

Brake Motors



*Motoring the
Wheels of Success*

CE

ISO 9001: 2008



20001238 QM08

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 37.0 kW
RPM	: 3000, 1500, 1000, 750
Mounting	: Foot (B3), flange (B5), face (B14) & combinations
Frame	: 63 to 160L
Motor Voltage	: 415V±10% or as required
Frequency	: 50Hz±5%
Braking torque	: Upto 400Nm
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,

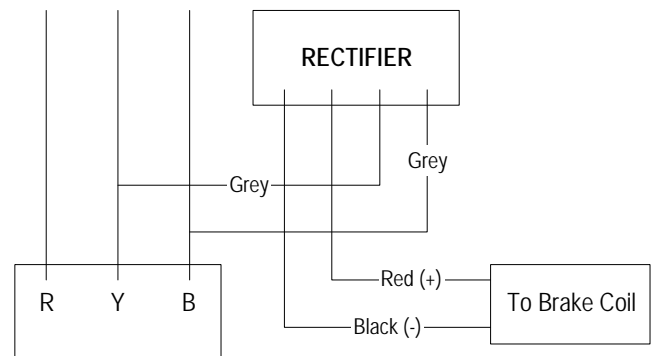
SF-Safety Factor depending on type of prime mover & load.

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;

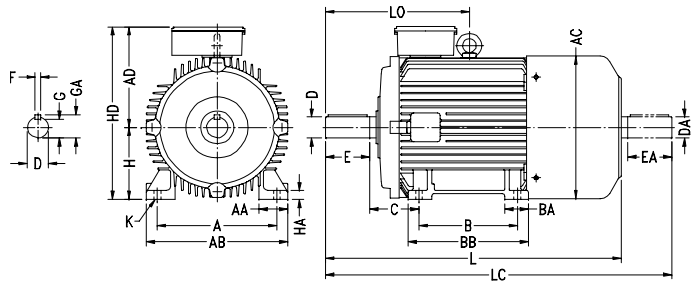
- Machine tools
- Textile machinery
- Cranes & hoists
- Printing Machinery
- Material handling equipments
- Geared motors
- Cable reeling drums
- Rolling mills

ENQUIRY DETAILS:

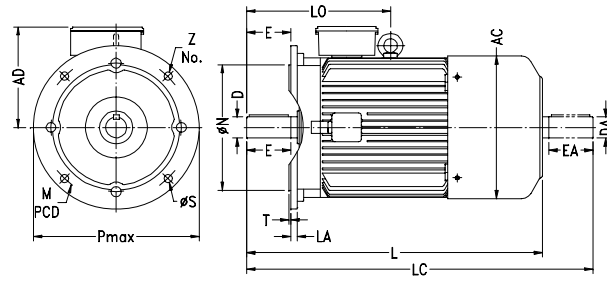
When placing an enquiry, please furnish the following details;

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

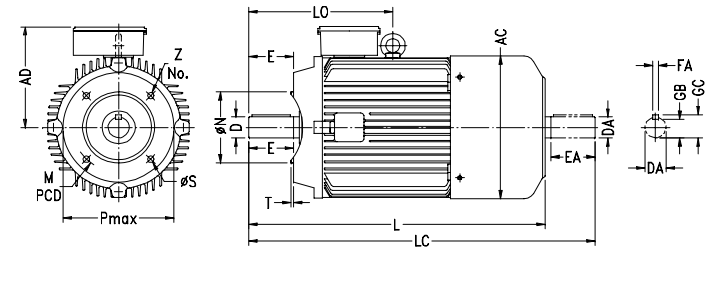
MECHANICAL DIMENSIONS



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	6	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	6	310	346	-	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	
	8																																			
80	8	355	402	-	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	
	10	365	412																																	
90S	12	415	472	-	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	12	440	497																																	100
100L	14	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	14	495	562	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	18	580	667	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	18	618	705	260																																178
160M	18	715	832	354	311	211	42	110	12	45	37	254	210	108	160	15	64	304	260	304	60	20	371	350	300	250	19	4	5	13	-	-	-	-	-	-
160L	18	759	876																																	
180M	20	776	894	381	354	233	48	110	14	51.5	42.5	279	241	121	180	15	65	335	297	101	24	413	350	300	250	19	4	5	13	-	-	-	-	-	-	
	180L	25	833																																	951
200L	25	892	1012	416	395	276	55	110	16	59	49	318	305	133	200	19	84	386	365	74	26	476	400	350	300	19	4	5	15	-	-	-	-	-	-	

SELECTION CHART

KW	HP	Frame	RPM	Type Designation	Motor Torque (Nm)	Brake Size	Brake Torque (Nm)	Safety Factor	KW	HP	Frame	RPM	Type Designation	Motor Torque (Nm)	Brake Size	Brake Torque (Nm)	Safety Factor
2 POLE									4 POLE								
0.18	0.25	63	2780	2HB1 060-02	0.62	06	4	6.45	0.18	0.25	63	1360	2HB1 063-04	1.26	06	4	3.17
0.25	0.33	63	2790	2HB1 063-02	0.86	06	4	4.65	0.25	0.33	71	1370	2HB1 070-04	1.74	06	4	2.30
0.37	0.50	71	2790	2HB1 070-02	1.27	06	4	3.15	0.37	0.50	71	1380	2HB1 073-04	2.56	08	8	3.13
0.55	0.75	71	2815	2HB1 073-02	1.87	06	4	2.14	0.55	0.75	80	1410	2HB1 080-04	3.73	08	8	2.14
0.75	1.0	80	2845	2HB1 080-02	2.52	08	8	3.17	0.75	1.0	80	1415	2HB1 083-04	5.06	10	16	3.16
1.1	1.5	80	2850	2HB1 083-02	3.69	08	8	2.17	1.1	1.5	90S	1415	2HB1 090-04	7.43	12	32	4.31
1.5	2.0	90S	2860	2HB1 090-02	5.01	12	32	6.39	1.5	2.0	90L	1420	2HB1 096-04	10.09	12	32	3.17
2.2	3.0	90L	2880	2HB1 096-02	7.30	12	32	4.38	2.2	3.0	100L	1430	2HB1 106-04	14.70	14	60	4.08
3.7	5.0	100L	2900	2HB1 106-02	12.19	14	60	4.92	3.7	5.0	112M	1440	2HB1 123-04	24.55	14	60	2.44
5.5	7.5	112M	2905	2HB1 123-02	18.09	14	60	3.32	5.5	7.5	132S	1450	2HB1 130-04	36.24	18	150	4.14
7.5	10.0	132S	2910	2HB1 130-02	24.63	18	150	6.09	7.5	10.0	132M	1450	2HB1 133-04	49.42	18	150	3.04
9.3	12.5	132M	2915	2HB1 133-02	30.48	18	150	4.92	9.3	12.5	160M	1455	2HB1 163-04	61.07	18	150	2.46
11.0	15.0	160M	2920	2HB1 163-02	35.99	18	150	4.17	11.0	15.0	160M	1455	2HB1 164-04	72.24	18	150	2.08
15.0	20.0	160M	2925	2HB1 164-02	49.00	18	150	3.06	15.0	20.0	160L	1455	2HB1 166-04	98.50	20	260	2.64
18.5	25.0	160L	2930	2HB1 166-02	60.33	18	150	2.49	18.5	25.0	180M	1460	2HB1 183-04	121.07	20	260	2.15
22.0	30.0	180M	2935	2HB1 183-02	71.62	20	260	3.63	22.0	30.0	180L	1460	2HB1 186-04	143.98	25	400	2.78
30.0	40.0	200L	2950	2HB1 206-02	97.17	25	400	4.12	30.0	40.0	200L	1465	2HB1 206-04	195.66	25	400	2.04
37.0	50.0	200L	2950	2HB1 207-02	119.84	25	400	3.34									
6 POLE									8 POLE								
0.093	0.125	71	870	2HB1 070-06	1.02	06	4	3.92	0.093	0.125	71	665	2HB1 070-08	1.34	06	4	2.99
0.18	0.25	71	900	2HB1 073-06	1.91	06	4	2.09	0.18	0.25	80	685	2HB1 080-08	2.51	08	8	3.19
0.25	0.33	71	905	2HB1 074-06	2.64	08	8	3.03	0.25	0.33	80	690	2HB1 083-08	3.46	08	8	2.31
0.37	0.50	80	915	2HB1 080-06	3.86	08	8	2.07	0.37	0.50	90S	690	2HB1 090-08	5.12	12	32	6.25
0.55	0.75	80	920	2HB1 083-06	5.71	10	16	2.80	0.55	0.75	90L	690	2HB1 096-08	7.62	12	32	4.20
0.75	1.0	90S	925	2HB1 090-06	7.75	12	32	4.13	0.75	1.0	100L	700	2HB1 106-08	10.24	14	60	5.86
1.1	1.5	90L	930	2HB1 096-06	11.30	12	32	2.83	1.1	1.5	100L	700	2HB1 107-08	15.01	14	60	4.00
1.5	2.0	100L	940	2HB1 106-06	15.25	14	60	3.93	1.5	2.0	112M	705	2HB1 123-08	20.33	14	60	2.95
2.2	3.0	112M	945	2HB1 123-06	22.24	14	60	2.70	2.2	3.0	132S	710	2HB1 130-08	29.61	18	150	5.07
3.7	5.0	132S	950	2HB1 130-06	37.21	18	150	4.03	3.7	5.0	132M	710	2HB1 133-08	49.79	18	150	3.01
5.5	7.5	132M	950	2HB1 133-06	55.32	18	150	2.71	5.5	7.5	160M	720	2HB1 163-08	72.99	18	150	2.06
7.5	10.0	160M	960	2HB1 163-06	74.65	18	150	2.01	7.5	10.0	160L	720	2HB1 166-08	99.53	20	260	2.61
9.3	12.5	160L	965	2HB1 166-06	92.08	20	260	2.82	9.3	12.5	180M	725	2HB1 183-08	122.57	20	260	2.12
11.0	15.0	160L	970	2HB1 167-06	108.35	20	260	2.40	11.0	15.0	180L	725	2HB1 186-08	144.97	25	400	2.76
15.0	20.0	180L	970	2HB1 186-06	147.76	25	400	2.71	15.0	20.0	200L	725	2HB1 206-08	197.69	25	400	2.02
18.5	25.0	200L	975	2HB1 206-06	181.30	25	400	2.21									

NOTE:

1. 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.
2. Brake motors with safety factor less than 3 are not suitable for crane/hoisting applications.
3. Motors up to frame sizes 112M can also be provided in aluminium housings.
4. The motor must never be switched "ON" unless brake is energised & the brake should never be de-energised when the motor is "ON".
5. Brake motors with higher braking torque can also be provided.
6. Motor performance is as per IS: 325.



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