

Introduction

Bharat Bijlee make Crane and Hoist duty motors are ideally suitable for short time and intermittent duties. These motors are specially designed for frequent starts/stops and reversals.

Major Applications

These motors are widely used in following application:

- Crane duty and Hoist duty application Including LT and CT drives
- Material handling
- Weirs and sluices
- Lift duty
- Auxiliary motors in rolling mills

Product Range

Frame size	kW range
71 to 355L	0.37 to 400

Standards

In general these motors conform to following standards:

IS: 325	Three-phase induction motors specification
IS: 4722	Rotating electrical machines
IS:1231	Dimensions of foot mounted A.C. induction motors
IS:2223	Dimensions of flange mounted A.C. Induction motors

CE Marks

All motors have CE marking on the nameplate.

ELECTRICAL FEATURES

Operating conditions

Supply conditions (Voltage & Frequency)

Voltage : 415 ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient

Motors are designed for ambient temperature 45°C.

Altitude

Motors are designed for altitude up to 1000m above mean sea level.

Re-rating Factors

The re-rating applicable under different conditions of ambient and altitude are obtained by multiplying following factors.

Variation in Ambient & Altitude

Amb. Temp. °C	Permissible output as % of rated value	Altitude above sea level m	Permissible output as % of rated value
≤ 30	107	1000	100
30-45	100	1500	97
50	96	2000	94
55	92	2500	90
60	87	3000	86
		3500	82
		4000	77

Insulation

The motors are provided with class F insulation scheme with temperature rise limited to class B limits.

Winding

The stators are wound with modified polyester enamel covered (Temp class 155°C) copper wires and impregnated with class F varnish. However motors wound with dual coated copper wires and VPI can be provided on request.

All Motors in 315S frame & above are wound with dual coated winding wire (thermal clas 200°C) and all impregnated with VPI process

Thermal Protection (for Winding & Bearing)

PTC thermisters/ thermostats/ RTDs etc. can be embedded in stator winding on request.

In case of frame sizes 250M & above Bearing temperature detectors (BTD) can be supplied on request.

Earthing Terminals

Two earthing terminals are provided, one on the body and other in the terminal box.

Anti-condensation Method

In order to avoid condensation of water inside the motors they can be heated up by connecting voltage 4% to 10% of rated voltage to the motor terminals. Adequate heating is obtained with current equal to 20-25% of rated motor current. Alternatively any method as indicated in IS: 900 for heating the stator winding could be adopted. Motors can also be offered with built in space heaters in frame sizes 90S and above.



MECHANICAL FEATURES

Enclosures: (Material & T box location)

Frame Size	Enclosure Materials	Terminal Box location	
		Standard	Options available
63-80	Aluminum	TOP	----
90S-112M	Aluminum	RHS	LHS
	Cast Iron	RHS	LHS TOP
132S-225M	Cast Iron	RHS	LHS TOP
250M-355	Cast Iron	TOP	RHS
			LHS

Degree Of Protection

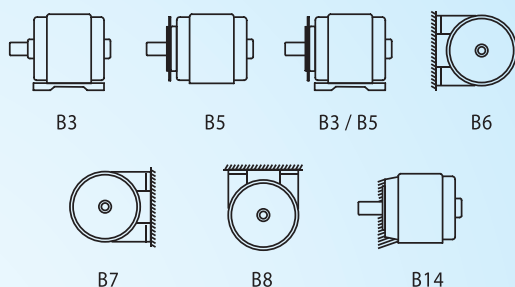
All motors have IP55 degree of protection as per IS:4691. Higher degree of protection such as IP56 and IP66 can be offered on Request. All flange mounted motors are additionally provided with oil tight shaft protection on driving end side.

Cooling

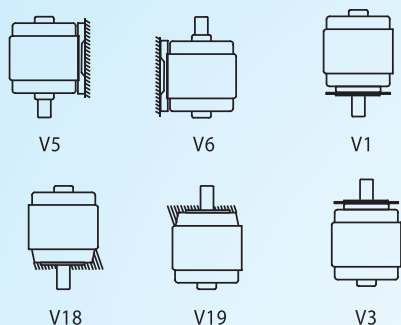
All motors are totally enclosed fan cooled (TEFC). The cooling is effected by self driven, bi-directional centrifugal fan protected by fan cover. The type of cooling is IC411 as per IS:6322-Motors with natural ventilation (TENV) or with forced cooling arrangement can be offered on request.

Mounting

Horizontal Mounting



Vertical Mounting



Bearing and Terminal Box details

Frame size	Bearing nos. C3 clearance		Terminal Box type / location	Terminals		No. & size of cable entries	Max. cond. cross Sec. area mm ²	
	DE	NDE		No.	Size			
63	6201 2Z	6201 2Z	gk030/Top	3	M4	1 x 3/4"	4	
71	6202 2Z	6202 2Z						
80	6004 2Z	6004 2Z						
90S, 90L	6205 2Z	6205 2Z	gk130/RHS	3*	M4	1 x 3/4"	6	
100L	6206 2Z	6206 2Z						
112M	6206 2Z	6206 2Z	gk230/RHS	3*	M5	2 x 1"	10	
132S, 132M	6208 2Z	6208 2Z						
160M, 160L	6309 2Z	6209 2Z	gk330/RHS	6				
180M, 180L	6310 2Z	6210 2Z	RHS	6	M6	2x1-1/2"	50	
200L	6312	6312	TB225/RHS	6	M8	2x2"	70	
225S, 225M	6313	6313						
250M	6315	6315	TB280/Top	6	M10	2x2"	150	
280 S/M	2P	6316						6316
	4, 6 & 8P	6317						6316
315S, 315M	6319	6319	TB315/Top	6	M12	2x2"	240	
315L						2x2-1/2"		
355L	6322	6322	TB355/Top	6	M16	2x3"	300	

*3 Terminals upto and including 1.5 kW & 6 terminals for higher outputs.

Special Design Features

- Increase air gap between stator and rotor
- Special rotor design

Types Of Duties

The various operating cycle of driven machines can be classified in to nine basic duties, ranging from S1 to S9. They are as follows:

S1	Continuous running duty
S2	Short time duty
S3	Intermittent periodic duty
S4	Intermittent duty with starting
S5	Intermittent duty with electric braking
S6	Continuous operation periodic duty
S7	Continuous operation periodic duty with electrical braking
S8	Continuous operation periodic duty with related loads/ speed variations
S9	Duty with non-periodic load and speed variation

- Duties S2, S3, S4 and S5 are explained with graphs;

A) S2- Short Time Duty

This includes a period of operation at constant load which are too short to attain thermal equilibrium, followed by rest period of sufficient duration to reestablish equality of temperature with cooling medium in one cycle.

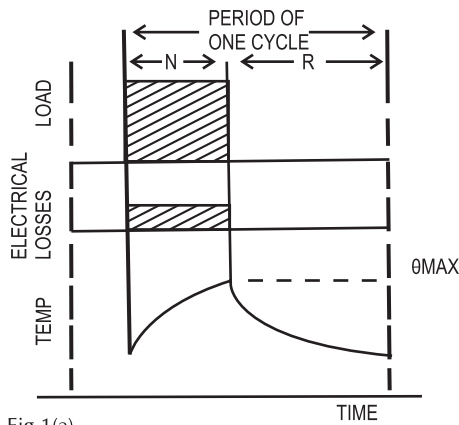


Fig 1(a)

- N = Operation under rated conditions
- R = At rest de-energised
- theta MAX = Maximum temperature attained during the duty cycle

B) S3- Intermittent Period Duty

This includes a period of operation at constant load and a de-energised period, which are too short to attain thermal equilibrium during one cycle. The starting current does not significantly affect the temperature rise for this type of duty.

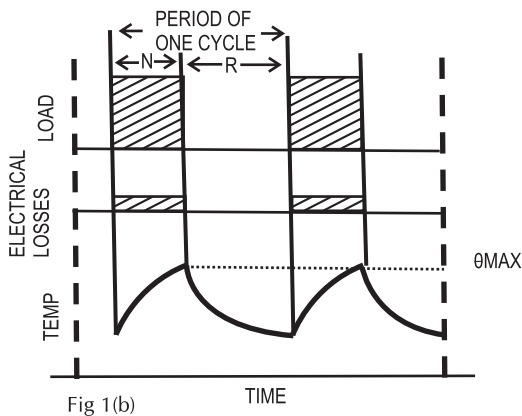


Fig 1(b)

$$\text{Cyclic duration factor} = \frac{N}{N + R}$$

C) S4 – Intermittent Duty with Starting

This includes a period of starting, a period of operation at constant load and a de-energised period, which is too short to attain thermal equilibrium during one cycle. The starting affects temperature rise, as load GD2 is higher than rotor GD2 and/or no. of starts/hour is high, for this type of duty. The motor is stopped after switching off, either by natural deceleration, or by a mechanical brake, without additional heating of the windings.

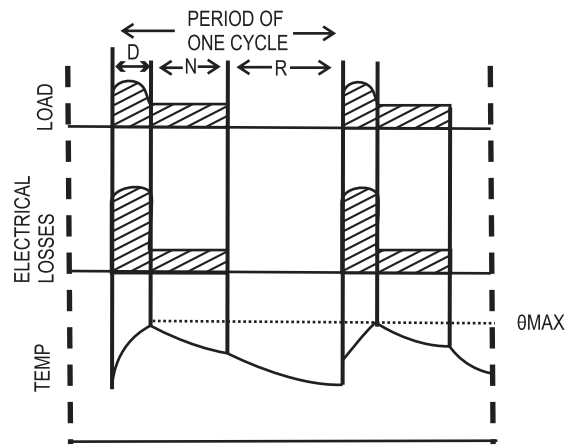


Fig 1(c)

$$\text{Cyclic duration factor} = \frac{D + N}{D + N + R}$$

Where D = Starting

D) S5- Intermittent Duty with Electrical Braking

This includes a period of starting, a period of operation at constant load, a period of electrical braking, and a de-energised period, which are too short to attain thermal equilibrium during one duty cycle. It is understood that the starting affect temperature rise, as in (c) above, and the stopping also affect temperature rise as braking is carried out electrically.

We also supply motors for special types of duties, on enquiry, including multi-speed motors with squirrel cage rotors.

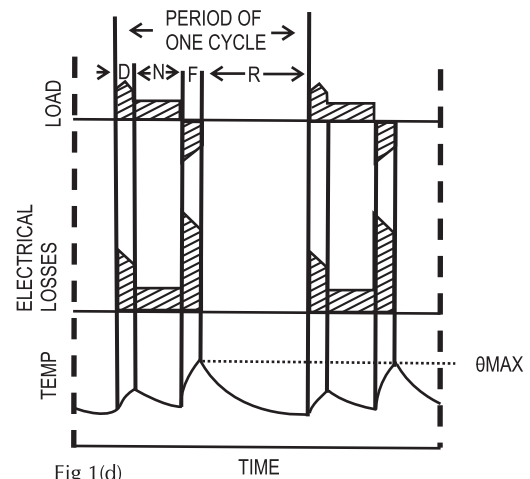


Fig 1(d)

$$\text{Cyclic duration factor} = \frac{D + N + F}{D + N + F + R}$$

Where F = Electric braking

The common Cyclic Duration Factors (CDF) for the above duties are 25%, 40% and 60%. We also supply, on enquiry, motors for other CDF's. The CDF calculations are shown in figures 1(a), 1(b), 1(c), 1(d).

Selection Table 1: Examples of typical starting Duties

Duty cycle	Starting Duties				Starting Class
	St/hr.	Jogs/hr.	Braking to stop/hr.	Complete plug reversal/hr.	
S3	60	0	0	0	60
	40	80	0	0	
	20	80	20	0	
S4	150	0	0	0	150
	100	200	0	0	
S5	80	0	80	0	150
	65	130	65	0	
	30	160	30	30	
S4	300	0	0	0	300
	200	400	0	0	
S5	160	0	180	0	300
	130	260	130	0	
	60	320	60	60	

Refer above table 1 for examples of typical starting duties and selection of starting class. Table given here are for load Gd^2 equal to or less than rotor Gd^2 . For cases where load $Gd^2 >$ rotor Gd^2 the motor should be selected from the table with a higher no. of starts/hr. as per the formula $No. \text{ of starts allowed} = No. \text{ of starts as per table} \times 2 \times GD^2 \text{ of rotor} / (GD^2 \text{ of rotor} + Gd^2 \text{ of load})$.

How to select Motors for Hoisting and similar duties

The formula to establish the rated output P_n in kW is:

$$P_n > = \frac{F \times V}{102 \times \text{eff}} \text{ kW}$$

Where

F = Maximum total load in Kg

V = Hoisting speed in mtrs/sec, and

eff = Overall mechanical efficiency of the driving unit.

For horizontal motion ensure that the rated output P_n of the motor is greater than the power necessary to move the equipment given by:

$$P_n > = \frac{M \times n}{974 \times \text{eff}} \text{ kW}$$

Where

M = Torque reqd. for movement in Kgm.

n = Motor r. p. m.

Inverter Applications

All crane duty motors are suitable for inverter feed supply. These motors are wound with dual coated winding wires and impregnated with VPI process.

Motors with Integral Brakes

These motors can be supplied with integral fail safe D.C. brake in frame sizes upto 132M, with built in rectifiers (so that no separate DC supply is required for brake part). For more details refer brake motors section of the catalogue (page 24 to 29).

Flame-proof Crane Duty Motors

These are also available on enquiry.

Enquiries

The following information should be included:

- Application
- Voltage / frequency with variations
- Ambient temperature and type of protection required
- Mounting
- No. of starts/stops per hour with duty and CDF
- Load Gd^2 referred to motor speed
- Load torque or torque/speed curve of driven equipment



TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with DOL Starting Fr. 71 to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

Table-1 AA

1500 rpm (4-pole)

Frame size IEC	Type Ref. B3 Construction	60 Starts / hr.						150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kgm ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
71	MC071433	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	1310	3.7	2.25	2.75	0.0033	7
80	MC080413	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	1340	4.5	2.30	2.75	0.0061	10
80	MC080433	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1365	5.0	2.30	2.80	0.0072	11
90S	MC09S433	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1385	5.0	2.25	2.75	0.0120	14
90L	MC09L453	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	1380	4.8	2.30	2.80	0.0160	17
100L	MC10L453	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	1380	6.0	2.30	3.00	0.0260	27
112M	MC11M453	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	1400	6.0	2.50	2.80	0.058	35
132S	MC13S453	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	1410	6.5	2.25	2.90	0.127	70
132M	MC13M483	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	1420	6.5	2.30	2.90	0.141	84
160M	MC16M4A3	11	22	7.4	11	22	7.4	11	22	7.4	11	22	7.4	11	22	7.4	11	22	7.4	1440	6.5	2.25	2.80	0.141	93
160M	MC16M4C3	13.2	25	8.9	12.1	23	8.2	13.2	25	8.9	12.1	23	8.2	13.2	25	8.9	12.1	23	8.2	1440	6.5	2.25	2.80	0.177	103
160M	MC16M4F3	15	30	10.1	15	30	10.1	15	30	10.1	15	30	10.1	13.8	27	9.3	13.8	27	9.3	1440	6.5	2.25	2.80	0.193	107
160L	MC16L4P3	18.5	36	12.5	18.5	36	12.5	18.5	36	12.5	18.5	36	12.5	17	33	11.5	17	33	11.5	1445	6.5	2.10	2.50	0.265	132
180L	MC18L473	22	39	14.7	22	39	14.7	22	39	14.7	22	39	14.7	22	39	14.7	20	35.5	13.3	1460	6.5	2.40	2.60	0.540	188
200L	MC20L433	30	52	19.9	30	52	19.9	30	52	19.9	30	52	19.9	28	49	18.6	26	45	17.3	1465	6.5	2.60	2.60	0.860	270
225S	MC22S413	37	64	24.5	37	64	24.5	37	64	24.5	34	58.8	22.5	32	57	21.2	30	54	19.9	1470	6.5	2.50	2.60	1.32	328
225M	MC22M433	45	78	29.8	45	78	29.8	45	78	29.8	40	69.3	26.5	37	66	24.5	34	61	22.5	1470	6.5	2.50	2.50	1.60	362
250M	MC25M413	55	97	36.3	55	97	36.3	55	97	36.3	52	92.0	34.3	48	84	31.7	45	78	29.7	1475	6.5	2.50	2.60	2.83	475
280S	MC28S413	75	130	49.4	75	130	49.4	75	130	49.4	70	121	46	67	116	44.1	65	112	42.8	1480	6.5	2.30	2.60	5.00	653
280M	MC28M433	90	156	59.2	90	156	59.2	90	156	59.2	84	146	55.3	80	139	52.6	75	130	49.4	1480	6.5	2.30	2.60	6.00	713
315S	MC31S413	110	190	72.1	110	190	72.1	110	190	72.1	102	176	67	95	164	62.3	90	155	59.0	1485	6.5	2.30	2.60	8.70	902
315M	MC31M433	132	225	86.5	132	225	86.5	132	225	86.5	125	213	81.9	115	196	75.4	110	188	72.1	1486	6.5	2.30	2.60	10.20	1010
315L	MC31L453	160	270	104.8	160	270	104.8	160	270	104.8	150	253	98.3	138	233	90.4	132	223	86.5	1487	6.5	2.30	2.60	12.20	1185
315L	MC31L463	180	305	117.9	180	305	117.9	180	305	117.9	168	285	110.0	158	268	103.5	150	254	98.3	1487	6.5	2.30	2.60	13.40	1262
315L	MC31L473	200	342	131.0	200	342	131.0	200	342	131.0	185	316	121.2	180	308	117.9	175	299	114.6	1487	6.5	2.30	2.60	14.60	1305
355L	MC35L413	250	410	163.6	250	410	163.6	250	410	163.6	232	380	151.9	220	361	144.0	210	344	137.5	1488	6.5	2.25	2.60	23.30	1680
355L	MC35L433	315	517	206.2	315	517	206.2	315	517	206.2	295	484	193.1	280	460	183.3	270	443	176.7	1488	6.5	2.25	2.60	32.70	1855
355L	MC35L453	355	586	232.8	355	586	232.8	355	586	232.8	330	545	216.0	310	512	202.9	300	495	196.4	1488	6.5	2.20	2.50	38.20	2050

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

MOTORS FOR CRANE & HOIST DUTY

SQUIRREL CAGE INDUCTION MOTORS



TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with DOL Starting Fr. 71 to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

Table-1 BB

1000 rpm (6-pole)

Frame size IEC	Type Ref. B3 Construction	150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kg.m ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
71	MC071633	0.37	1.43	0.45	0.37	1.43	0.45	0.37	1.43	0.45	0.37	1.43	0.45	800	3.0	1.70	1.90	0.0038	7
80	MC080613	0.55	2	0.65	0.55	2	0.65	0.55	2	0.65	0.55	2	0.65	830	3.5	1.90	2.20	0.0060	10
80	MC080633	0.75	2.7	0.85	0.75	2.7	0.85	0.75	2.7	0.85	0.75	2.7	0.85	860	3.5	2.25	2.50	0.0084	11
90L	MC09L6A3	1.1	3	1.2	1.1	3	1.2	1.1	3	1.2	1.1	3	1.2	900	4.0	2.30	2.60	0.0160	17
90L	MC09L653	1.5	4.2	1.6	1.5	4.2	1.6	1.5	4.2	1.6	1.5	4.2	1.62	900	4.0	2.30	2.75	0.0160	17
100L	MC10L653	2.2	6.5	2.3	2.2	6.5	2.3	2.2	6.5	2.3	2.2	6.5	2.3	920	4.5	2.25	2.75	0.029	27
112M	MC11M653	3.7	9.1	3.9	3.7	9.1	3.9	3.7	9.1	3.9	3.7	9.1	3.92	920	5.0	2.25	2.75	0.065	33
132S	MC13S653	5.5	13.5	5.8	5.5	13.5	5.8	5.5	13.5	5.8	5.5	13.5	5.8	925	5.5	2.30	2.75	0.153	73
132M	MC13M693	7.5	18.8	7.9	7.5	18.8	7.9	6.5	16.3	6.8	6.5	16.3	6.8	925	5.5	2.30	2.75	0.193	81
160M	MC16M633	9.3	21	9.7	8	18	8.3	9.3	21	9.7	8	18.1	8.3	935	6.0	2.30	2.75	0.276	103
160L	MC16L663	11	24	11.5	10.2	22.3	10.6	11	24	11.5	10.2	22.3	10.6	935	6.0	2.30	2.75	0.34	113
160L	MC16L673	13	29	13.5	12	27	12.5	13	29	13.5	12	27	12.5	935	6.0	2.25	2.75	0.40	123
180L	MC18L633	17	35	17.2	16	33	16.2	16	33	16.2	15	31	15.2	960	6.0	2.30	2.60	0.82	190
200L	MC20L633	22	42	22.1	20	38	20.1	20	38	20.1	18.5	35.1	18.6	970	6.0	2.30	2.50	1.20	254
225M	MC22M623	30	55	30.1	28	51	30.1	28	51.3	28.1	26	47.7	26.1	970	6.0	2.30	2.50	2.10	336
250M	MC25M603	37	66	37.0	34	60	34.0	34	60.2	34.0	30	53.1	30.0	975	6.0	2.30	2.50	3.51	458
280S	MC28S613	45	82	45.0	40	73	40.0	40	70.2	40.0	37	65.0	37.0	975	6.0	2.30	2.50	5.11	573
280M	MC28M633	52	93	51.7	48	86	47.7	48	85.5	47.7	45	80	44.7	980	6.0	2.30	2.50	6.16	620
315S	MC31S613	70	123	69.2	65	114	64.3	65	114	64.3	60	106	59.3	985	6.0	2.30	2.50	10.7	830
315M	MC31M633	85	151	84.1	80	142	79.1	80	142	79.1	75	133	74.2	985	6.0	2.30	2.50	12.4	912
315M	MC31M653	102	178	100.6	95	166	93.7	95	166	93.7	90	157	88.7	988	6.0	2.30	2.50	15.5	1010
315L	MC31L673	125	217	123.2	120	208	118.3	120	208	118.3	110	190.8	108.4	988	6.0	2.30	2.50	18.0	1175
315L	MA31L693	150	260	147.9	142	246	140.0	142	246	140.0	132	228.5	130.1	988	6.0	2.30	2.50	21.5	1231
355L	MC35L6A3	168	294	165.3	160	280	157.4	160	280	157.4	150	263	147.6	990	6.0	2.20	2.50	28.7	1670
355L	MC35L613	185	326	182.0	175	308	172.2	175	308	172.2	160	282	157.4	990	6.0	2.20	2.50	28.7	1670
355L	MC35L633	235	414	231.2	225	396	221.4	225	396	221.4	210	370	206.6	990	6.0	2.20	2.50	35.5	1780
355L	MC35L653	280	493	275.5	265	466	260.7	265	466	260.7	240	422	236.1	990	6.0	2.20	2.50	43.3	2000

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with DOL Starting Fr. 71 to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

Table-1 CC

750 rpm (8-pole)

Frame size IEC	Type Ref. B3 Construction	150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kgm ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
90S	MC09S8A3	0.37	1.43	0.5	0.37	1.43	0.5	0.37	1.43	0.5	0.37	1.43	0.5	700	3.0	2.00	2.30	0.011	13
90S	MC09S813	0.55	2.15	0.8	0.45	1.76	0.6	0.55	2.15	0.8	0.45	1.76	0.6	680	3.0	1.80	2.10	0.011	13
90L	MC09L853	0.75	2.76	1.1	0.75	2.76	1.1	0.75	2.76	1.1	0.65	2.39	0.9	680	3.0	2.00	2.40	0.014	14
100L	MC10L813	1.1	3.4	1.6	1.1	3.4	1.6	1.1	3.4	1.6	0.9	2.78	1.3	655	3.5	1.80	2.00	0.023	18
100L	MC10L833	1.5	4.95	2.1	1.5	4.95	2.1	1.5	4.95	2.1	1.1	3.63	1.6	680	3.5	2.00	2.30	0.027	22
112M	MC11M833	2.2	6.80	3.1	2.2	6.80	3.1	2.2	6.8	3.1	1.5	4.64	2.1	700	4.0	2.00	2.30	0.06	32
132S	MC13S853	3.7	8.8	5.1	3.7	8.8	5.1	3.7	8.8	5.1	3	7.14	4.1	710	4.0	2.00	2.30	0.133	78
160M	MC16M833	5.5	12	7.5	5.5	12	7.5	5.5	12	7.5	4.5	9.82	6.2	710	5.0	2.10	2.40	0.299	106
160L	MC16L873	7.5	16	10.3	6.5	13.9	8.9	6.5	13.9	8.9	6	12.8	8.2	710	5.5	2.25	2.50	0.40	119
180M	MC18M813	9.3	20	12.8	8.5	18.5	11.7	8.5	18.5	11.7	7.5	16.5	10.3	710	5.5	2.25	2.50	0.62	177
180L	MC18L833	11	23	15.1	9.3	19.4	12.8	9.3	19.4	12.8	8.5	17.8	11.7	710	5.5	2.25	2.50	0.72	182
200L	MC20L833	15	28.8	20.3	13	25.0	17.6	13	25	17.6	11	21.1	14.9	720	5.5	2.30	2.30	1.32	282
225S	MC22S813	18.5	37.5	25.0	17	34.5	23.0	17	34.5	23.0	15	30.4	20.3	720	5.5	2.25	2.50	1.95	329
225M	MC22M833	22	44.5	29.8	20	40.5	27.1	20	40.5	27.1	18.5	37.4	25.0	720	5.5	2.25	2.50	2.41	369
250M	MC25M813	30	56	40.0	26	48.5	34.7	26	48.5	34.7	22	41.1	29.4	730	5.5	2.30	2.50	3.72	472
280S	MC28S823	37	71	49.4	34	65.2	45.4	34	65.2	45.4	30	57.6	40.0	730	5.5	2.25	2.40	5.83	615
280M	MC28M853	45	86	60.0	40	76.4	53.4	40	76	53.4	37	71	49.4	730	5.5	2.25	2.40	6.86	665
315S	MC31S813	55	108	72.9	50	98.2	66.3	50	98	66.3	45	88	59.6	735	6.0	2.25	2.40	10.7	833
315M	MC31M833	75	148	99.4	67	132.2	88.8	67	132	88.8	60	118	79.5	735	6.0	2.25	2.40	12.4	912
315M	MC31M853	90	175	119.3	80	155.6	106.0	80	156	106.0	75	146	99.4	735	6.0	2.25	2.40	15.5	1010
315L	MC31L873	110	214	145.8	100	195	132.5	100	195	132.5	90	175	119.3	735	6.0	2.25	2.40	18.0	1170
315L	MC31L893	132	257	174.9	125	243	165.6	125	243	165.6	115	224	152.4	735	6.0	2.25	2.40	21.5	1340
355L	MC35L813	160	300	210.6	150	281.3	197.4	150	281	197.4	140	263	184.3	740	6.0	2.00	2.30	28.7	1670
355L	MC35L8B3	180	337	236.9	170	318.3	223.8	170	318	223.8	155	290	204.0	740	6.0	2.20	2.40	35.5	1780
355L	MC35L833	185	347	243.5	175	328.1	230.3	175	328	230.3	160	300	210.6	740	6.0	2.00	2.3	35.5	1780
355L	MC35L853	210	394	276.4	200	375.1	263.2	200	375	263.2	180	338	236.9	740	6.0	2.00	2.3	35.5	1780

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

MOTORS FOR CRANE & HOIST DUTY

SQUIRREL CAGE INDUCTION MOTORS



TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with Inverter (VVVF) Drive Fr. 71 to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

Table-2 AA

1500 rpm (4-pole)

Frame size IEC	Type Ref. B3 Construction	150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kg.m ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
71	MC071433	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	0.55	1.56	0.41	1310	3.7	2.25	2.75	0.0033	7
80	MC080413	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	0.75	1.8	0.55	1340	4.5	2.30	2.75	0.0061	10
80	MC080433	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1.1	3.1	0.80	1365	5.0	2.30	2.80	0.0072	11
90S	MC09S433	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1.5	3.9	1.1	1385	5.0	2.25	2.75	0.0120	14
90L	MC09L453	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	2.2	5	1.6	1380	4.8	2.30	2.80	0.0160	17
100L	MC10L453	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	3.7	8	2.6	1380	6.0	2.30	3.00	0.0260	27
112M	MC11M453	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	5.5	12.4	3.8	1400	6.0	2.50	2.80	0.058	35
132S	MC13S453	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	7.5	14.8	5.2	1410	6.5	2.25	2.90	0.127	70
132M	MC13M483	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	9.3	18.1	6.4	1420	6.5	2.30	2.90	0.141	84
160M	MC16M4A3	11	22	7.4	11	22	7.4	11	22	7.4	11	22	7.4	1440	6.5	2.25	2.80	0.141	93
160M	MC16M4C3	13	25	8.8	13	25	8.8	13	25	8.8	13	25	8.8	1440	6.5	2.25	2.80	0.177	103
160M	MC16M4F3	15	30	10.1	15	30	10.1	13.8	27	9.3	13.8	27	9.3	1440	6.5	2.25	2.80	0.193	107
160L	MC16L4P3	18.5	36	12.5	18.5	36	12.5	17	33	11.5	17	33	11.5	1445	6.5	2.10	2.50	0.265	132
180M	MC18M433	22	41	14.8	20.5	38	13.8	22	41	14.8	20.5	38	13.8	1450	6.5	2.25	2.50	0.460	160
180L	MC18L473	26	46	17.5	24	42.5	16.1	24	42.5	16.1	22	39	14.8	1450	6.5	2.25	2.50	0.540	188
200L	MC20L433	35	62	23.4	33	59	22.1	33	59	22.1	31	56	20.8	1455	6.5	2.30	2.60	0.860	270
225S	MC22S413	43	77	28.7	41	74.0	27.4	41	74	27.4	39	72	26.0	1460	6.5	2.30	2.60	1.32	328
225M	MC22M433	53	96	35.4	50	91.0	33.4	50	91	33.4	48	88	32.0	1460	6.5	2.30	2.50	1.60	362
250M	MC25M413	64	113	42.6	61	108	40.6	61	108	40.6	58	103	38.6	1465	6.5	2.30	2.60	2.83	475
280S	MC28S413	88	152	58.3	85	147	56.3	85	146	56.3	82	141	54.3	1470	6.5	2.30	2.60	5.00	653
280M	MC28M453	110	190	72.9	102	177	67.6	102	177	67.6	97	169	64.3	1470	6.5	2.30	2.60	6.35	730
315S	MC31S413	132	228	87	125	216	82.5	125	216	82.5	120	208	79.2	1475	6.5	2.30	2.60	8.70	902
315M	MC31M433	160	274	105.7	150	256	99.1	150	256	99.1	145	248	95.7	1475	6.5	2.30	2.60	10.20	1010
315L	MC31L453	185	317	121.8	178	305	117.1	178	305	117.1	170	292	111.9	1480	6.5	2.30	2.60	12.20	1185
315L	MC31L463	205	350	134.9	192	328	126.4	192	328	126.4	180	307	118.5	1480	6.5	2.30	2.60	13.40	1262
315L	MC31L473	230	390	151.4	210	356	138.2	210	356	138.2	200	340	131.6	1480	6.5	2.30	2.60	14.60	1305
355L	MC35L413	285	480	186.9	270	455	177.1	270	455	177.1	260	438	170.5	1485	6.5	2.25	2.60	23.30	1680
355L	MC35L433	350	590	229.6	335	565	219.7	335	565	219.7	315	531	206.6	1485	6.5	2.25	2.60	32.70	1855
355L	MC35L453	400	660	262.4	380	630	249.2	380	630	249.2	355	588	232.8	1485	6.5	2.20	2.50	38.20	2050

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with inverter (VVVF) Drive Fr. 71 to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

Table-2 BB

1000 rpm (6-pole)

Frame size IEC	Type Ref. B3 Construction	150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kg m ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
71	MC071633	0.37	1.43	0.45	0.37	1.43	0.45	0.37	1.43	0.45	0.37	1.43	0.45	800	3.0	1.70	1.90	0.0038	7
80	MC080613	0.55	2	0.65	0.55	2	0.65	0.55	2	0.65	0.55	2	0.65	830	3.5	1.90	2.20	0.0060	10
80	MC080633	0.75	2.7	0.85	0.75	2.7	0.85	0.75	2.7	0.85	0.75	2.7	0.85	860	3.5	2.25	2.50	0.0084	11
90L	MC09L6A3	1.1	3	1.2	1.1	3	1.2	1.1	3	1.2	1.1	3	1.2	900	4.0	2.30	2.60	0.0160	17
90L	MC09L653	1.5	4.2	1.6	1.5	4.2	1.6	1.5	4.2	1.6	1.5	4.2	1.62	900	4.0	2.30	2.75	0.0160	17
100L	MC10L653	2.2	6.5	2.3	2.2	6.5	2.3	2.2	6.5	2.3	2.2	6.5	2.3	920	4.5	2.25	2.75	0.029	27
112M	MC11M653	3.7	9.1	3.9	3.7	9.1	3.9	3.7	9.1	3.9	3.7	9.1	3.92	920	5.0	2.25	2.75	0.065	33
132S	MC13S653	5.5	13.5	5.8	5.5	13.5	5.8	5.5	13.5	5.8	5.5	13.5	5.8	925	5.5	2.30	2.75	0.153	73
132M	MC13M693	7.5	18.8	7.9	6.8	17.0	7.2	7.5	18.8	7.9	6.8	17.0	7.2	925	5.5	2.30	2.75	0.193	81
160M	MC16M633	9.3	21	9.7	8	18.1	8.3	9.3	21	9.7	8	18.1	8.3	935	6.0	2.30	2.60	0.276	103
160L	MC16L663	11	24	11.5	10.2	22.3	10.6	11	24	11.5	10.2	22.3	10.6	935	6.0	2.30	2.60	0.34	113
160L	MC16L673	13	29	13.5	12	27	12.5	13	29	13.5	12	27	12.5	935	6.0	2.25	2.60	0.40	123
180L	MC18L613	18	37	18.7	16.7	35	17.3	18	37	18.7	16.7	35	17.3	940	6.0	2.30	2.60	0.68	175
180L	MC18L633	21	43	21.8	19	39	19.7	21	43	21.8	19	39	19.7	940	6.0	2.30	2.60	0.82	190
200L	MC20L633	26	50	26.7	24	47	24.6	24	47	24.6	22	43.0	22.6	950	6.0	2.30	2.50	1.20	254
225M	MC22M623	34.5	64	35.0	32	60	32.5	32	60	32.5	30	57.0	30.4	960	6.0	2.30	2.50	2.10	336
225M	MC22M643	39	73	39.6	35	66	35.5	35	66	35.5	33	63.0	33.5	960	6.0	2.30	2.50	2.42	360
250M	MC25M633	46	83	46.0	42	76.0	42.4	42	76	42.4	40	73.0	40.4	965	6.0	2.30	2.50	3.72	528
280S	MC28S613	52	93	52.2	49	88.0	49.2	49	88	49.2	45	81.0	45.2	970	6.0	2.30	2.50	5.11	573
280M	MC28M633	65	117.0	65.3	61	110.0	61.3	61	110	61.3	58	105.0	58.2	970	6.0	2.30	2.50	6.16	620
315S	MC31S613	90	158.0	89.4	85	150	84.5	85	149.6	84.5	80	142.0	79.5	980	6.0	2.30	2.50	10.7	830
315M	MC31M633	105	184.0	104.4	100	175.0	99.4	100	175	99.4	95	166.0	94.4	980	6.0	2.30	2.50	12.4	912
315M	MC31M653	125	219	124.2	120	210	119.3	120	210	119.3	115	201.0	114.3	980	6.0	2.30	2.50	15.5	1010
315L	MC31L673	150	263.0	148.8	142	249	140.8	142	249	140.8	136	138.0	134.9	982	6.0	2.30	2.50	18.0	1175
315L	MC31L693	180	316.0	178.5	170	300	168.6	170	300	168.6	160	282.0	158.7	982	6.0	2.30	2.50	21.5	1231
355L	MC35L613	220	383.0	217.5	210	366	207.7	210	366	207.7	200	349.0	197.8	985	6.0	2.20	2.50	28.7	1670
355L	MC35L633	275	479.0	271.9	262	456	259.1	262	456	259.1	250	435.0	247.2	985	6.0	2.20	2.50	35.5	1780
355L	MC35L653	325	566.0	321.4	310	540	306.5	310	540	306.5	300	523.0	296.6	985	6.0	2.20	2.50	43.3	2000

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

MOTORS FOR CRANE & HOIST DUTY

SQUIRREL CAGE INDUCTION MOTORS



TEFC 3 Ph. Sq. Cage Induction Motors Crane & Hoist duty with inverter (VVVF) Drive Fr. 90S to 355L

Voltage : 415V ± 10%
 Frequency : 50Hz ± 5%
 Combined Variation : ± 10%

Ambient : 45°C
 Duty : S3/S4

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

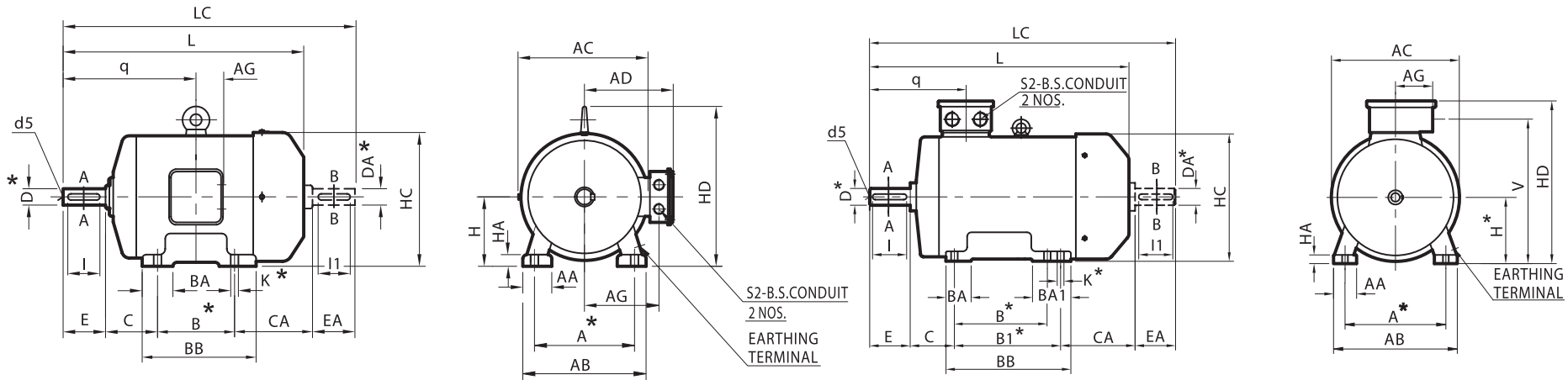
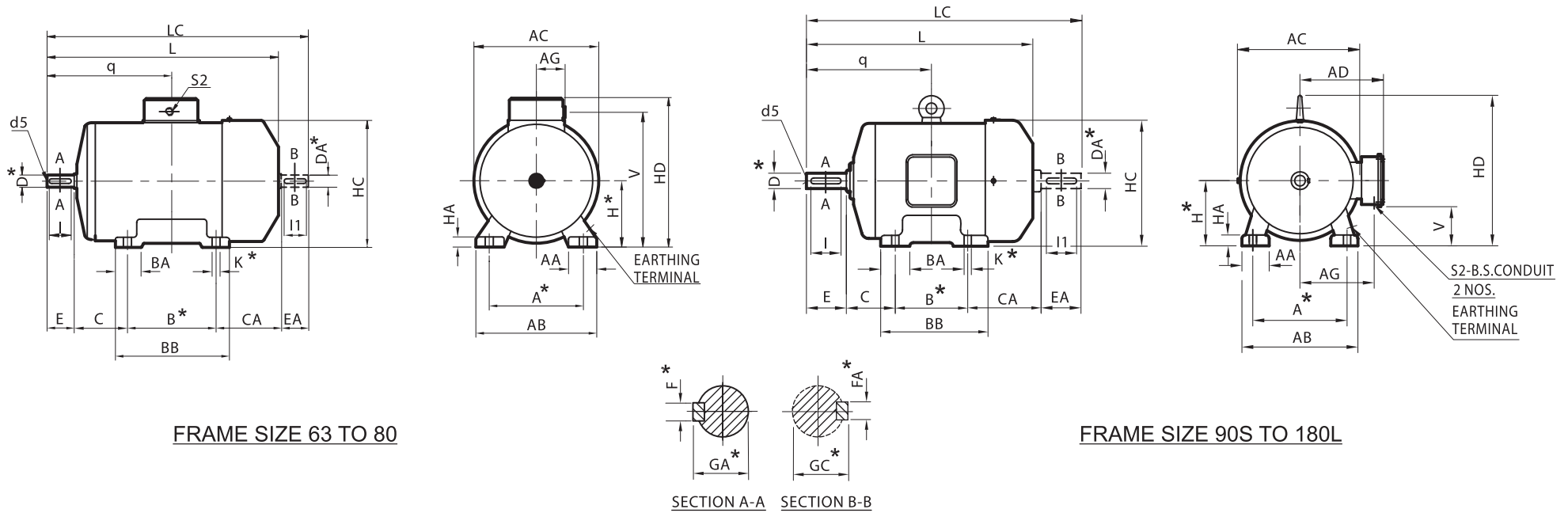
Table-2 CC

750 rpm (8-pole)

Frame size IEC	Type Ref. B3 Construction	150 Starts / hr.						300 Starts / hr.						Speed KPM	With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor Gd ² Kgm ²	Net Wt. B3 Const. Kg
		40 % CDF			60 % CDF			40 % CDF			60 % CDF				Starting current to Rated current Ratio	Starting Torque to Rated Torque Ratio			
		kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m	kW	Current Amps.	Torque kg.m						
90S	MC09S8A3	0.37	1.43	0.5	0.37	1.43	0.5	0.37	1.43	0.5	0.37	1.43	0.5	700	3.0	2.00	2.30	0.011	13
90S	MC09S813	0.55	2.15	0.8	0.45	1.76	0.6	0.55	2.15	0.8	0.45	1.76	0.6	680	3.0	1.80	2.10	0.011	13
90L	MC09L853	0.75	2.76	1.1	0.75	2.76	1.1	0.75	2.76	1.1	0.65	2.39	0.9	680	3.0	2.00	2.40	0.014	14
100L	MC10L813	1.1	3.4	1.6	1.1	3.4	1.6	1.1	3.4	1.6	0.9	2.78	1.3	655	3.5	1.80	2.00	0.023	18
100L	MC10L833	1.5	4.95	2.1	1.5	4.95	2.1	1.5	4.95	2.1	1.1	3.63	1.6	680	3.5	2.00	2.30	0.027	22
112M	MC11M833	2.2	6.80	3.1	2.2	6.80	3.1	2.2	6.8	3.1	1.5	4.64	2.1	700	4.0	2.00	2.30	0.06	32
132S	MC13S853	3.7	8.8	5.1	3.7	8.8	5.1	3.7	8.8	5.1	3	7.14	4.1	710	4.0	2.00	2.30	0.133	78
160M	MC16M833	6	13	8.2	5.5	12	7.5	5.5	12	7.5	5	11.00	6.9	710	5.0	2.10	2.40	0.299	106
160M	MC16M853	7	15.5	9.6	6.5	14.4	8.9	6.5	14.4	8.9	6	13.30	8.2	710	5.0	2.10	2.40	0.344	110
160L	MC16L873	8.3	18.5	11.4	7.8	17.4	10.7	7.8	17.4	10.7	7	15.6	9.6	710	5.5	2.00	2.30	0.40	119
180M	MC18M813	10.6	22.5	14.5	10	21.0	13.7	10	21	13.7	9.3	20	12.8	710	5.5	2.10	2.50	0.62	177
180L	MC18L833	12.5	26.5	17.1	11.5	24.5	15.8	11.5	24.5	15.8	11	23.4	15.1	710	5.5	2.10	2.50	0.72	182
200L	MC20L833	17	28.8	35.0	16	33.0	21.8	16	33	21.8	15	31	20.4	715	5.5	2.20	2.50	1.32	282
225S	MC22S813	20.5	41.5	27.7	19.4	39.3	26.2	19.4	39.3	26.2	18.5	37.5	25.0	720	5.5	2.10	2.20	1.95	329
225M	MC22M833	24.5	50.0	33.1	23	47.0	31.1	23	47	31.1	22	45	29.8	720	5.5	2.10	2.20	2.41	369
250M	MC25M813	34	67	45.7	32	63.0	43.0	32	63	43.0	30	59	40.3	725	5.5	2.20	2.50	3.72	472
280S	MC28S823	42	82	56.0	39	76.0	52.0	39	76	52.0	37	72	49.4	730	5.5	2.20	2.20	5.83	615
280M	MC28M853	52	101	69.4	48	93.0	64.0	48	93	64.0	45	87.5	60.0	730	5.5	2.20	2.20	6.86	665
315S	MC31S813	62	120	82.2	58	113.0	76.9	58	113	76.9	55	107	72.9	735	6.0	2.10	2.40	10.7	833
315M	MC31M833	85	165	112.6	80	155	106.0	80	155	106.0	75	145	99.4	735	6.0	2.10	2.40	12.4	912
315M	MC31M853	100	193	132.5	95	184	125.9	95	184	125.9	90	175	119.3	735	6.0	2.10	2.40	15.5	1010
315L	MC31L873	122	234	161.7	116	222	153.7	116	222	153.7	110	211	145.8	735	6.0	2.10	2.40	18.0	1170
315L	MC31L893	145	278	192.1	138	265	182.9	138	265	182.9	132	254	174.9	735	6.0	2.10	2.40	21.5	1340
355L	MC35L813	175	332.0	230.3	168	319.0	221.1	168	319	221.1	160	304	210.6	740	6.0	2.10	2.40	28.7	1670
355L	MC35L833	220	417.0	289.6	210	398.0	276.4	210	398	276.4	200	380	263.2	740	6.0	2.00	2.30	35.5	1780
355L	MC35L853	250	480.0	329.1	235	452.0	309.3	235	452	309.3	225	433	296.1	740	6.0	2.20	2.40	43.3	2000

Note: Derating factors of motor ratings for higher ambient temperatures are given on page no. 1

Crane and Hoist Duty Motors Type MC Foot Mounted (B3) TEFC series Frame 63-355L



*Refer TABLE A for tolerances

FRAME SIZE 200L TO 225M

FRAME SIZE 250M TO 355L

MOTORS FOR CRANE & HOIST DUTY

DIMENSIONAL DETAILS



Crane and Hoist Duty Motors Type MC Foot Mounted (B3) TEFC Series Frame 63-355L

IEC Fr. Size	Pole	FIXING						GENERAL										TERMINAL BOX				SHAFT								
		A*	B*	B1*	C	H*	K*	AB	BB	AA	BA	BA1	HA	HC	HD	AD	L	LC	CA	AC	V	q	AG	S2 B.S.C.	D,DA*	E EA	F* FA	GA* GC*	I I1	d5
63	2 & 4	100	80	-	40	63	7	126	100	28	30	-	7	125	179	-	206	241	75	124	149	104	40	3/4"	11	23	4	12.5	18	M4
71	2,4 & 6	112	90	-	45	71	7	135	110	31	30	-	7	141	195	-	234	278	83	140	166	122	40	3/4"	14	30	5	16	25	M5
80	2,4 & 6	125	100	-	50	80	10	150	124	31	35	-	9	159	214	-	267	324	94	17	185	142	40	3/4"	19	40	6	21.5	35	M6
90S	2,4,6 & 8	140	100	-	56	90	10	168	125	34	31.5	-	12	177	140	302	374	143	174	38	156	109	3/4"	24	50	8	27	45	M8	
90L	2,4,6 & 8		125	169																										
100L	2,4,6 & 8	160	140	-	63	100	12	190	174	43.5	36	-	12	198	235	162	366	448	125	195	44	193	125	1"	28	60	8	31	55	M10
112M	4,6 & 8	190	140	-	70	112	12	220	174	47	36	-	12	222	260	170	388	471	141	220	56	200	137	1"	28	60	8	31	55	M10
132S	2	216	140	-	89	132	12	256	180	64	50	-	17	262	308	206	464	567	163	260	99	239	167	1"	38	80	10	41	70	M12
	4,6 & 8																449	552												
132M	2	178	178	-	89	132	12	256	218	54	50	-	17	262	308	206	502	605	163	260	99	258	167	1"	38	80	10	41	70	M12
	4 & 6																487	590												
160M	2	254	210	-	108	160	15	310	250	58	70	-	20	318	366	226	605	741	183	316	98	323	186	1"	42	110	12	45	105	M16
	4,6 & 8																585	721												
160L	2	254	254	-	108	160	15	310	294	58	70	-	20	318	366	226	649	785	183	316	98	345	186	1"	42	110	12	45	105	M16
	4,6 & 8																629	765												
180M	2,4,6 & 8	279	241	-	121	180	15	344	281	65	70	-	26	357	412	265	679	799	218	354	83	352	216	1 1/2"	48	110	14	51.5	100	M16
180L	2,4,6 & 8		279	319					717								838													
200L	2	318	305	-	133	200	19	398	355	85	85	-	32	397	462	312	795	920	234	394	-	396	249	2"	55	110	16	59	100	M20
	4,6 & 8																772	897												
225S	4,6 & 8	356	286	-	149	225	19	436	336	85	85	-	34	450	509	337	817	966	239	450	-	432.5	273	2"	60	140	18	64	130	
225M	2		311	311					-								149	225				19			436	361	85	85	-	34
	4,6 & 8	842			991	445	60	140		18	64	130																		
250M	2	406	349	-	168	250	24	506	425	100	115	-	42	495	665	-	914	1065	268	489	578	352	205	2"	60	140	18	64	130	
	4,6 & 8																								65	140	18	69	130	
280S/M	2	457	368	419	190	280	24	540	490	100	110	149	42	552	725	-	1010	1160	271	544	638	360	205	2"	65	140	18	69	130	
	4,6 & 8																								75	140	20	79.5	130	
315S/M	2	508	406	457	216	315	28	625	540	100	115	115	45	620	830	-	1137	1293	336	610	728	386	218	2"	65	140	18	69	130	
	4,6 & 8																1167	1353				416			80	170	22	85.5	160	
315L	2	508	508	-	216	315	28	625	593	120	120	-	45	620	830	-	1302	1458	454	610	728	386	218	2 1/2"	65	140	18	69	130	
	4,6 & 8																1332	1518				416			80	170	22	85.5	160	
355L	2	610	630	-	254	355	28	710	770	110	170	-	45	693	939	-	1461	1622	458	658	850	434	305	3"	75	140	20	79.5	130	
	4,6 & 8																1491	1682				464			95	170	25	100	160	

TABLE A

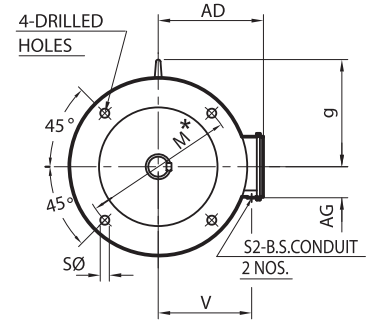
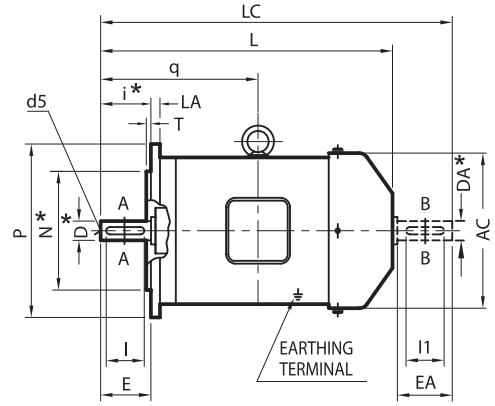
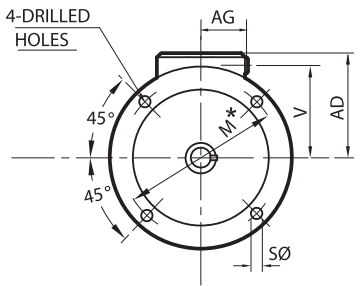
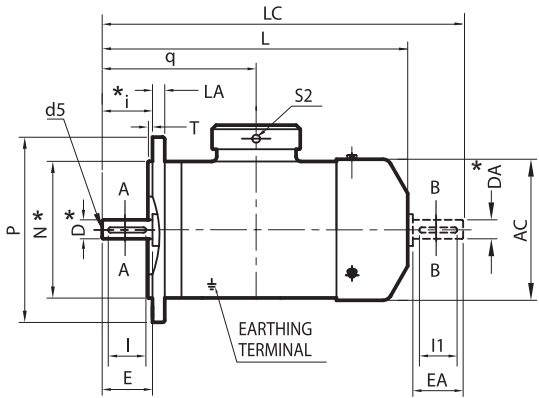
Dimension	Tolerance	Specification	Dimension	Tolerance	Specification	
A, B	±0.75	IS : 1231	D, DA	j6	11, 14, 19, 24, 28Ø	
H	-0.5			UPTO 280	k6	38, 42, 48Ø
	-1.0			OVER 280	m6	55, 60, 65, 75, 80, 95Ø
K	+0.360		7, 10Ø	GA, GC, F, FA		IS : 2048
	+0.430	12, 15Ø	d5 (centering)		IS : 2540	
	+0.520	19, 24, 28Ø				

- ① Without Eye bolt
- Key / key way fit : h9 / N9
 - Double Shaft extension can be provided with shaft dimension identical to D.E. shaft
 - For 225 S/M 4,6 & 8 pole Non Drive shaft extension will be limited to 55 mm dia.
 - For 280 S/M 4,6 & 8 pole Non Drive shaft extension will be limited to 65 mm dia.
 - Also suitable for B6, B7B8, V5 & V6 mounting as per IS 2253

All Dimensions are in mm unless otherwise specified.

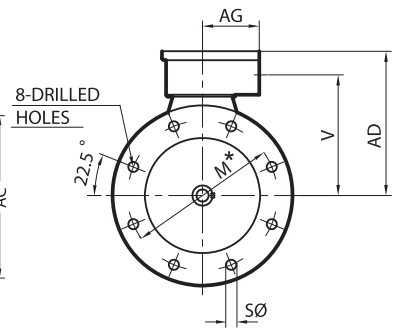
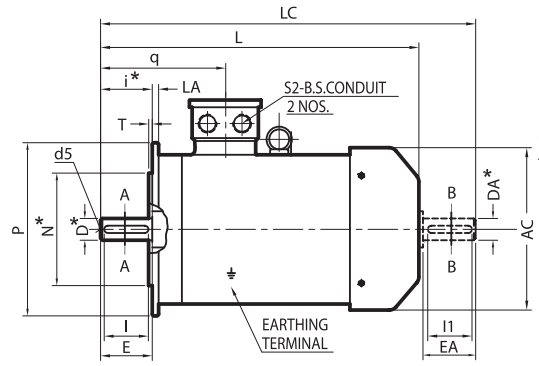
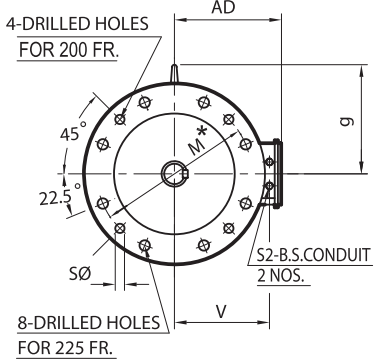
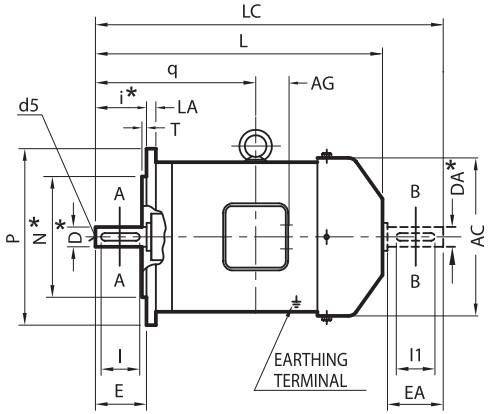
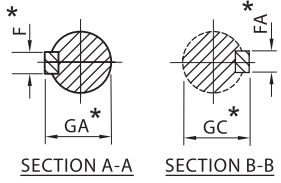
CATE-6335-3-2

Crane and Hoist Duty Motors Type MC Flange Mounted (B5) TEFC series Frame 63-355L



FRAME SIZE 63 TO 80

FRAME SIZE 90S TO 180L



FRAME SIZE 200L TO 225M

FRAME SIZE 250M TO 355L

*Refer TABLE A for tolerances

MOTORS FOR CRANE & HOIST DUTY

DIMENSIONAL DETAILS



Crane and Hoist Duty Motors Type MC Foot Mounted (B5) TEFC Series Frame 63-355L

IEC Fr. Size	Pole	FIXING				GENERAL					TERMINAL BOX			V	q	AG	S2 B.S.C.	D,DA*	E EA	F* FA	GA* GC*	I I1	d5	
		P	N*	M*	i*	S	T	LA	AD	AC	L	LC	g											
63	2 & 4	140	95	115	23	10	3	9	116	124	225	260	-	86	122	40	3/4"	11	23	4	12.5	18	M4	
71	2, 4 & 6	160	110	130	30	10	3.5	9	124	140	261	305	-	95	147	40	3/4"	14	30	5	16	25	M5	
80	2, 4 & 6	200	130	165	40	12	3.5	10	134	157	267	324	-	105	142	40	3/4"	19	40	6	21.5	35	M6	
90S	2, 4, 6, & 8	200	130	165	50	12	3.5	10	140	174	302	374	①	109	156	52	3/4"	24	50	8	27	45	M8	
90L	2, 4, 6, & 8										327	399			169									
100L	2, 4, 6 & 8	250	180	215	60	15	4	11	162	195	366	448	135	125	193	56	1"	28	60	8	31	55	M10	
112M	4, 6 & 8	250	180	215	60	15	4	11	170	220	388	471	148	137	200	56	1"	28	60	8	31	55	M10	
132S	2	300	230	265	80	15	4	12	206	260	464	567	176	167	239	63	1"	38	80	10	41	70	M12	
132M	4, 6 & 8										449	552												
	2										502	605												
	4 & 6										487	590												
160M	2	350	250	300	110	19	5	13	226	316	605	741	206	186	323	63	1"	42	110	12	45	105	M16	
160L	4, 6 & 8										585	721												
	2										649	785												
	4, 6 & 8										629	765												
180M	2, 4, 6 & 8	350	250	300	110	19	5	13	265	354	679	799	232	216	352	97	1 1/2"	48	110	14	51.5	100	M16	
180L	2, 4, 6 & 8										717	838			371									
200L	2	400	300	350	110	19	5	15	312	394	795	920	262	249	369	172	2"	55	110	16	59	100	M20	
225S	4, 6 & 8										772	897			432.5			60	140	18	94	130		
	225M	2	450	350	400	19	5	16	337	450	817	966	284	273	432.5	172	2"	60	140	18	64	130	M20	
225M	4, 6 & 8	837									956	415			55			110	16	59	100			
	250M	2	550	450	500	140	19	5	18	415	489	914	1065	-	328	352	205	2"	60	140	18	64	130	M20
280S/M	4, 6 & 8	842																	991	445	60	140	18	
	315S/M	2	660	550	600	140	19	5	18	445	544	1010	1160	-	358	360	205	2"	65	140	18	69	130	M20
315L	4, 6 & 8	1137										1293	386						65	140	18	69	130	
	2	1167										1353	416						80	170	22	85.5	160	
	4, 6 & 8	1302										1458	386						65	140	18	69	130	
355L	2	800	680	740	140	24	6	25	584	690	1461	1622	-	495	434	305	3"	75	140	20	79.5	130	M20	
355L	2, 6 & 8										1491	1682			464			95	170	25	100	160		M24

TABLE A

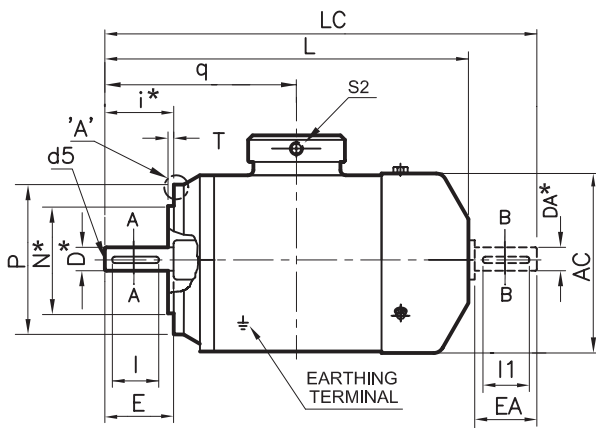
Dimension	Tolerance Specification		IS : 2223	Dimension	Tolerance		Specification
	j6	UPTO 450			D, DA	j6	
N	js6	OVER 450	IS : 1231	D, DA	k6	38, 42, 48Ø	
	M	+0.3			UPTO 265	m6	55, 60, 65, 75, 80Ø
I	+0.5	OVER 265	IS : 2048	GA, GC, F, FA		IS : 2540	
	+1.0	UPTO 85		d5 (centering)			
	+1.5	OVER 85					

- ① Without Eye bolt
- Key / key way fit : h9/N9
 - 8 Nos. Fixing Holes from 225 S/M frame onwards
 - Double Shaft extension can be provided with shaft dimension identical to D.E. shaft
 - For 225 S/M 4,6 & 8 pole Non Drive shaft extension will be limited to 55 mm dia.
 - For 280 S/M 4,6 & 8 pole Non Drive shaft extension will be limited to 65 mm dia.
 - Also suitable for V1 & V3 mounting as per IS 2253

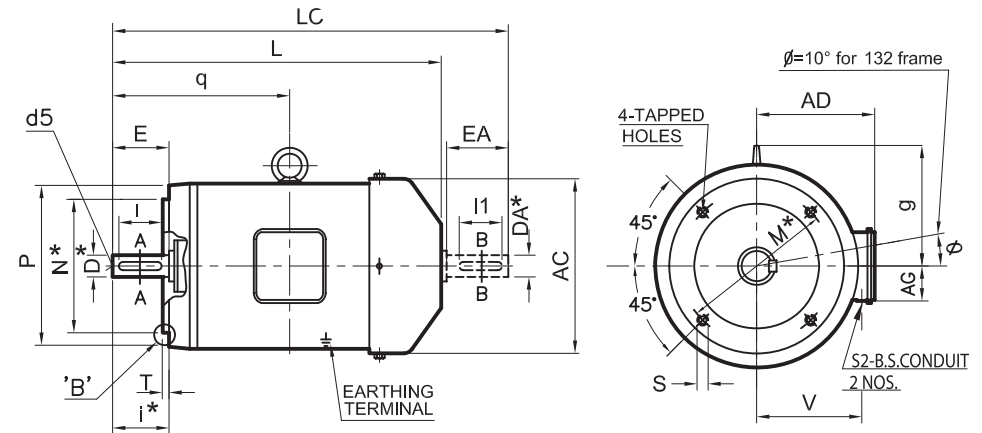
All Dimensions are in mm unless otherwise specified.

CAT-C-6335-2

Crane and Hoist Duty Motors Type MC Face Mounted (B14) TEFC Series Frame 63-132M

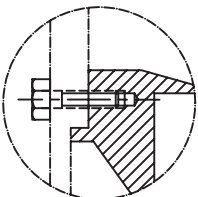


FRAME SIZE 63 TO 80

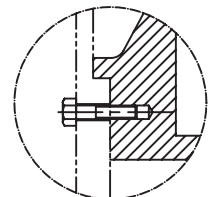


FRAME SIZE 90S TO 132M

*Refer Table A For Tolerances



ENLARGEMENT OF CIRCLE 'A'



ENLARGEMENT OF CIRCLE 'B'

IEC Fr. Size	Pole	FIXING				GENERAL						TERMINAL BOX				SHAFT						
		P	N*	M*	i*	S	T	AD	AC	L	LC	g	V	q	AG	S2 B.S.C.	D, DA*	E EA	F* FA*	GA* GC*	I I1	d5
63	2 & 4	90	60	75	23	M5X10	2.5	116	124	206	241	-	86	104	40	3/4"	11	23	4	12.5	18	M4
71	2,4 & 6	105	70	85	30	M6X10	2.5	124	140	234	278	-	95	122	40	3/4"	14	30	5	16	25	M5
80	2,4 & 6	120	80	100	40	M6X13	3	134	157	267	324	-	105	142	40	3/4"	19	40	6	21.5	35	M6
90S	2,4,6 & 8	140	95	115	50	M8X12	3	140	174	302	374	109	109	156	52	3/4"	24	50	8	27	45	M8
90L	2,4,6 & 8									327	399			169								
100L	2,4,6,8 & 8	160	110	130	60	M8X12	3.5	162	195	366	448	135	125	193	56	1"	28	60	8	31	55	M10
112M	4,6 & 8	160	110	130	60	M8x12	3.5	170	220	388	471	148	137	200	56	1"	28	60	8	31	55	M10
132S	2	250	180	215	80	M12X20	4	206	260	464	567	176	167	239	63	1"	38	80	10	41	70	M12
	4 & 6									449	552											
132M	2	250	180	215	80	M12X20	4	206	260	502	605	176	167	258	63	1"	38	80	10	41	70	M12
	4 & 6									487	590											

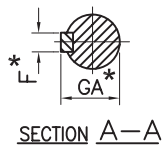
TABLE A

Dimension	Tolerance	Specification
N	j6	is : 2223
M	±0.3	
I	±1	

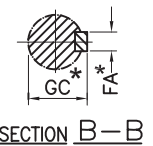
Dimension	Tolerance	Specification
D, DA	j6 k6	11, 14, 19, 24, 28Ø 38Ø
GA, GCF, FA		IS : 2048
d5(centering)		IS : 2540

① Without Eye bolt

- Also suitable for V19 & V18 mounting as per IS 2253
- Key / key way fit : h9 /N9
- Double Shaft extension can be provided with shaft dimension identical to D.E. shaft.



SECTION A-A



SECTION B-B