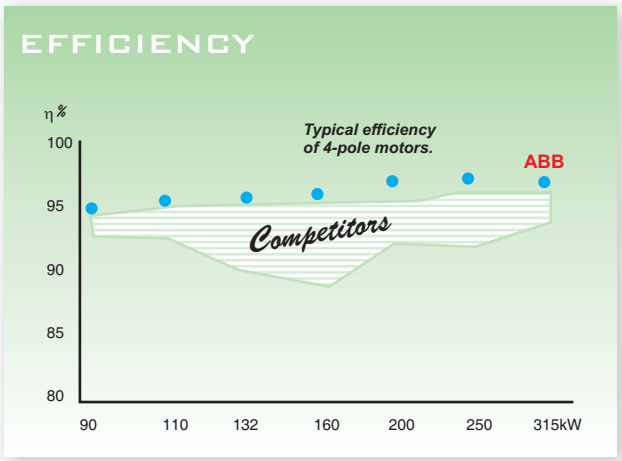
The 'M2000' Series

M2000 Motors have been engineered for the twin objective of high power to weight ratio and efficiency at a designed ambient of 50°C. The performance of 'M2BA' is well ahead of relevant IEC & IS standards resulting in lower energy consumption, reduced operational costs and ultimately faster returns on investment. 'M2BA' Motors have a wide range of applications including windmill.



Heavy duty design

The electrical and mechanical design of 'M2BA' Motors offer high performance values in all the mounting arrangements, protection class and in all applications. 'M2BA' Motors have withstood the test of time and are established for reliability in stringent operating conditions like thermal power plants world wide.

Installation Flexibility

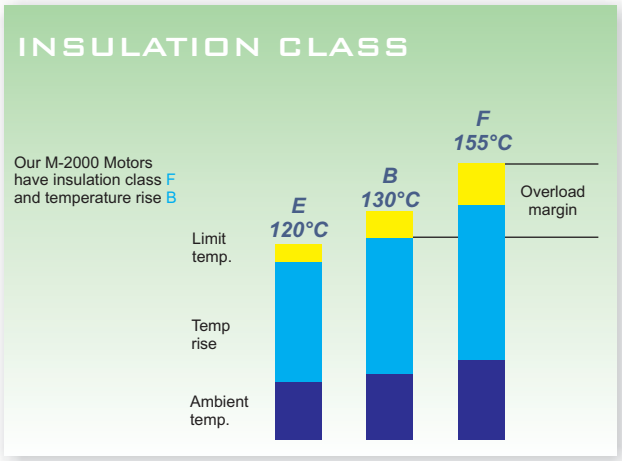
A dual mounting hole is provided for installation flexibility i.e. same housing length can be used for varied mounting applications.

IP55

'M2BA' Motors are protected against the ingress of water and dust. A high degree of protection IP 55 is a standard feature of 'M2BA' Motors. Higher degrees of protection (e.g. IP 56) can also be made available on request.

Insulation scheme

'M2BA' Motors employ a unique polyamide based Class F insulation scheme rated for 155°C with temperature rise limited to Class B. The advanced insulation the 'M2000' series gives high electrical and mechanical stability. This provides a generous thermal overload margin bringing greater reliability and improves life of the motor. This can be used for such conditions as increased load, high ambient temperature and variations in voltage and frequency.



User friendly design

'M2BA' Motors have a user friendly design and less number of components leading to faster and trouble-free dismantling and assembly.

Enclosure

'M2BA' Motors use rigid cast iron / fabricated housings and are provided with integrated deeper longitudinal ribs designed to give maximum cooling surface area. Integral feet ensure that the frame is rigid and vibration resistants. These frames are treated for high corrosion resistance. Effective and robust corrosion protection means that the motor can be used in all environments.

Winding

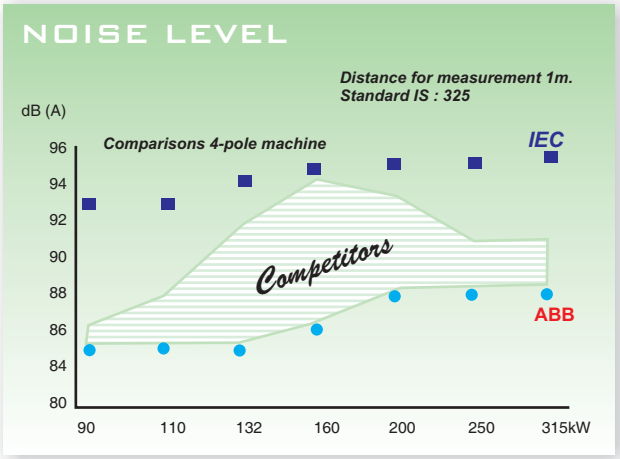
Stator winding uses high quality enamelled wires conforming to IS:13730. The windings are reinforced in the slots with slot wedges and on the overhang with fibre glass tape. To ensure long life, the stator is impregnated with a solventless resin. Gaps between individual conductors are effectively filled with this material resulting in good thermal conductivity and superior mechanical strength. All windings are tropicalised with epoxy gelcoat and made Insensitive to moisture and micro-organisms.

Ventilation

Ventilation circuit of 'M2BA' has been optimally designed based on aerodynamic and acoustic considerations. Special design of fan blades and segmental groupings of fins in horizontal and vertical planes offer the most efficient air flow and minimum air borne noise while incurring least windage losses.

Low noise levels

'M2BA' Motors are the result of special efforts made to minimize electromagnetic, airborne and structural noise. These motors are designed for quieter operation even under abnormal load conditions.



Terminal box

The spacious terminal box makes the motor quick and easy to connect. The terminal box can be rotated so that cables can be connected from the right or the left. Further, positioning of the terminal box assembly on the side or the top can also be made available on request. Flexible orientation of the terminal box with liberal sizing for easy access are design inbuilt.

Bearings

'M2BA' Motors use appropriately selected ball bearings with high temperature grease to give increased life and reliability. For high radial loads and belt driven applications roller bearings are provided. 'M2BA' Motors are provided with regreasing facility.

Voltage ranges for extra versatility

The motors are matched to the standard voltages applicable in India i.e. 415V. However, motors for voltages ranging from 220V to 660V can also be provided on request.

Frequency converter drive

'M2BA' Motors are backed by the world class technology to incorporate inherent features in the design to take care of harmonics in frequency converter and yet offer the best performance. Special attention is given to mechanical features of 'M2BA' for reliable operation at extremes of speed range in variable speed applications.

TEFC, S1 Duty
415 ± 10% V, 50 ± 5%Hz.
Combined Variation of ±10%
IP 55, IC 0141

Insulation Class F
Ambient 50°C (Temp. rise class B 70°C)

2 Pole

Output kW	Output HP	Frame Size	Rated Speed (rpm)	I_n (A)	Efficiency % FL	Efficiency % 3/4FL	Efficiency % 1/2FL	Power Factor FL	Power Factor 3/4FL	Power Factor 1/2FL	I_s/I_n	Torque T_s/T_n	Torque T_{max}/T_n	T_n Nm	T_{hot} (Sec)	T_{cold} (Sec)	Weight Kg	GD^2 Kgm^2
110	150	M2BA315SMA2	2980	185	95.0	95.0	94.0	0.87	0.83	0.75	7.0	1.1	3.0	353	45	91	875	5.0
132	180	M2BA315SMB2	2980	217	95.3	95.3	94.3	0.89	0.86	0.80	7.0	1.2	3.0	423	40	83	915	5.8
160	220	M2BA315MLA2	2980	256	95.6	95.6	94.6	0.90	0.87	0.81	7.0	1.4	2.7	513	50	98	1125	7.8
200	270	M2BA315MLC2	2979	318	96.0	96.0	95.0	0.90	0.87	0.81	7.0	1.5	3.0	641	50	102	1275	10.2
250	340	M2BA355SMA2	2978	405	96.0	96.0	95.0	0.90	0.87	0.81	7.0	1.5	3.0	802	60	115	1645	17.0
315	425	M2BA355MLA2	2978	500	96.1	96.1	95.1	0.91	0.88	0.82	7.0	1.5	3.0	1010	70	138	1895	23.0

4 Pole

Output kW	Output HP	Frame Size	Rated Speed (rpm)	I_n (A)	Efficiency % FL	Efficiency % 3/4FL	Efficiency % 1/2FL	Power Factor FL	Power Factor 3/4FL	Power Factor 1/2FL	I_s/I_n	Torque T_s/T_n	Torque T_{max}/T_n	T_n Nm	T_{hot} (Sec)	T_{cold} (Sec)	Weight Kg	GD^2 Kgm^2
110	150	M2BA315SMA4	1485	190	95.2	95.2	94.2	0.86	0.82	0.74	6.0	2.0	2.7	707	34	70	905	9.5
132	180	M2BA315SMB4	1485	227	95.5	95.5	94.5	0.87	0.83	0.75	6.0	2.0	2.7	849	31	63	960	10.6
160	220	M2BA315MLA4	1485	267	95.8	95.8	94.8	0.87	0.83	0.75	6.0	2.0	2.7	1029	34	70	1110	13.5
187	250	M2BA315MLB4	1485	307	95.8	95.8	94.8	0.87	0.83	0.75	6.0	2.0	2.7	1202	32	65	1150	15.6
200	270	M2BA315MLC4	1485	329	96.0	96.0	95.0	0.88	0.85	0.79	6.0	2.2	2.8	1286	36	75	1260	17.0
250	340	M2BA355SMA4	1486	416	96.1	96.1	95.1	0.87	0.83	0.75	6.0	2.0	2.6	1607	60	110	1620	26.5
315	425	M2BA355MLA4	1486	530	96.3	96.3	95.3	0.87	0.82	0.73	6.5	2.0	3.0	2024	70	120	1870	33.0
355	475	M2BA355MLB4	1487	585	96.5	96.5	95.5	0.87	0.82	0.73	6.5	1.5	2.7	2280	70	120	2110	40.0

6 Pole

Output kW	Output HP	Frame Size	Rated Speed (rpm)	I_n (A)	Efficiency % FL	Efficiency % 3/4FL	Efficiency % 1/2FL	Power Factor FL	Power Factor 3/4FL	Power Factor 1/2FL	I_s/I_n	Torque T_s/T_n	Torque T_{max}/T_n	T_n Nm	T_{hot} (Sec)	T_{cold} (Sec)	Weight Kg	GD^2 Kgm^2
75	100	M2BA315SMA6	986	132	94.2	94.2	92.2	0.85	0.81	0.72	6.0	2.0	2.5	726	27	55	860	14.2
90	120	M2BA315SMB6	988	158	94.5	94.5	92.5	0.84	0.79	0.70	6.5	2.3	2.7	870	21	43	930	16.7
110	150	M2BA315SMC6	988	193	94.6	94.6	92.6	0.84	0.79	0.70	6.5	2.3	2.7	1063	26	54	1005	20.0
132	180	M2BA315MLC6	988	228	94.9	94.9	92.9	0.85	0.80	0.71	6.5	2.3	2.7	1276	24	50	1240	28.2
160	220	M2BA355SMA6	989	275	95.2	95.2	93.2	0.85	0.80	0.71	6.5	1.8	2.6	1545	58	120	1595	42.0
200	270	M2BA355SMB6	990	343	95.5	95.5	93.5	0.85	0.80	0.71	6.5	1.9	2.7	1929	60	115	1800	50.5
250	340	M2BA355MLA6	988	432	95.6	95.6	93.6	0.85	0.80	0.71	6.5	1.9	2.7	2416	52	107	1940	55.0
315	425	M2BA355MLB6	988	550	95.6	95.6	93.6	0.82	0.77	0.68	6.5	1.9	2.7	3044	52	107	2040	60.24

8 Pole

Output kW	Output HP	Frame Size	Rated Speed (rpm)	I_n (A)	Efficiency % FL	Efficiency % 3/4FL	Efficiency % 1/2FL	Power Factor FL	Power Factor 3/4FL	Power Factor 1/2FL	I_s/I_n	Torque T_s/T_n	Torque T_{max}/T_n	T_n Nm	T_{hot} (Sec)	T_{cold} (Sec)	Weight Kg	GD^2 Kgm^2
55	75	M2BA315SMA8	740	101	93.5	93.5	91.5	0.81	0.73	0.61	6.0	1.7	2.5	710	29	59	830	13.0
75	100	M2BA315SMB8	740	135	94.0	94.0	92.0	0.82	0.75	0.65	6.0	1.8	2.5	968	30	61	975	18.8
90	120	M2BA315SMC8	740	162	94.5	94.5	92.5	0.82	0.75	0.65	6.0	1.9	2.5	1161	30	61	1055	22.0
110	150	M2BA315MLB8	740	197	94.6	94.6	92.6	0.82	0.75	0.65	6.0	1.8	2.5	1420	24	49	1125	23.6
132	180	M2BA355SMA8	740	239	94.7	94.7	92.7	0.81	0.73	0.61	6.0	1.5	2.3	1704	32	66	1590	42.0
160	220	M2BA355MLA8	740	289	95.0	95.0	93.0	0.80	0.72	0.60	6.0	1.8	2.5	2065	40	82	1945	55.0
200	270	M2BA355MLB8	740	385	95.3	95.3	93.3	0.76	0.68	0.54	6.0	1.7	2.6	2581	70	150	2090	64.2
250	340	M2BA355MLB8K	740	470	95.5	95.5	93.5	0.77	0.69	0.57	6.0	1.5	3.0	3226	70	150	2100	66.0

*** On request, motors of higher kw can be offered.**

I_n = Nominal or rated current
T_n = Nominal or rated torque in Nm
T_{max} = Maximum torque
T_{cold} = Cold withstand time
I_s = Starting current
T_s = Starting torque
T_{hot} = Hot withstand time

Note : 1. All performance figures are subject to IS tolerances.
2. Max. load GD^2 has been calculated assuming load torque is proportional to square of speed.

Note : Owing to continuous upgradation of our design, performance parameters and dimensions are subject to change without prior notice.