	2.3	0.0312	22
LTK100L	1.1	3.7	1.3	4.3	1.2	4.0	1.1	3.7	1.1	3.7	0.9	3.0	700	2.3	0.0416	22
LTK112M	1.5	4.6	1.7	5.2	1.6	4.9	1.5	4.6	1.4	4.4	1.2	3.8	710	2.4	0.0755	45
LTK132M	2.0	5.6	2.4	6.7	2.3	6.4	2.0	5.6	1.9	5.3	1.6	4.5	710	2.3	0.1020	65
LTK160M	3.4	8.0	4.0	9.2	3.7	8.7	3.4	8.0	3.3	7.8	2.9	6.8	710	2.5	0.3220	160
LTK160M	5.0	11.4	6.2	14	6.0	14	5.0	11	4.9	11	4.6	11	720	2.5	0.4250	160
LTK160L	7.0	15.3	8.0	18	7.5	17	7.0	15	6.7	15	6.1	14	725	2.5	0.5790	160
LTK180L	10	22	12	27	11	24	10	22	9.0	20	8.1	18	730	2.6	1.070	230
LTK200L	13.5	28	16	33	15	31	13.5	28	12	25	10	21	730	2.3	1.590	320
LTK225S	17.5	36	19	40	17.5	36	16	33	15	31	14	29	735	2.4	2.540	400
LTK225M	20	41	23	47	21	43	20	41	18	37	16.5	34	735	2.4	3.070	400
LTK250M	27	54	30	60	28	56	26	52	22	44	21	42	740	2.4	5.680	550
LTK280S	33	65	36	71	34	67	32	63	29	58	28	56	740	2.5	7.800	710
LTK280M	41	79	44	85	42	81	40	77	36	70	35	68	740	2.4	9.200	735
LTK315S	50	97	50	97	47	92	45	88	39	76	37	73	740	2.4	17.900	960
LTK315M	68	130	65	124	62	118	60	115	55	106	52	100	740	2.4	22.000	1020
LTK315L	81	156	79	152	76	147	75	145	70	136	67	131	740	2.4	26.850	1070

Referred to S3 - 100% Output

Duty:

Operation of the motor at load including no load and de-energised period to which the motor is subjected including the sequence and duration.

Cyclic duration factor: (CDF)

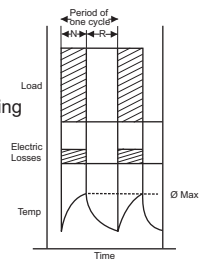
The ratio between the period of loading including starting and electric braking and the duration of the duty-cycle expressed as percentage.

Intermittent Periodic Duty with Starting-S3 Duty

The operation cycle consists of operation at constant load followed by a rest and de-energized period. The duty cycle is such that thermal equilibrium is not reached during one periodic cycle

N
R
Ø max
Operation at constant load
At rest and de-energized
Maximum temperature attained during the duty cycle

$$\text{Cycle duration factor} = \frac{N}{N+R} \cdot 1$$

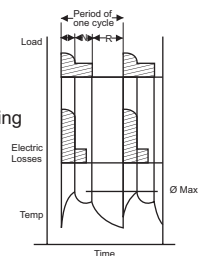


Intermittent Periodic Duty with Starting-S4 Duty

In this duty cycle each cycle consist of a period of starting a period of operation at constant load followed by a rest and de-energized period. The duration of one cycle is so short that thermal equilibrium is not reached during one duty cycle.

D
N
R
Ø Max
Starting
Operation at constant load
At rest and de-energized
Maximum temperature attained during the duty cycle

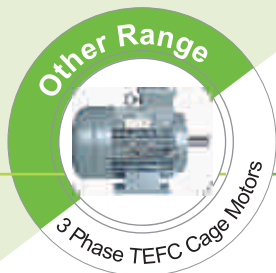
$$\text{Cycle duration factor} = \frac{D+N}{D+N+R} \cdot 1$$



Information Required at the Time of Enquiry

The following information should be provided at the time of enquiry:

1. Motor kW and pole
2. Application
3. Supply voltage and frequency with variation
4. Ambient Temperature
5. Duty type CDF and number of starts/stops per hour
6. Mounting arrangement
7. Load Gd2 referred to motor shaft (If more than Motor Gd2)
8. Degree of protection
9. Shaft extension if other than standard
10. Any other relevant information



Special Motors

Brake Motors

Brake Motor is combination of an AC Induction Motor and Electromagnetic DC brake. DC supply is fed to the brake from a rectifier unit installed in the motor terminal box. The brake is disc type and is mounted on the motor shaft. The brake is 'Fail proof Type' i.e. brake comes into action and stops the driven equipment instantly when the power to the motor is switched off or / if power fails. The supply to the rectifier is fed from any two terminals of the main terminal box. Motors in frames 63 to 250, in 2P, 4P, 6P and 8P versions.

Frame Size	Brake Size	Torque Kgm
63	6	4
71	8	8
80	10	16
90	12	32
100 & 112	14	60
100 & 112	16	80
132	18	150
160	20	260
180-250	25	400



Ginning Motors

- TEFC Squirrel Cage Induction Motors
- With Fan Cowl (Canopy)
- Terminal Box on Top
- 6 Lead Delta connected
- Labyrinth Seal Ensuring True IP55
- 3.70 kW / 1500 RPM in LTS 132S EFF2
- 3.70 kW / 1500 RPM in LTS 132M EFF1



Crusher Duty Motors

- L&T Crusher Duty Motor has been designed to meet demanding requirements of the Rock Crushing industry
- Crusher Duty Motor comes with standard Heavy Duty **Roller Bearings**
- **Labyrinth Seals** for True IP55 protection
- Extended Motor life when operating in aggressive environments by protecting the Motor against water and hence guarantee proper degree of protection



Agro Application (Heavy Duty Belt Driven Application)

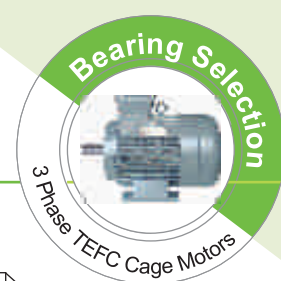
- Suitable for wide Voltage band
- Increased Productivity - Efficiency is more than EFF2
- Extended lifetime - Roller bearing at DE above 160 Frame
- Lower maintenance - Online greasing
- Application - Rice Mills, Dal Mills, Bricketting Machine



Dual Speed Motors

- Complete range available against enquiry of (80-315 Frame)

Recommended Pulley Dimensions For Standard Motors



The following tables give the pulley dimensions and allowable pulley load for standard motors in various frame sizes. If pulleys of other dimensions (smaller) are to be used, please refer to us to check and confirm the suitability of motors. The loads are selected to give a bearing life of 20,000 hours. No axial load is considered if there is any axial load please refer to factory for confirmation.

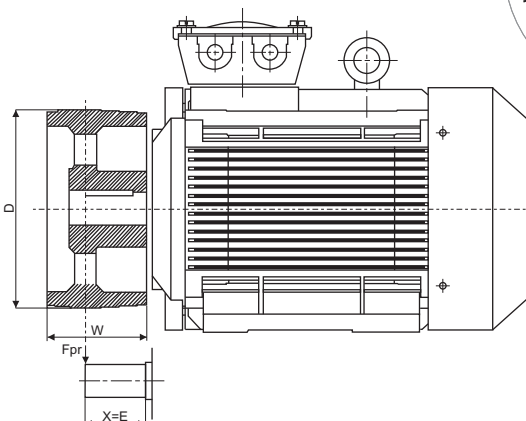


Table 1

Frame Size	n=3000 min ⁻¹ N				n=1500 min ⁻¹ N			
	kW	Permissible radial load Fpr at end point of shaft extn. in Kg	Pulley Dimensions		kW	Permissible radial load Fpr at end point of shaft extn. in Kg	Pulley Dimensions	
			D in mm (min)	W in mm (max)			D in mm (min)	W in mm (max)
63	0.18	38	50	32	0.12	48	50	32
63	0.25	38	50	32	0.18	48	50	32
71	0.37	44	50	32	0.25	55	50	32
71	0.55	44	50	32	0.37	55	50	32
80	0.75	57	63	50	0.55	71	63	50
80	1.1	57	63	50	0.75	71	63	50
90S	1.5	61	100	75	1.1	75	100	75
90L	2.2	61	100	75	1.5	75	100	75
100L	3.7	82	100	75	2.2	102	100	75
112M					3.7	149	100	75
132S	5.5	127	125	100	5.5	154	160	125
132S	7.5	125	125	100				
132M					7.5	151	200	125
160M	9.3	226	100	165	9.3	294	150	165
160M	11	226	100	165	11	294	150	165
160M	15	220	134	165				
160L	18.5	225	160	165	15	299	200	165
180M	22	270	160	165	18.5	345	205	165
180L				165	22	345	250	165
200L	30	371	161	165	30	482	247	165
200L	37	365	201	165				
225S					37	523	280	210
225M	45	412	216	165	45	515	346	210
250M	55	506	215	210	55	650	330	210
280S	75	555	265	210	75	776	380	210
280M	90	544	325	210	90	764	463	210

Table 2

Frame Size	n=1000 min ⁻¹ N				n=750 min ⁻¹ N			
	kW	Permissible radial load Fpr at end point of shaft extn. in Kg	Pulley Dimensions		kW	Permissible radial load Fpr at end point of shaft extn. in Kg	Pulley Dimensions	
			D in mm (min)	W in mm (max)			D in mm (min)	W in mm (max)
71	0.18	64	50	32				
71	0.25	64	50	32				
80	0.37	81	63	50	0.18	92	63	50
80	0.55	81	63	50	0.25	92	63	50
90S	0.75	85	100	75	0.37	97	100	75
90L	1.1	85	100	75	0.55	97	100	75
					0.75	134	100	75
100L	1.5	120	100	75	1.1	134	100	75
112M	2.2	176	100	75	1.5	193	100	75
132S	3.7	181	125	120	2.2	203	100	125
132M	5.5	176	200	125				
					3.7	354	100	165
160M	7.5	307	146	165	5.5	349	127	165
160L	11	304	216	165	7.5	347	174	165
180M	15	400	223	165				
180L					11	456	193	165
200L	18.5	541	204	165				
200L	22	538	244	165	15	612	196	165
225S					18.5	665	220	210
225M	30	579	307	210	22	650	268	210
250M	37	761	288	210	30	828	286	210
280S	45	876	303	210	37	981	298	210
280M	55	858	377	210	45	967	367	210

For frame 315 and smaller pulley size please contact our sales office for suitable recommendation.

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Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here.



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