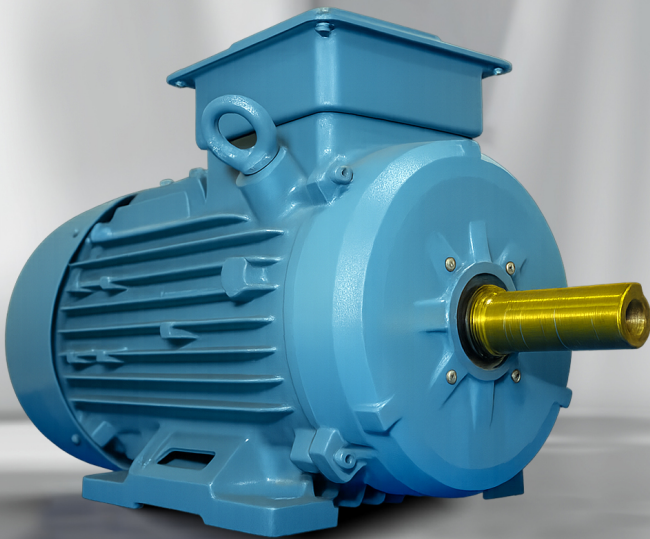


PRODUCT NOTE

IE5 Ultra-Premium Efficiency Motors

Made in India. Engineered for unmatched efficiency.



ABB's IE5 Efficiency Motors — Made in India, powered by advanced induction technology. Designed to the highest efficiency standards, these reliable motors deliver maximum energy savings ensuring lower total cost of ownership for various industrial applications.



Ultra-premium efficiency - Smarter Pay back
Achieve up to **IE5 efficiency levels**, significantly reducing energy consumption and carbon emissions. IE5 motors have approximately 40% lower energy losses compared to IE3 motors, resulting in substantial savings in energy costs. This also results in attractive pay back periods.



Outstanding reliability for continuous operation
ABB's IE5 motors are engineered to endure the harsh industrial conditions, ensuring continuous operation and minimizing downtime. Manufactured in compliance to stringent & global quality standards, these motors have unmatched performance to meet the application demands.



Tailored solutions for your unique needs
ABB's IE5 motors are designed with a modular concept, allowing for easy customization to match specific application needs. The modular construction enables the motors to be adapted to suit a broad spectrum of needs.

The technology that one can count on
ABB's IE5 Motors are based on magnet free, Induction technology that are currently being used in Industries, and are known for their reliability & Flexibility. These motors are suitable to operate in any industrial applications. They can be run on DOL and do not necessarily need variable frequency drives for operation, making it convenient to adapt. When run with VFD these motors can contribute to additional energy savings.

Technical information	
Output	7.5 kW - 55kW; 2,4 and 6 poles
Motor type	M2BAX
Shaft heights	160-250*
Efficiency class	IE5 as per IEC 60034-30-1
Voltage	230 - 690 V
Frequency	50/ 60 Hz
Supply	DOL and VSD
Mounting	B3, B5, B35
Protection	IP55 (IP56/65/66 on request)

*ABB India offers extensive range of IE5 motors based on Induction technology from 160 to 450 frames, covering the output of 7.5kW to 1000kW.

Technical data

M2BAX General performance motor

IP55 - IC 411 - Insulation class F, Ambient 50 °C (Temp. rise class B, 70 °C), S1 Duty
IE5 efficiency class according to IEC 60034-30-1, 2014,
415V ± 10%, 50 ± 5% Hz, Combined Variation of 10%

2 Pole Motors

Output (kW)	Frame Size	Speed r/min	Efficiency			Power factor cosphi	Current		Torque			Moment of inertia (J=1/4GD ²) (kgm ²)	Weight (foot mounted) (Kg)	Bearing DE	Bearing NDE
			Full load 100%	3/4 load 75%	1/2 load 50%		Current I _l (A)	Starting current I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n				
9.3	M2BAX 160MLJ 2	2968	93.7	93.9	93.2	0.89	16.00	8.1	30	2.3	3.6	0.06508	137	6309-2Z/C3	6209-2Z/C3
11	M2BAX 160MLA 2	2968	94	94	93.2	0.89	18.31	8.1	35.4	2.3	3.6	0.0705	145	6309-2Z/C3	6209-2Z/C3
15	M2BAX 160MLB 2	2968	94.5	94.5	93.8	0.89	24.81	9.2	48.3	2.6	3.7	0.0911	169	6309-2Z/C3	6209-2Z/C3
18.5	M2BAX 160MLC 2	2960	94.9	95.2	94.8	0.9	30.13	7.9	59.6	2.2	3.3	0.11	195	6309-2Z/C3	6209-2Z/C3
22	M2BAX 180MLA 2	2970	95.1	95.2	94.5	0.88	37.20	8.9	70.6	2.8	3.5	0.148	243	6310-2Z/C3	6210-2Z/C3
30	M2BAX 200MLA 2	2976	95.5	95.4	94.7	0.88	49.63	7.3	96.3	2.1	3.2	0.224	304	6312-2Z/C3	6212-2Z/C3
37	M2BAX 200MLB 2	2978	95.8	95.8	95.2	0.88	61.07	7.3	119	2.3	3.4	0.269	342	6312-2Z/C3	6212-2Z/C3
45	M2BAX 225SMA 2	2984	96	96	95.4	0.92	70.87	8.4	144	2.2	4.3	0.546	454	6313-2Z/C3	6213-2Z/C3
55	M2BAX 250SMA 2	2979	96.2	96.2	95.6	0.9	88.36	9.5	176	3.2	5	1.11	555	6315-2Z/C3	6215-2Z/C3

4 Pole Motors

Output (kW)	Frame Size	Speed r/min	Efficiency			Power factor cosphi	Current		Torque			Moment of inertia (J=1/4GD ²) (kgm ²)	Weight (foot mounted) (Kg)	Bearing DE	Bearing NDE
			Full load 100%	3/4 load 75%	1/2 load 50%		Current I _l (A)	Starting current I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n				
9.3	M2BAX 160MLJ 4	1484	94.3	94.5	93.9	0.83	16.50	8.8	59.8	2.5	3.8	0.1041	151	6309-2Z/C3	6209-2Z/C3
11	M2BAX 160MLA 4	1484	94.6	94.7	93.9	0.83	19.50	8.8	70.8	2.5	3.8	0.113	160	6309-2Z/C3	6209-2Z/C3
15	M2BAX 160MLB 4	1485	95.1	95.2	94.6	0.83	26.46	8.9	96.4	2.6	3.8	0.139	189	6309-2Z/C3	6209-2Z/C3
18.5	M2BAX 180MLA 4	1485	95.3	95.4	94.7	0.82	32.96	7.4	119	2.3	2.7	0.235	222	6310-2Z/C3	6210-2Z/C3
22	M2BAX 180MLB 4	1485	95.5	95.6	95	0.82	39.10	7.3	141	2.2	2.6	0.274	251	6310-2Z/C3	6210-2Z/C3
30	M2BAX 200MLA 4	1485	95.9	95.9	95.3	0.82	54.00	7.3	192	2.3	3.5	0.533	331	6312-2Z/C3	6212-2Z/C3
37	M2BAX 225SMA 4	1492	96.1	96.1	95.5	0.83	64.55	7.2	237	2	2.8	0.771	414	6313-2Z/C3	6213-2Z/C3
45	M2BAX 225SMB 4	1493	96.3	96.2	95.5	0.82	79.30	8.1	288	2.2	3.2	0.916	459	6313-2Z/C3	6213-2Z/C3
55	M2BAX 250SMA 4	1491	96.5	96.4	95.7	0.83	95.23	8.4	352	2.3	3.5	0.961	508	6315-2Z/C3	6215-2Z/C3

6 Pole Motors

Output (kW)	Frame Size	Speed r/min	Efficiency			Power factor cosphi	Current		Torque			Moment of inertia (J=1/4GD ²) (kgm ²)	Weight (foot mounted) (Kg)	Bearing DE	Bearing NDE
			Full load 100%	3/4 load 75%	1/2 load 50%		Current I _l (A)	Starting current I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n				
7.5	M2BAX 160MLA 6	991	92.9	92.9	91.9	0.72	15.57	7.5	72.2	1.8	3.2	0.149	145	6309-2Z/C3	6209-2Z/C3
9.3	M2BAX 160MLJ 6	989	93.4	93.6	92.4	0.71	18.50	8.3	89.8	1.8	3.5	0.195	177	6309-2Z/C3	6209-2Z/C3
11	M2BAX 160MLB 6	989	93.7	93.6	92.5	0.71	22.98	8.3	106	1.8	3.5	0.208	185	6309-2Z/C3	6209-2Z/C3
15	M2BAX 180MLA 6	989	94.3	94.4	93.8	0.76	28.50	7.4	145	2.2	2.9	0.305	221	6310-2Z/C3	6210-2Z/C3
18.5	M2BAX 200MLA 6	991	94.6	94.8	94.2	0.82	33.15	8	178	2.1	3.6	0.463	282	6312-2Z/C3	6212-2Z/C3
22	M2BAX 200MLB 6	992	94.9	95	94.4	0.81	39.83	8.8	212	2.5	4	0.56	317	6312-2Z/C3	6212-2Z/C3
30	M2BAX 225SMA 6	993	95.3	95.3	94.5	0.8	54.76	8.9	288	2.3	3.8	0.921	438	6313-2Z/C3	6213-2Z/C3
37	M2BAX 250SMA 6	994	95.6	95.7	95	0.83	64.83	7.2	356	2	2.6	1.46	561	6315-2Z/C3	6215-2Z/C3

I_n = Nominal or rated current
T_n = Nominal or rated torque in Nm
T_{max} = Maximum torque

I_s = Starting current
T_s = Starting torque

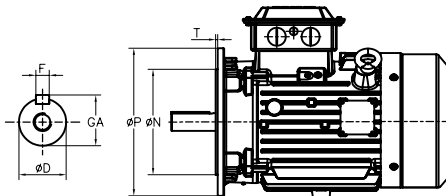
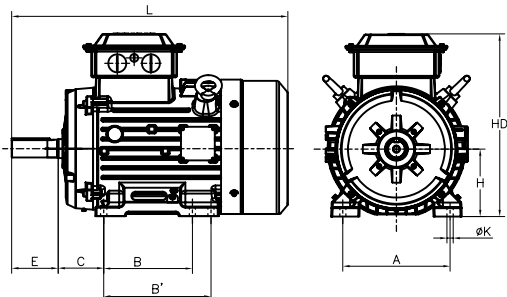
Note:

- All performance figures are subject to IEC tolerances.
- Max. load GD² has been calculated assuming load torque is proportional to square of speed.

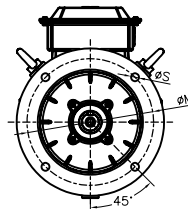
Dimensions

IE5 General performance cast iron Induction motors

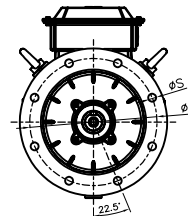
Size 160-250



Size 160-200



Size 225-250



Motor size	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD	K	H	M	N	P	S	T
	2	4-6	2	4-6	2	4-6	2	4-6	2	4-8												
160ML	42	42	45	45	12	12	110	110	788 ¹⁾	788 ²⁾	254	210	254	108	433	14.5	160	300	250	350	19	5
180ML	48	48	51.5	51.5	14	14	110	110	803 ²⁾	803 ²⁾	279	241	279	121	471	14.5	180	300	250	350	19	5
200ML	55	55	59	59	16	16	110	110	883	883	318	267	305	133	549	18.5	200	350	300	400	19	5
225SM	55	60	59	64	16	18	110	140	976	1006	356	286	311	149	592	18.5	225	400	350	450	19	5
250SM	60	65	64	69	18	18	140	140	1029	1029	406	311	349	168	628	24	250	500	450	550	19	5

1) L=728 for J2, A2, B2, J4, A4, A6

2) L=758 for A4, A6

Tolerances

A, B	± 0.8
C, CA	± 0.8
D	ISO k6 < ø 50 mm ISO m6 > ø 50 mm
F	ISO h9
H	+ 0 -1
N	ISO js6

The tables give the main dimensions in mm.

<https://www.abb.com/global/en/areas/motion/motors-generators/low-voltage-motors/iec-low-voltage-motors/general-performance-motors>

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