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## Brake Motors



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Motoring the  
Wheels of Success

CE



# INTRODUCTION

## CONSTRUCTION:

Brake Motors are used for various applications where instantaneous stopping of the driven load is required. The operation of the brake is "FAIL SAFE TYPE" i.e. normally ON. When the electrical power to the motor is cut-off or the power fails, the brake is applied.

Brake motor is a combination of an A.C. induction motor and an electromagnetic AC or DC brake. The electromagnetic brake is mounted on the non-driving end of the motor.

DC brake motors are provided with a rectifier which provides the required DC voltage to the brake coil which in turn operates the brake. The supply to the rectifier is fed from any two terminals (between any two phases) in the main terminal box of the motor.

General applications of Brake motors are printing machinery, textile machinery, rolling mills, cranes & hoists, material handling equipments, machine tools etc.

## WORKING:

When the power to the motor is switched off, a braking torque is generated which presses the armature plate of the brake against the mounting flange. When the supply resumes, a magnetic field is produced in the brake coil and this pulls the armature plate against the spring force and the shaft is now free to rotate.

## RANGE OF HINDUSTAN BRAND BRAKE MOTORS:

KW	: 0.093 to 15.0 kW
RPM	: 3000, 1500, 1000, 750
Mounting	: Foot (B3), flange (B5), face (B14) & combinations
Frame	: 63 to 160L
Voltage	: 415V or as required
Frequency	: 50Hz
Braking torque	: Upto 250Nm
Brake coil voltage	: 190V DC (Other voltages on request)
Degree of protection	: IP54
Duty cycle	: S1 – S8

## SPECIAL FEATURES:

- The brake motors are simple & rugged & so easy for maintenance.
- No separate DC supply is required as the rectifier is provided which gives the required DC voltage for energisation of the brake.
- The rectifier is mounted inside the main terminal box so no separate terminal box required.

## GENERAL GUIDELINES FOR SELECTION OF SUITABLE BRAKE MODEL:

The Brakes are rated by torque & selection of suitable model can be made by calculating the required torque, rating of the brake & then matching it with static torque.

$$\text{Torque (Nm)} = 9550 \times (\text{KW} / \text{RPM}) \times \text{Safety Factor (SF)}$$

where kW-Kilowatts of motor,

RPM-Speed of motor,

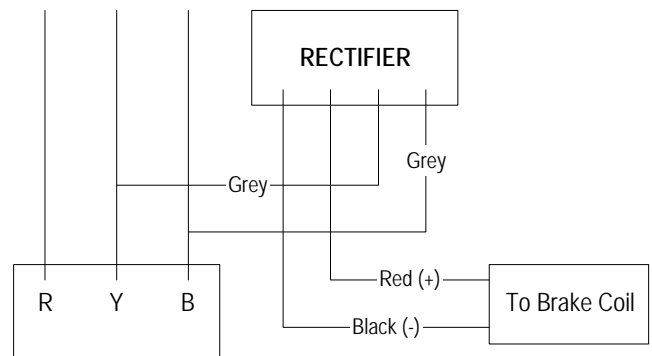
SF-Safety Factor depending on type of prime mover & load.

For electric motor, SF = 2 to 3

For diesel engine, SF = 4 to 5

For compressor, SF = 5 to 6.

## BRAKE COIL CONNECTION DIAGRAM:



Brake coil is energized by DC side switching as shown in the diagram.

## APPLICATIONS:

Hindustan Brake motors can be used in many applications. A few of them are listed below;

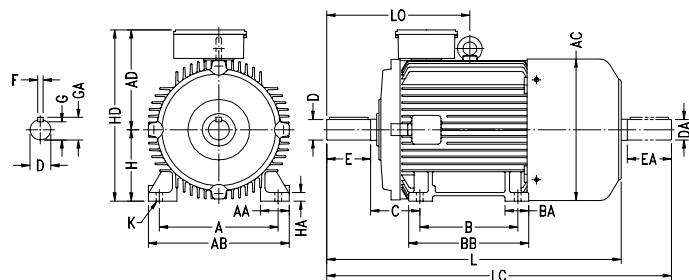
- Machine tools
- Textile machinery
- Cranes & hoists
- Printing Machinery
- Material handling equipments
- Geared motors
- Cable reeling drums
- Rolling mills

## ENQUIRY DETAILS:

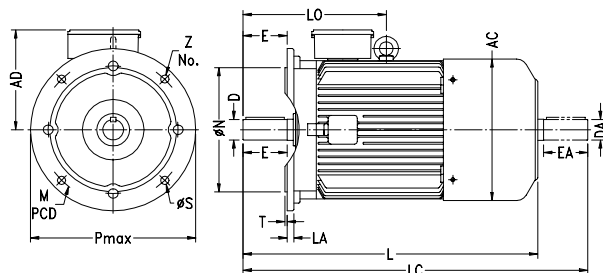
When placing an enquiry, please furnish the following details;

- Application details
- Motor power & speed
- Brake size / required braking torque
- Mounting
- No. of start/stops per hour
- Duty cycle

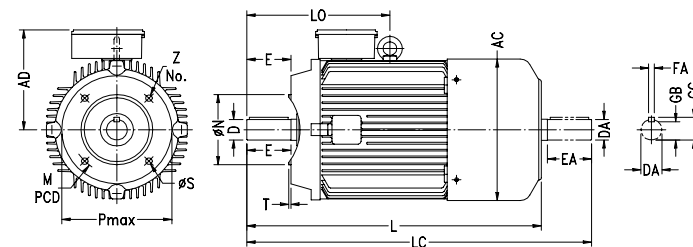
# MECHANICAL DIMENSIONS



FOOT MOUNTING (B3)



FLANGE MOUNTING (B5)



FACE MOUNTING (B14)

All dimensions in mm.

Frame Size	Brake Size	L	LC	LO	AC	AD	D, DA	E, EA	F, FA	GA, GC	G, GB	For foot mounted motors (B3)										For flange mounted motors (B5)							For face mounted motors (B14)						
												A	B	C	H	K	AA	AB	BB	BA	HA	HD	P max	M PCD	øN	øS	Z No.	T	LA	P max	M PCD	øN	øS	Z No.	T
63	K1	270	300	-	124	100	11	23	4	12.5	8.5	100	80	40	63	7	27	122	102	27	7	163	140	115	95	10	4	3	9	90	75	60	M5	4	2.5
71	K1	300	336	-	140	105	14	30	5	16	11	112	90	45	71	7	31	134	112	31	8	176	160	130	110	10	4	3.5	9	105	85	70	M6	4	2.5
80	K2	350	397	-	158	122	19	40	6	21.5	15.5	125	100	50	80	10	32	150	125	32	9	202	200	165	130	12	4	3.5	10	120	100	80	M6	4	3
	K3	360	407	-	158	122	19	40	6	21.5	15.5	125	100	50	80	10	32	150	125	32	9	202	200	165	130	12	4	3.5	10	120	100	80	M6	4	3
90S	K3	395	452	-	180	129	24	50	8	27	20	140	100	56	90	10	33	168	124	32	10	219	200	165	130	12	4	3.5	10	140	115	95	M8	4	3
	K4	395	452	-	180	129	24	50	8	27	20	140	100	56	90	10	33	168	124	32	10	219	200	165	130	12	4	3.5	10	140	115	95	M8	4	3
90L	K4	420	477	-	180	129	24	50	8	27	20	140	125	56	90	10	33	168	149	32	10	219	200	165	130	12	4	3.5	10	140	115	95	M8	4	3
	K5	435	492	-	180	129	24	50	8	27	20	140	125	56	90	10	33	168	149	32	10	219	200	165	130	12	4	3.5	10	140	115	95	M8	4	3
100L	K5	475	542	-	198	152	28	60	8	31	24	160	140	63	100	12	43	200	180	46	14	252	250	215	180	15	4	4	11	160	130	110	M8	4	3.5
112M	K5	490	557	230	222	165	28	60	8	31	24	190	140	70	112	12	49	230	180	47	15	277	250	215	180	15	4	4	11	160	130	110	M8	4	3.5
	K6	500	567	230	222	165	28	60	8	31	24	190	140	70	112	12	49	230	180	47	15	277	250	215	180	15	4	4	11	160	130	110	M8	4	3.5
132S	K6	575	662	257	262	185	38	80	10	41	33	216	140	89	132	12	52	256	180	48	16	317	300	265	230	15	4	4	12	200	165	130	M12	4	3.5
	K7	600	687	257	262	185	38	80	10	41	33	216	140	89	132	12	52	256	180	48	16	317	300	265	230	15	4	4	12	200	165	130	M12	4	3.5
132M	K6	615	702	260	262	185	38	80	10	41	33	216	178	89	132	12	52	256	218	48	16	317	300	265	230	15	4	4	12	200	165	130	M12	4	3.5
	K8	645	732	260	262	185	38	80	10	41	33	216	178	89	132	12	52	256	218	48	16	317	300	265	230	15	4	4	12	200	165	130	M12	4	3.5
160M	K7	690	807	354	311	211	42	110	12	45	37	254	210	108	160	15	64	304	260	60	20	371	350	300	250	19	4	5	13	-	-	-	-	-	-
	K8	705	822	354	311	211	42	110	12	45	37	254	210	108	160	15	64	304	260	60	20	371	350	300	250	19	4	5	13	-	-	-	-	-	-
160L	K8	745	862	354	311	211	42	110	12	45	37	254	254	108	160	15	64	304	304	60	20	371	350	300	250	19	4	5	13	-	-	-	-	-	-
	K9	750	867	354	311	211	42	110	12	45	37	254	254	108	160	15	64	304	304	60	20	371	350	300	250	19	4	5	13	-	-	-	-	-	-

# SELECTION CHART

KW	HP	Motor Frame	Type Designation	Speed (rpm)	Torq. (Nm)	Brake Size	Brake Torque (Nm)	S. F.	KW	HP	Motor Frame	Type Designation	Speed (rpm)	Torq. (Nm)	Brake Size	Brake Torque (Nm)	S. F.
0.09	0.125	71	1HB1 710-06	870	0.99	K1	4.5	4.56	1.5	2.0	100L	1HB1 106-06	935	15.30	K5	35.0	2.29
		71	1HB1 713-08	665	1.29	K1	4.5	3.49			112M	1HB1 123-08	705	20.29	K6	60.0	2.96
0.18	0.25	63	1HB1 630-02	2740	0.63	K1	4.5	7.18	2.2	3.0	90L	1HB1 906-02	2860	7.34	K4	16.0	2.18
		63	1HB1 630-04	1350	1.27	K1	4.5	3.54			100L	1HB1 106-04	1425	14.73	K5	35.0	2.38
		71	1HB1 713-06	900	1.91	K1	4.5	2.36			112M	1HB1 123-06	940	22.32	K6	60.0	2.69
		80	1HB1 800-08	680	2.52	K2	8.0	3.17			132S	1HB1 130-08	710	29.55	K6	60.0	2.03
0.25	0.33	63	1HB1 633-02	2760	0.86	K1	4.5	5.21	3.7	5.0	100L	1HB1 106-02	2880	12.25	K5	35.0	2.86
		71	1HB1 710-04	1370	1.74	K1	4.5	2.59			112M	1HB1 123-04	1430	24.68	K6	60.0	2.43
		71	1HB1 714-06	900	2.65	K1	4.5	1.70			132S	1HB1 130-06	950	37.15	K7	80.0	2.15
		80	1HB1 803-08	685	3.48	K2	8.0	2.30			132M	1HB1 133-08	710	49.71	K8	150.0	3.02
0.37	0.50	71	1HB1 710-02	2800	1.26	K1	4.5	3.57	5.5	7.5	112M	1HB1 123-02	2900	18.09	K5	35.0	1.93
		71	1HB1 713-04	1380	2.56	K1	4.5	1.76			132S	1HB1 130-04	1440	36.43	K7	80.0	2.20
		80	1HB1 800-06	910	3.88	K2	8.0	2.06			132M	1HB1 133-06	955	54.93	K8	150.0	2.73
		90S	1HB1 900-08	690	5.11	K4	16.0	3.13			160M	1HB1 163-08	710	73.89	K8	150.0	2.03
0.55	0.75	71	1HB1 713-02	2820	1.86	K1	4.5	2.42	7.5	10.0	132S	1HB1 130-02	2910	24.58	K6	60.0	2.44
		80	1HB1 800-04	1400	3.75	K2	8.0	2.13			132M	1HB1 133-04	1440	49.68	K8	150.0	3.02
		80	1HB1 803-06	910	5.76	K3	12.0	2.08			160M	1HB1 163-06	960	74.52	K8	150.0	2.01
		90L	1HB1 906-08	690	7.60	K4	16.0	2.10			160L	1HB1 166-08	710	100.76	K9	250.0	2.48
0.75	1.0	80	1HB1 800-02	2840	2.52	K2	8.0	3.18	9.3	12.5	132M	1HB1 133-02	2915	30.43	K6	60.0	1.97
		80	1HB1 803-04	1405	5.09	K3	12.0	2.36			160M	1HB1 163-04	1450	61.18	K8	150.0	2.45
		90S	1HB1 900-06	925	7.73	K4	16.0	2.07			160L	1HB1 166-06	960	92.40	K9	250.0	2.71
		100L	1HB1 106-08	695	10.29	K5	35.0	3.40	11.0	15.0	160M	1HB1 163-02	2915	35.99	K7	80.0	2.22
1.1	1.5	80	1HB1 803-02	2840	3.69	K2	8.0	2.17			160M	1HB1 164-04	1450	72.36	K8	150.0	2.07
		90S	1HB1 900-04	1415	7.41	K4	16.0	2.16			160L	1HB1 167-06	965	108.73	K9	250.0	2.30
		90L	1HB1 906-06	925	11.34	K5	35.0	3.09	15.0	20.0	160M	1HB1 164-02	2920	49.00	K8	150.0	3.06
		100L	1HB1 107-08	695	15.10	K5	35.0	2.32			160L	1HB1 166-04	1450	98.67	K9	250.0	2.53
1.5	2.0	90S	1HB1 900-02	2850	5.02	K3	12.0	2.39	18.5	25.0	160L	1HB1 166-02	2920	60.43	K8	150.0	2.48
		90L	1HB1 906-04	1415	10.11	K5	35.0	3.46									

## NOTE:

- Mechanical manual release arrangement can be provided for all frames as an optional feature. This can be used to release the brake manually with a lever, in case of power failure.
- Selection chart is a general guideline for selection of brake size. If braking torque required is other than that mentioned in selection chart, this can be provided on request.
- Brake motors with safety factor less than 3 are not suitable for crane/hoisting applications.
- Motors upto frame sizes 90L can also be provided in aluminium housings.
- The motor must never be switched "ON" unless brake is energised & the brake should never be de-energised when the motor is "ON".
- Brake motors with higher braking torque can also be provided.
- Motor performance is as per IS: 325.



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