



INTRODUCTION

APPLICATION :

“ Harmonic ” brand crane duty motors are specially designed for frequent starts/stops reversing required in crane & lifts of all types. They can also be used in applications such as materials handling wires & sluices, auxiliary motors in rolling mills.

RANGE :

KW : 0.37 to 15 kW

RPM : 1500, 1000, 750

MOUNTING : Foot (B3), Flange (B5), Face (B14) & combinations.

FRAME : 71 to 160 L

VOLTAGES : 415V ± 6% or as required

FREQUENCY : 50Hz ± 3% or as required

ROTOR TYPE : Squirrel Cage Aluminum Die Cast & Copper Die Cast.

ENCLOSURE : Totally Enclosed Fan Cooled (TEFC)

PROTECTION : IP44/IP55

INSULATION CLASS : Class F Insulation with Temp. Rise limited to Class B

DUTY CYCLE : S₄ - S₃

Standard : Performance confirms to IS: 325 and dimensions according to IS-1231 and IS- 2223.

CONSTRUCTION

Casting: “**Harmonic**” crane duty motors housing & end shields are made from high quality castings as per IS:210 all components are machined correct accuracy & alignment.

Stamping: The stamping is made from low loss high permeability steel.

Terminal Box: standard location of terminal box is on top. However the terminal box on right or left side can be provided on request.

Motors with integral brakes: These motors can be supplied with integral electromagnetic AC disc brake and integral electromagnetic DC fail safe brakes with built in rectifiers.

ENQUIRY DETAILS

When placing an enquiry, please furnish the following details:

- Application details
- Motors power & speed
- Voltage & frequency variations
- Mounting
- No. of start/stops per hour with duty & CDF
- Load torque or torque/speed curve of driven equipment

HOW TO SELECT MOTORS FOR HOISTING AND

SIMILAR DUTIES

The formula to establish the rated output P_n in kW is

$$P_n \geq \frac{F \times V}{102 \times \text{eff}} \quad \text{kW}$$

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 give by:

$$P_n \geq \frac{M \times N}{974 \times \text{eff}} \quad \text{kW}$$

Where,

M=torque required for movement in kg-m.

N=motor RPM

DEFINITIONS

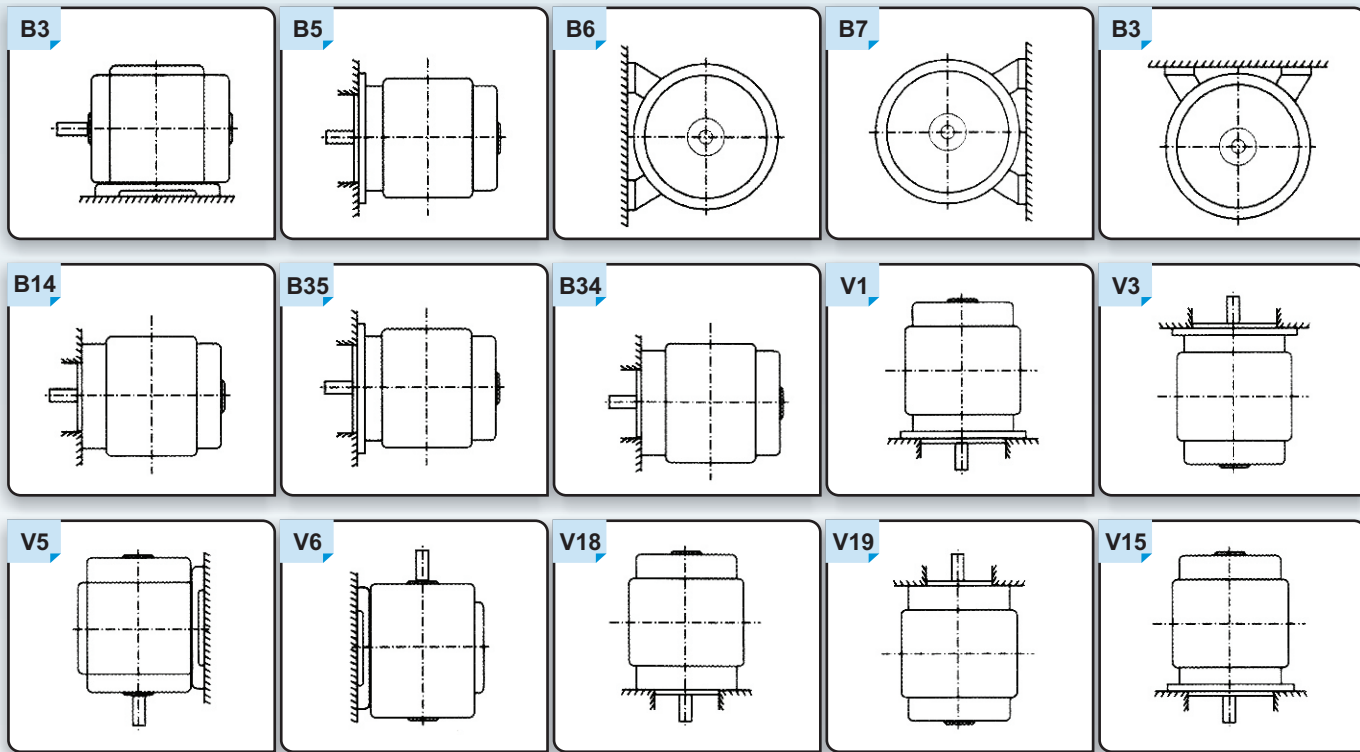
The terms frequently used in the intermittent duty drives are as follows:

- Duty:** operation of the motor at load & energized period to which the motor is subjected including the sequence & duration.
- Cyclic Duration on Factor (CDF):** The ratio between the period of loading including starting & electric braking and the duration of the duty cycle expressed as percentage.
- Starting:** The process of energizing a motor to bring it up to its rated speed from rest.
- Electric Braking:** A system in which a braking action is applied to an electric motor by causing it to act as a generator.
- Regenerative Braking:** A system of electric braking in which energy is returned, to the supply system.
- Plugging:** A form of braking of an induction motor obtained by reversing the phase sequence of its any two lines.

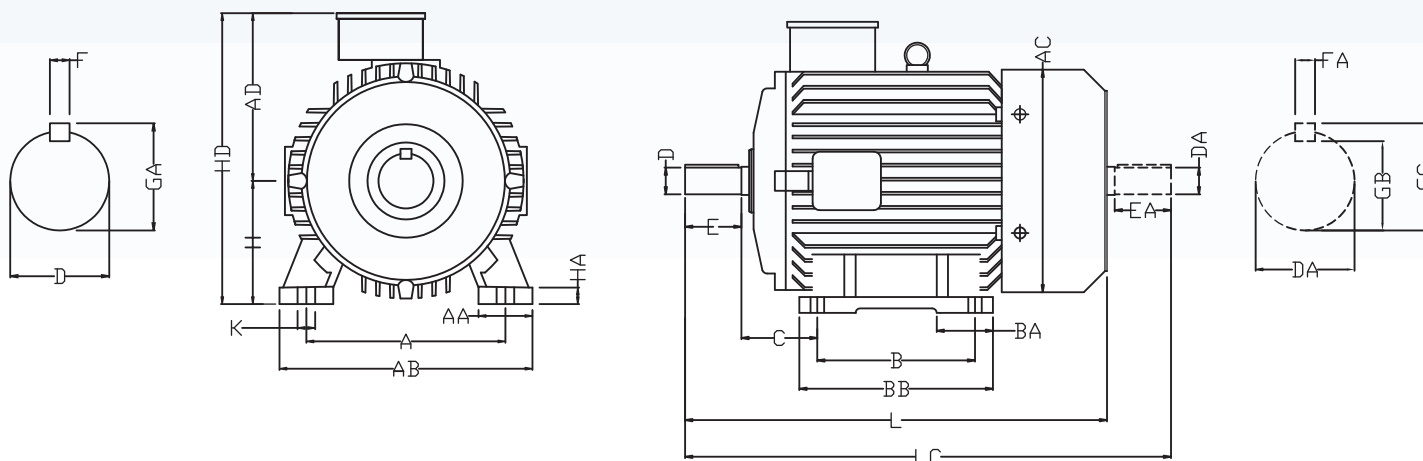


HARMONIC

MOUNTING POSITIONS



FOOT MOUNTED (B3)

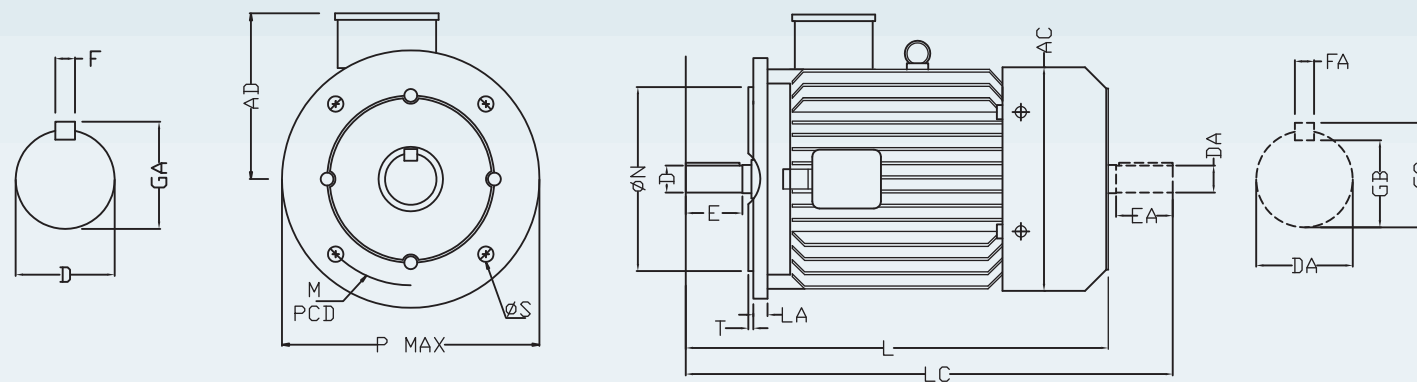


DIMENSION FOR FOOT MOUNTED MOTORS (B3)

FRAME SIZE	L	LC	AD	D	E	F	GA	A	B	C	H	K	AA	AB	BB	BA	HA	HD
71	245	281	96	14	30	5	16	112	90	45	71	7	30	134	110	30	11	170
80	282	328	108	19	40	6	21.5	125	100	50	80	10	40	159	130	32	10	188
90S	310	366	139	24	50	8	27	140	100	56	90	10	40	176	134	42	12	228
90L	331	387	139	24	50	8	27	140	125	56	90	10	40	176	156	50	13	228
100L	385	452	144	28	60	8	31	160	140	63	100	12	42	200	173	50	15	248
112M	395	462	161	28	60	8	31	190	140	70	112	12	50	230	180	51	15	272
132S	465	552	182	38	80	10	41	216	140	89	132	12	57	262	183	54	19	314
132M	503	590	182	38	80	10	41	216	178	89	132	12	57	262	215	60	19	314
160M	576	693	211	42	110	12	45	254	210	108	160	15	64	304	260	60	20	371
160L	620	737	211	42	110	12	45	254	254	108	160	15	64	304	304	60	20	371



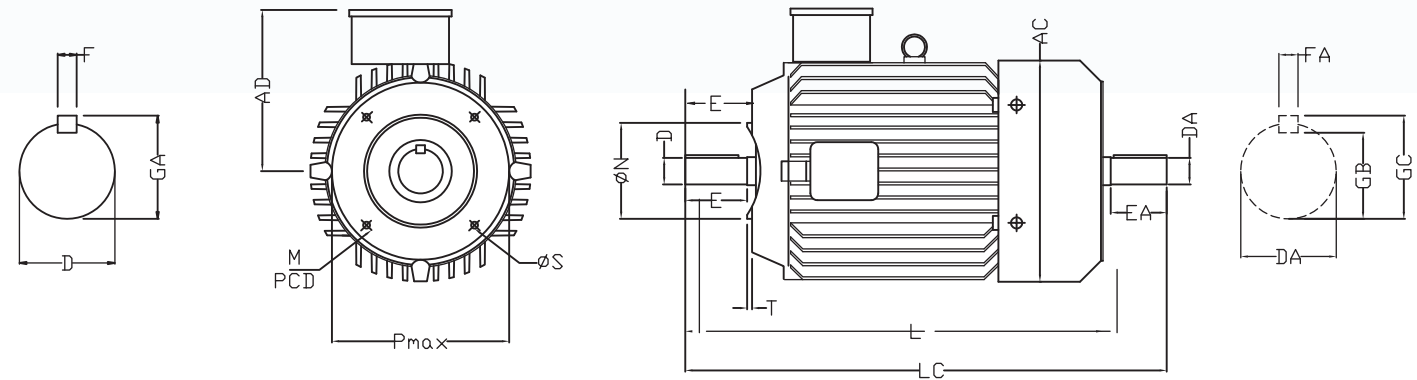
FLANGE MOUNTED (B5)



DIMENSION FOR FLANGE MOUNTED MOTORS (B5)

FRAME SIZE	L	LC	AD	D	E	F	GA	P MAX	M PCD	ØN	ØS	T	LA
71	245	281	96	14	30	5	16	160	130	110	10	3.5	9
80	282	328	108	19	40	6	21.5	200	165	130	12	3.5	10
90S	310	366	139	24	50	8	27	200	165	130	12	3.5	10
90L	331	387	139	24	50	8	27	200	165	130	12	3.5	10
100L	385	452	149	28	60	8	31	250	215	180	15	4	12
112M	395	462	161	28	60	8	31	250	215	180	15	4	12
132S	465	552	182	38	80	10	41	300	265	230	15	4	12
132M	503	590	182	38	80	10	41	300	265	230	15	4	12
160M	576	693	211	42	110	12	45	350	300	250	19	5	13
160L	620	737	211	42	110	12	45	350	300	250	19	5	13

FACE MOUNTED (B14)



DIMENSION FOR FACE MOUNTED MOTORS (B14)

FRAME SIZE	L	LC	AD	D	E	F	GA	P MAX	M PCD	ØN	ØS	T
71	245	281	96	14	30	5	16	105	85	70	M6	2.5
80	282	328	103	19	40	6	21.5	120	100	80	M6	3.0
90S	310	366	139	24	50	8	27	140	115	95	M8	3.0
90L	331	387	139	24	50	8	27	140	115	95	M8	3.0
100L	385	452	149	28	60	8	31	160	130	110	M8	3.5
112M	395	462	161	28	60	8	31	160	130	110	M8	3.5
132S	465	552	182	38	80	10	41	200	165	130	M12	3.5
132M	503	590	182	38	80	10	41	200	165	130	M12	3.5



SELECTION CHART FOR
CRANE DUTY SQUIRREL CAGE INDUCTION MOTORS

Voltage:-415 ± 6%,
Protection:-IP55,44

Frequency:-50 ± 3%
Duty:-S4-S3

Temp.Rise:-B Class
Ins.class:- F

Frame	TYPE	RPM	kW	60 starts/hr				150 starts/hr				starting torque to rated torque ratio	pullout torque to rated torque ratio
				40% CDF		60% CDF		40% CDF		60% CDF			
				Amps	Torque kg-m	Amps	Torque kg-m	Amps	Torque kg-m	Amps	Torque kg-m		

1500 RPM (4 POLE)

71	HC 071-4	1320	0.55	1.6	0.41	1.6	0.41	1.6	0.41	1.6	0.41	2.25	2.75
80	HC 080-4	1350	0.75	2.0	0.55	2.0	0.55	2.0	0.55	2.0	0.55	2.30	2.75
80	HC 08L-4	1365	1.1	2.8	0.8	2.8	0.8	2.8	0.8	2.8	0.8	2.80	2.50
90S	HC 09S-4	1375	1.5	3.7	1.1	3.7	1.1	3.7	1.1	3.7	1.1	2.25	2.50
90L	HC 09L-4	1375	2.2	5.2	1.6	5.2	1.6	5.2	1.6	5.2	1.6	2.50	2.75
100L	HC 10L-4	1395	3.7	8.2	2.6	8.2	2.6	8.2	2.6	8.2	2.6	2.70	2.50
112M	HC 11M-4	1400	5.5	12.0	3.8	12.0	3.8	12.0	3.8	12.0	3.8	2.90	3.00
132S	HC 13S-4	1415	7.5	15.9	5.2	15.9	5.2	15.9	5.2	15.9	5.2	2.25	2.50
132M	HC 13M-4	1415	9.3	19.2	6.4	19.2	6.4	19.2	6.4	19.2	6.4	2.70	3.00
160M	HC 16M-4	1430	11	23.0	7.4	23.0	7.4	23.0	7.4	23.0	7.4	2.25	2.50
160M	HC 16M-4	1430	15	31.0	10.1	31.0	10.1	31.0	10.1	31.0	10.1	2.30	2.50
160L	HC 16L-4	1430	18.5	37.5	12.5	37.5	12.5	37.5	12.5	37.5	12.5	2.60	3.00

1000 RPM (6 POLE)

71	HC 071-6	870	0.37	1.25	0.45	1.25	0.45	1.25	0.45	1.25	0.45	1.60	1.80
80	HC 080-6	870	0.55	1.75	0.65	1.75	0.65	1.75	0.65	1.75	0.65	2.25	2.50
80	HC 08L-6	870	0.75	2.2	0.85	2.2	0.85	2.2	0.85	2.2	0.85	2.25	2.50
90S	HC 09S-6	895	1.1	3.2	1.2	3.2	1.2	3.2	1.2	3.2	1.2	2.25	2.50
90L	HC 09L-6	895	1.5	4.2	1.6	4.2	1.6	4.2	1.6	4.2	1.6	2.25	2.50
100L	HC 10L-6	905	2.2	5.5	2.3	5.5	2.3	5.5	2.3	5.5	2.3	2.25	2.50
112M	HC 11M-6	915	3.7	8.8	3.9	8.8	3.9	8.8	3.9	8.8	3.9	2.25	2.50
132S	HC 13S-6	930	5.5	12.8	5.8	12.8	5.8	12.8	5.8	12.8	5.8	2.25	2.50
132M	HC 13M-6	935	7.5	17.0	7.9	17.0	7.9	17.0	7.9	17.0	7.9	2.30	2.60
160M	HC 16M-6	945	9.3	21.0	9.7	21.0	9.7	21.0	9.7	21.0	9.7	2.30	2.60
160L	HC 16L-6	950	11.0	24.0	11.5	24.0	11.5	24.0	11.5	24.0	11.5	2.30	2.60
160L	HC 16L-6	955	15.0	32.0	15.5	32.0	15.5	32.0	15.5	32.0	15.5	2.25	2.50

750 RPM (8 POLE)

90S	HC 09S-8	650	0.55	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.25	2.75
90L	HC 09L-8	665	0.75	2.3	1.1	2.3	1.1	2.3	1.1	2.3	1.1	2.25	2.75
100S	HC 10S-8	665	1.1	3.4	1.6	3.4	1.6	3.4	1.6	3.4	1.6	2.25	2.75
100L	HC 10L-8	665	1.5	4.3	2.1	4.3	2.1	4.3	2.1	4.3	2.1	2.25	2.75
112M	HC 11M-8	685	2.2	5.7	3.1	5.7	3.1	5.7	3.1	5.7	3.1	2.25	2.75
132S	HC 13S-8	695	3.7	9.8	5.1	9.8	5.1	9.8	5.1	9.8	5.1	2.25	2.75
132M	HC 13M-8	695	5.5	13.5	7.5	13.5	7.5	13.5	7.5	13.5	7.5	2.25	2.75
160M	HC 16M-8	695	7.5	18.0	10.3	18.0	10.3	18.0	10.3	18.0	10.3	2.25	2.75
160L	HC 16L-8	695	9.3	22.0	12.8	22.0	12.8	22.0	12.8	22.0	12.8	2.25	2.75

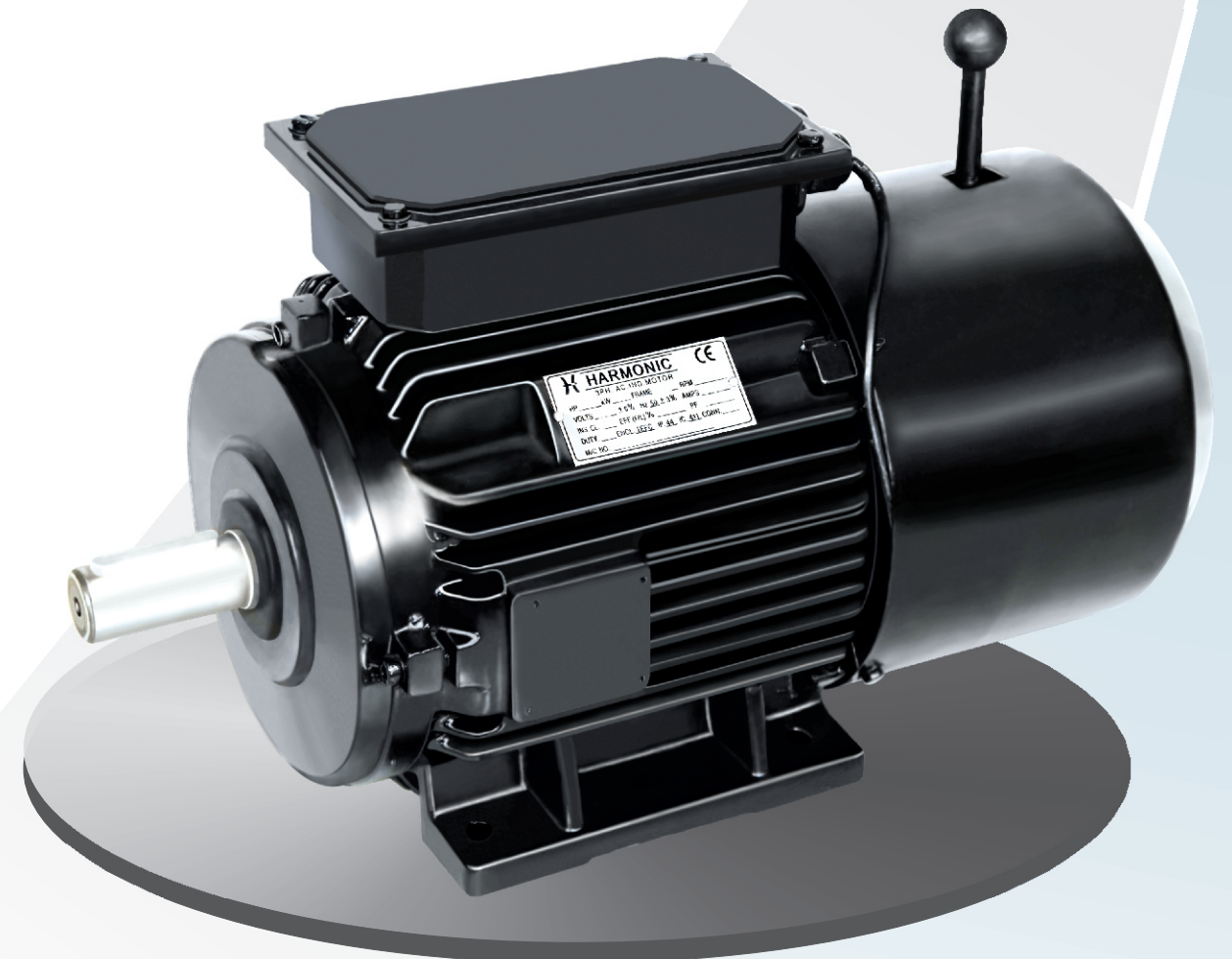


Our Other Range of Products

- Standard Motor
- Brake Motor
- Textile Motor
- Torque Motor
- High Torque Motor
- High Slip Motor
- Dual Voltage Frequency Motor
- Motor With Special Flange / Shaft



HARMONIC
Crane Duty Motor



An ISO 9001 : 2008 Company