

Technical Specifications

(DC) DIRECT CURRENT MOTORS - SHUNT / SERIES / COMPOUND DC MOTORS

DC motors requires a basic understanding of the design and operating characteristics of the various types available: the series motor, the shunt motor, and the compound motor. Each type has unique operating characteristics and applications.

DC motors requires a basic understanding of the design and operating characteristics of the various types available: the series motor, the shunt motor, and the compound motor. Each type has unique operating characteristics and applications.

DESIGN	Our Designs, parts & Dimensions are as per I.S.I Standards. Latest Innova Changes are made with times and also as per Customer demands.
FRAME & ENCLOSURE	Our Steel made Frames ensure greater strength & standard type production strong fan. In case of excess heat due to low speeds, Blower Mounting are necessary Cooling.
WINDINGS	In the standard version, all motors have separate excitation, the field going series winding can be supplied on request. The Shunt Coils are wound in such a way with Main Pole that, solid inter withstand any type of vibration. Coils made of copper conductors are insulated with high grade varnish ensuring resistance against acids, oil In higher versions Thermostatic receivers are placed between the coils to prevent over heating (130 degrees of celsius). These receivers have to be connected to stop circuit in order to resist 3A. 250V.
BEARINGS	All bearings and their internal clearances have been especially selected based on thermal stresses and speed range consistent with ample bearing life.
COMMUTATORS & COMMUTATION	Manufactured Cylindrically, with hard-drawn copper and V-Groove segments insulated by a mica sheet in between. Complete commutator is baked for 1 hour Almost sparkless commutation with converter connection even in the over compole field, magnetic decoupling of the main and compole field circuit ensures good commutation characteristics.
BRUSH BOX & BRUSHES	All motors utilize top-cushioned brushes for low-vibration operation. Brush The constant pressured springs do not need adjustment. Brush Gear is made of strong, special design- but with simple construction to rotate easily at low speeds with noise-free service. Provision for easy access to brushes is provided. Brushes are of standard grades, ensuring sparkless commutation.
ARMATURE	Armatures are built of high quality Standard Steel Laminations, Securely inter clamped together under high pressure ensuring low heating losses. Coils are insulated per insulation class 'B'. Armature are Dynamically Balanced to precise grade by a balancing machine to ensure low vibration operations. Resin Binding material is used for the armature.

	in all respects.
TESTS & TESTING	<p>Each motor is given routine tests to determine that it is free from electrical or mechanical provide assurance that it meets design specifications.</p> <p>All products are thoroughly & vigorously tested on special Heavy Duty Test Bench and Special rated Motors & Generators are tested on Full Load for more than Five Hours (HE TEST) for temperature rises and the same are not permitted to exceed values prescribed All windings are put to insulation test with lowest rate of 1.5 to 2 KV.</p>

DESIGN PARAMETERS	STANDARD	OPTIONAL
Armature Voltage	440 V	Max. 470 V upto frame 132, Max. upto 600 V for frame 160
Field Voltage	220 V	Max. upto 500 V
Excitation Type	Shunt	Series
Insulation	Class 'F'	Class 'H'
Type of Mounting	IM B3	IMB35, IMV1, IMV3
Degree of Protection	IP 23	IP 54 with IC 37/IP 55
Arrangement of T. Box	RSH from DE side	Any other arrangement
Tacho mtg. Provision	DTG 4000	Any other
Type of mounting of Blower	Top on NDE side	Any other Mounting
Air Flow Direction	From NDE to DE	From DE to NDE
Air Filter	Nil	Dry type filter
Air Flow Switch	-	Ventcaptor air flow monitor
Bearings	Ball Bearings	With regreasing facility. For high cantilever forces
Shaft End	With keyway, Balancing with full Key	

Space Heater	-	230 V, 1 PH
Thermister	-	For trip. for alarm and trip
Brush Length Limit Value	-	Micro switch, potential free signal
Paint Finish	-	Primer only, any other shade

FORCED COOLING DETAILS

FRAME	COOLING AIR FLOW IN m ³ /sec	REQUIRED PRESSURE HEAD IN miliBar
100U & 100A	0.045	3
100S TO 100L	0.06	5
112S & 112M	0.07	5
112L	0.08	6.5
132S TO 132L	0.09	5
160 TO 160L	0.2	13
180	0.3	13.5
200	0.35	12.5
225	0.5	16
250	0.6	15
280	0.75	16

The noise levels of the motors have been calculated in accordance with DIN EN 21 680 and are well below the values permitted by EN 60034 - 9.

They have been achieved both by means of design measures and by optimising the magnetic circuit and the seperately driven

BRUSH LIFETIME

FRAME	TIME IN Hrs.
Upto 160	15000
180	14000
200	12500
225	11000
250	11000
280	11000

BRUSH MATERIAL COMMUTATION :
Practically sparkless commutation with converter feeding, even under overload conditions is achieved. As a result, the brushes have an extremely long life.

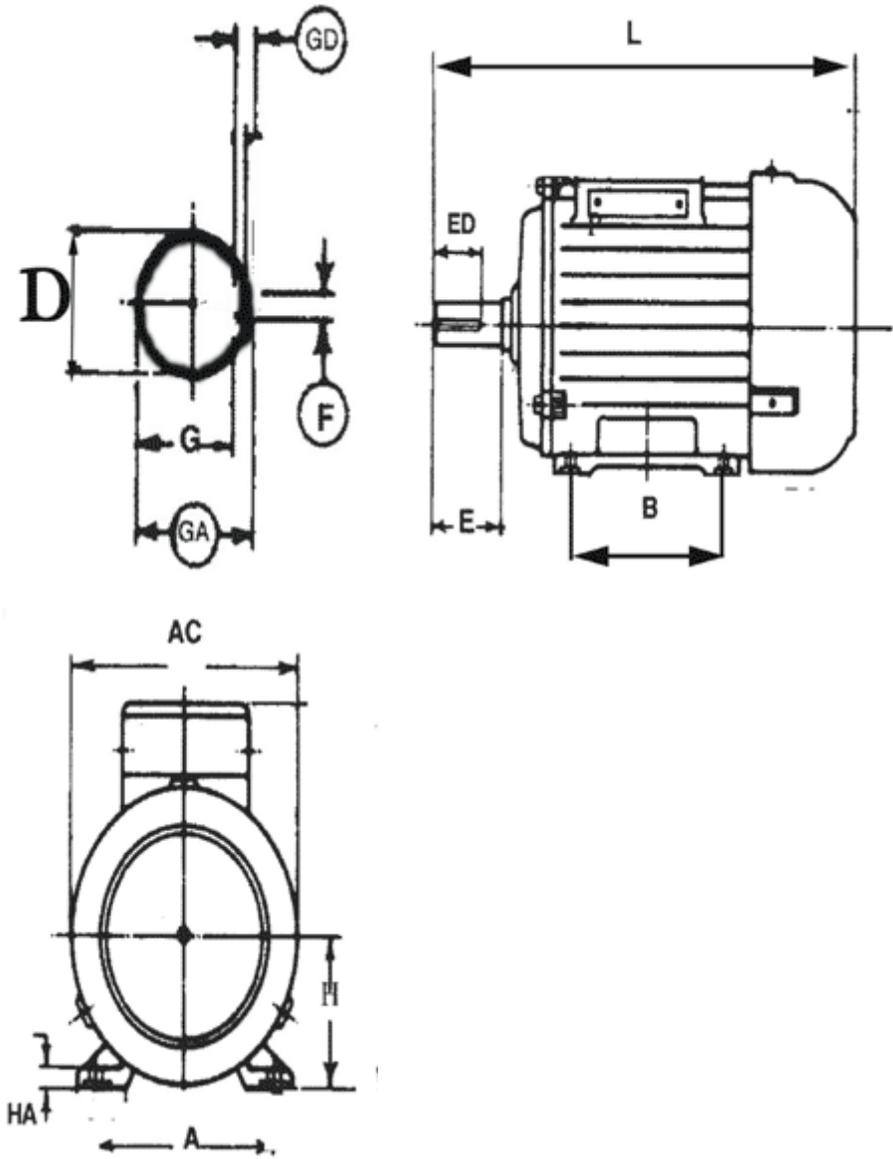
NOISE LEVEL

FRAME	TIME IN Hrs.
100	65
112	65
132	68
160	71
180	73

fans

The blowers of D.C. Motors have three phase motors with wide range of winding and supply voltages. The blower motors are selected strictly in accordance with the air quantity required and ensures cool running of motors under the specified operating loads / overloads. The terminal box of blower motors are easily assessible.

200	74
225	77
250	79
280	81



FRAME	H.P./K.W.	ARMATURE VOLT	EXE. VOLT	AMPS	FREQUENCY	RPM	A	B	C	D	E	F	E.D.	H	K	L	AC	C
80	1/4	220	220	1.4	50 Hz	1500	125	100	60	16	40	5	30	80	10	309	148	
120	1/2	220	220	2.9	50 Hz	1500	160	110	70	22	50	6	40	125	10	320	220	

132S	1	220/440	220	4.5/2.2	50 Hz	1500	216	140	90	22	50	6	40	132	12	415	260
132S	2	220/440	220	8.3/4.1	50 Hz	1500	216	140	90	22	50	6	40	132	12	415	260
132L	3	220/440	220	12.4/6.2	50 Hz	1500	216	170	83	28	70	8	60	132	16	570	270
132M	5	220/440	220	20/10	50 Hz	1500	250	172	83	28	70	8	60	132	16	570	270
160S	7.5	220/440	220	30/15	50 Hz	1500	255	218	110	38	80	10	60	160	16	564	312
160S	10	220/440	220	40/20	50 Hz	1500	255	218	110	38	80	10	60	160	16	577	312
160S	15	440	220	30	50 Hz	1500	255	255	110	38	80	10	60	160	16	632	312
225S	20	440	220	40	50 Hz	1500	356	286	110	48	110	10	80	225	18	710	312
225S	25	440	220	50	50 Hz	1500	356	286	150	48	110	14	80	225	18	710	435
225S	30	440	220	60	50 Hz	1500	356	286	150	48	110	14	80	225	18	710	435