
Low Voltage

General Performance

High efficiency aluminum motors

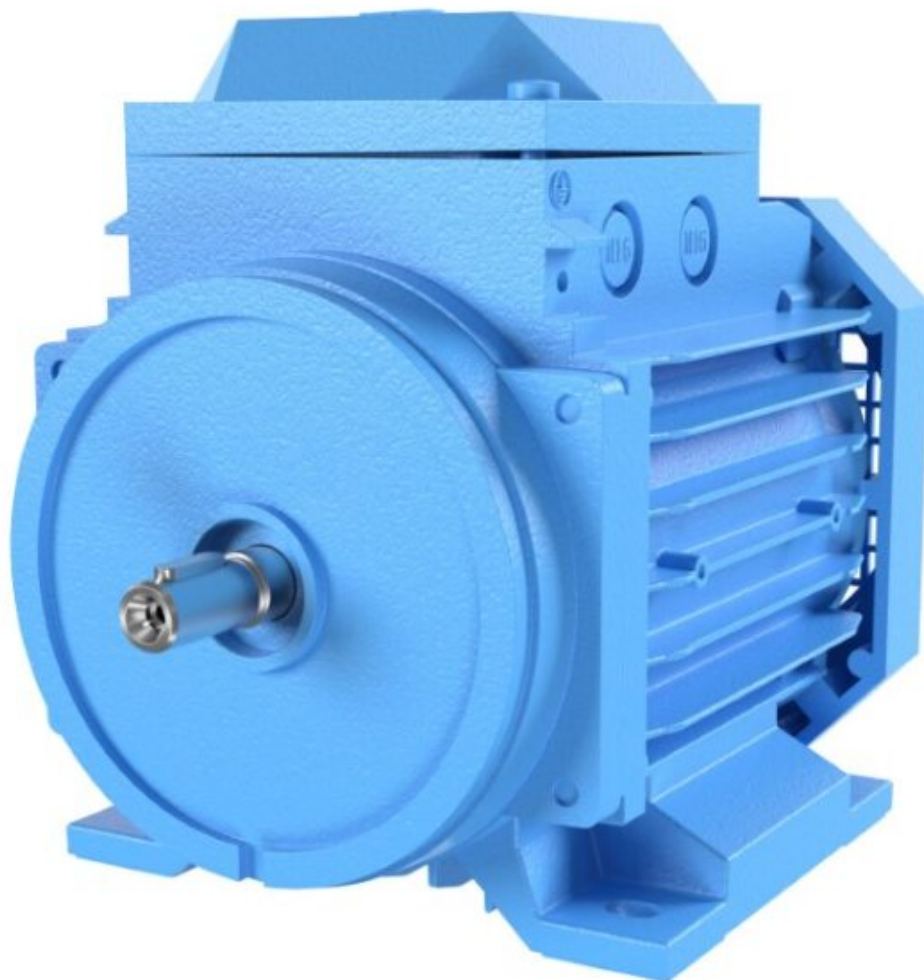
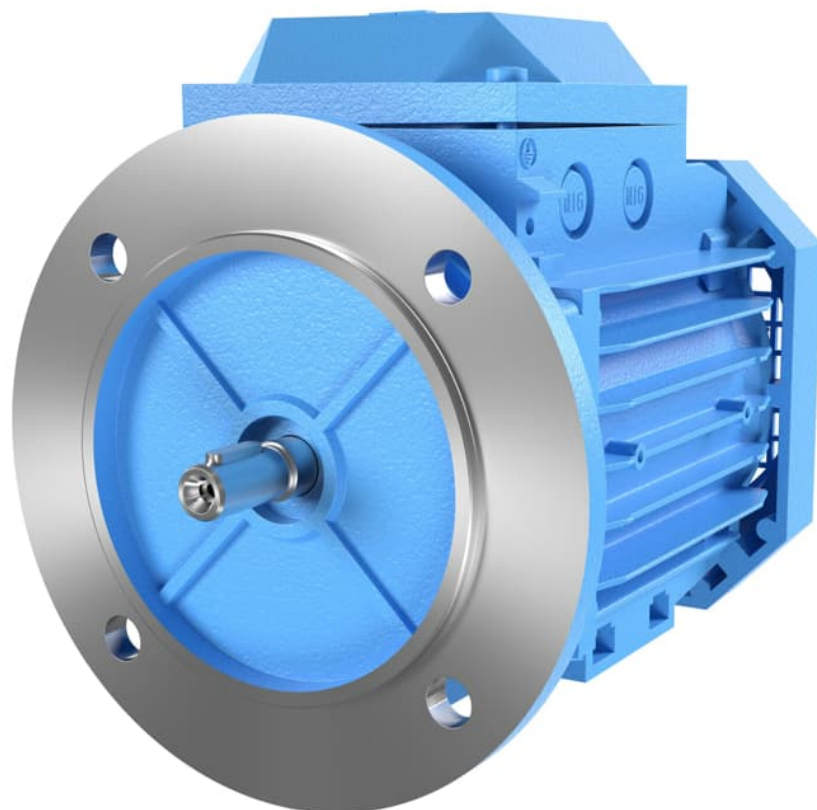


ABB offers a comprehensive range of reliable and high efficiency motors. ABB's general performance IE2, IE3 efficiency motors are best suited for applications where simplicity and off-the-shelf availability are paramount.

General performance IE2, IE3 high efficiency aluminum motors Sizes 71 to 90

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IEC Low Voltage Aluminum Motors

Flexible, light and corrosion resistant

ABB's 'made in India' Aluminum motors are optimally tailored for a range of applications, including machine tools, food & beverage, and HVAC systems. Crafted with precision, these motors are engineered to meet demands of applications with low weight and corrosion-resistant equipment. They stand for a seamless blend of energy efficiency and unwavering reliability, catering to the demands of diverse industries.

Available in IE2 & IE3 efficiency classes,
71-90 framesize with output ranging from 0.18 - 2.2kW.

Key Features



Reliable

Better heat dissipation, makes it more reliable for longer life



Better Finish

High pressure die-casted components (HPDC) for precise finish



Durable

Shot blasted aluminum components & C3 corrosion class painting system



Flexible

Due to low weight, used in machineries to add flexibility to the system



Circularity

Aluminum a highly sustainable 'green' metal, can be recycled after end of the life

Technical data

IE2 high efficiency aluminum motors

Technical data for totally enclosed squirrel cage three phase induction motors

IP 55 - IC 411 - Insulation class F, temperature rise class B, IE2 efficiency class according to IEC 60034-30-1:2014, IS 12615:2018

TEFC, 415V, 50Hz, IP55, IC411, Ambt. 50 deg, Rise Class B (70 deg)

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD ² kgm ²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
3000 r/min = 2 poles			415V, 50Hz										
0.37	M2AAX71MA2	2760	72.2	72.9	70.3	0.79	0.90	5.0	1.3	2.0	2.4	0.00033	5
0.55	M2AAX71MB2	2785	74.8	75.5	73.0	0.79	1.30	5.0	1.9	2.2	2.7	0.00041	6
0.75	M2AAX80MA2	2820	77.4	78.0	75.7	0.79	1.70	6.0	2.5	2.3	2.8	0.00067	9
1.1	M2AAX80MB2	2840	79.6	80.0	77.9	0.77	2.5	6.0	3.7	2.5	3.0	0.00088	10
1.5	M2AAX90SA2	2875	81.3	82.0	80.3	0.83	3.1	6.0	5.0	2.3	3.0	0.00208	13
2.2	M2AAX90LA2	2878	83.2	84.0	82.6	0.84	4.4	7.0	7.3	2.5	3.1	0.00274	16

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
1500 r/min = 4 poles			415V, 50Hz										
0.25	M2AAX71MA4	1395	68.5	67.5	62.1	0.65	0.9	5.0	1.7	1.9	2.2	0.00059	5
0.37	M2AAX71MB4	1395	72.7	72.0	67.0	0.65	1.10	5.0	2.5	1.9	2.2	0.00076	6
0.55	M2AAX80MA4	1415	77.1	76.0	71.0	0.71	1.40	5.0	3.7	2.2	2.8	0.00156	8
0.75	M2AAX80MB4	1425	79.6	78.5	74.3	0.67	1.97	6.0	5.0	3.0	3.5	0.00247	12
1.1	M2AAX90SA4	1430	81.4	80.6	76.8	0.74	2.55	6.0	7.3	3.0	3.5	0.00372	14
1.5	M2AAX90LA4	1430	82.8	82.2	79.4	0.73	3.47	6.0	10.0	3.0	3.5	0.00462	16

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
1000 r/min = 6 poles			415V, 50Hz										
0.18	M2AAX71MA6	900	56.6	54.6	47.6	0.62	0.64	3.5	1.9	2.0	2.1	0.00082	5
0.25	M2AAX71MB6	900	61.6	61.3	55.8	0.62	1.00	3.5	2.65	2.0	2.1	0.00105	6
0.37	M2AAX80MA6	910	69.0	68.1	63.1	0.62	1.20	4.0	3.9	2.0	2.4	0.00173	9
0.55	M2AAX80MB6	910	73.1	72.8	69.2	0.66	1.60	4.0	5.8	2.1	2.5	0.00274	10
0.75	M2AAX90SA6	945	75.9	74.3	69.2	0.62	2.2	4.5	7.6	2.4	3.2	0.00438	14
1.1	M2AAX90LA6	935	78.1	77.3	73.3	0.63	3.1	4.5	11.2	2.3	2.9	0.00507	17

Efficiency values are measured according to IEC 60034-2-1; 2007, IS 15999(Part2 Sec1):2011
Please note that the values are not comparable without knowing the testing method. ABB has
calculated the efficiency values according to indirect method, stray load losses (additional losses)
determined from measuring.

I_s / I_n = Starting current
T_s / T_n = Locked rotor torque
T_b / T_n = Breakdown

Technical data

IE3 premium efficiency aluminum motors

Technical data for totally enclosed squirrel cage three phase induction motors

IP 55 - IC 411 - Insulation class F, temperature rise class B, IE3 efficiency class according to IEC 60034-30-1:2014, IS 12615:2018

TEFC, 415V, 50Hz, IP55, IC411, Ambt. 50 deg, Rise Class B (70 deg)

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
3000 r/min = 2 poles			415V, 50Hz										
0.37	M2AAX71MC2	2790	75.5	75.4	72.7	0.72	0.95	5.5	1.3	2.1	2.5	0.00033	5
0.55	M2AAX71MB2	2782	78.1	78.4	76.4	0.73	1.35	5.5	1.9	2.1	2.6	0.00041	6
0.75	M2AAX80MC2	2870	80.7	80.0	76.7	0.76	1.7	6.5	2.5	2.8	3.6	0.00080	9
1.1	M2AAX80MD2	2865	82.7	83.3	81.9	0.80	2.3	7.0	3.7	2.8	3.6	0.00119	11
1.5	M2AAX90SB2	2882	84.2	84.6	83.0	0.83	3	6.0	5.0	2.7	3.3	0.00224	15
2.2	M2AAX90LB2	2890	85.9	86.7	85.8	0.88	4.4	7.0	7.3	3.0	3.5	0.00304	18

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
1500 r/min = 4 poles			415V, 50Hz										
0.25	M2AAX71MD4	1415	73.5	70.4	63.9	0.64	0.72	4.6	1.68	2.3	2.5	0.00075	7
0.37	M2AAX71MC4	1415	77.3	76.0	67.0	0.65	1.02	4.6	2.5	2.5	2.8	0.00098	8
0.55	M2AAX80MC4	1435	80.8	80.0	75.0	0.70	1.35	6.0	3.7	2.5	2.8	0.00195	11
0.75	M2AAX80MD4	1445	82.5	81.1	77.1	0.70	2.05	4.5	5.0	3.5	3.9	0.00309	14
1.1	M2AAX90SB4	1435	84.1	83.7	81.0	0.70	2.60	6.0	7.3	3.0	3.7	0.00397	15
1.5	M2AAX90LB4	1431	85.3	85.2	82.9	0.75	3.50	6.0	10.0	3.5	3.9	0.00486	18

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
1000 r/min = 6 poles			415V, 50Hz										
0.18	M2AAX71MC6	931	63.9	60.9	55.0	0.65	0.70	3.3	1.85	2.3	2.6	0.00103	6
0.25	M2AAX71MD6	931	68.6	65.6	59.3	0.65	0.82	3.6	2.56	2.5	2.8	0.00140	8
0.37	M2AAX80MC6	931	73.5	73.0	67.0	0.65	1.15	3.9	3.8	2.5	2.8	0.00220	10
0.55	M2AAX80MD6	935	77.2	77.0	71.5	0.59	1.70	4.5	5.6	2.8	3.3	0.00349	13
0.75	M2AAX90SB6	940	78.9	77.5	73.2	0.63	2.1	4.5	7.6	2.3	3.0	0.00487	18
1.1	M2AAX90LB6	945	81.0	79.7	75.4	0.61	3.1	4.5	11.1	3.0	3.6	0.00676	21

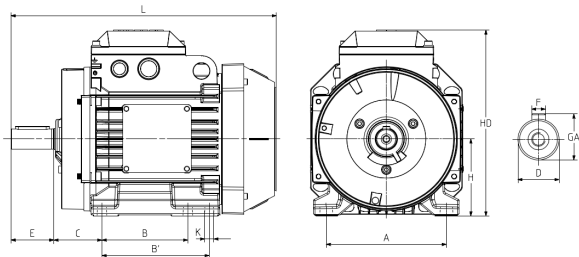
Efficiency values are measured according to IEC 60034-2-1; 2007, IS 15999(Part2/Sec1):2011
Please note that the values are not comparable without knowing the testing method. ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

I_s / I_n = Starting current
T_s / T_n = Locked rotor torque
T_b / T_n = Breakdown

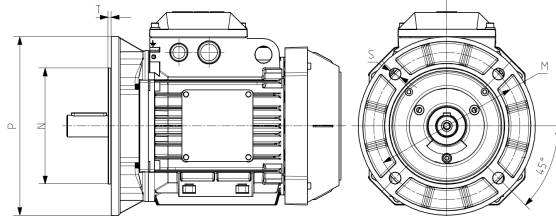
Dimension drawings

General performance IE2, IE3 high efficiency aluminum motors Sizes 71 - 90

Foot-mounted motor IM1001, B3



Flange-mounted motor IM 3001, B5



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	4-8	2	4-8	2	4-8	2	4-8	2	4-8												
General performance aluminum motors																						
71M	14	14	16.0	16.0	5	5	30	30	257	257 ¹⁾	112	90	-	45	180	7	71	130	110	160	10	3.5
80M	19	19	21.5	21.5	6	6	40	40	266	266 ²⁾	125	100	-	50	194	10	80	165	130	200	12	3.5
90SL	24	24	27	27.0	8	8	50	50	309	309 ³⁾	140	100	125	56	218	10	90	165	130	200	12	3.5

1) IE3: M2AAX71C4,D6 L=270

2) IE2: M2AAX80B4,B6, IE3: M2AAX80D2,C4,D6 L=294

IE3: M2AAX80D4 L=304

3) IE2: M2AAX90LA4B4,LA6, IE3:M2AAX90LB2,LB4,SB6 L=331

IE3: M2AAX90LB6 L=349

Above table gives the main dimensions in mm.

For detail dimensions, refer to respective GAD

Motors in brief

General performance IE2, IE3 high efficiency aluminum motors in brief

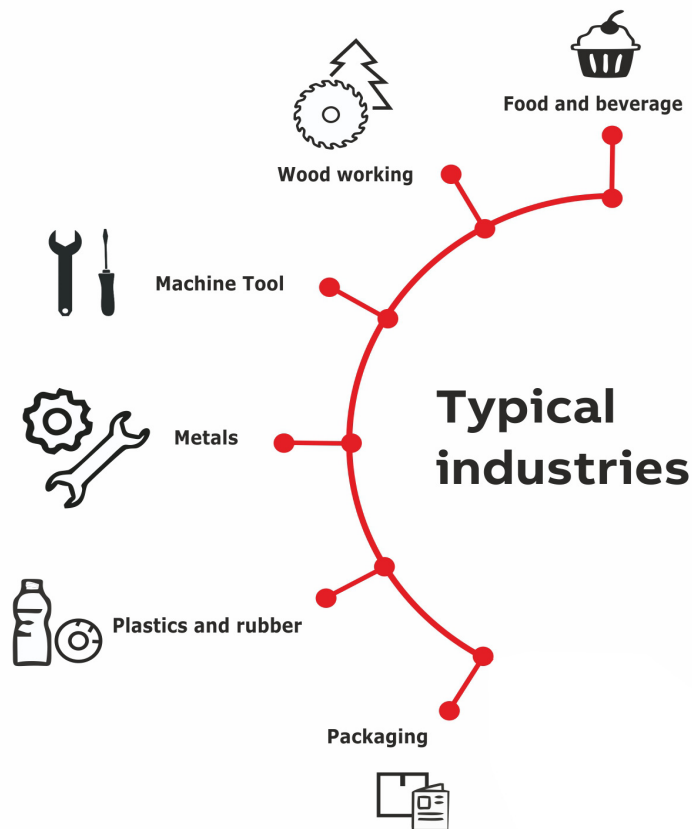
Size	71		80	90
Stator	Material	Die-cast aluminum alloy		
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G		
	Surface Treatment	C3 medium according to ISO / EN 12944-5		
Feet	Integrated with stator			
	Material			
Bearing end shields	Material	Die-cast aluminum alloy		
	Paint colour shade	Munsell blue 8B 4.5/3.25/NCS 4822 B05G		
	Surface Treatment	C3 medium according to ISO / EN 12944-5		
Bearings	D-end	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3
	N-end	6202-2Z/C3	6203-2Z/C3	6204-2Z/C3
Axially-locked	locked at D-end	With retaining ring		With bearing cover
Bearing seals	Axial seal as standard, radial on request			
Lubrication	Permanently lubricated shielded bearings			
Rating plate	Material	Aluminum		
Terminal Box	Frame material	Die-cast aluminum alloy		
	Cover material	Die-cast aluminum alloy		
	Cover screws material	Self tapping screws 8.8		
Connections	Cable entries	2xM20		1xM20, 1xM25
	Cable Sizes	4mm2		
	Terminal Stud Size	M4		
	Terminals	Upto 2HP - STAR / 3 Leads > 2 HP - DELTA / 6 Leads, (Cable lugs not included)		
Fan	Material	Polypropylene, Reinforced with glass fibre		
Fan Cover	Material	Polypropylene, Reinforced with glass fibre		
	Paint Colour shade	Munsell blue 8B 4.5/3.25/NCS 4822 B05G		
Stator	Insulation	Insulation class F, Temperature rise class B unless otherwise stated		
Rotor	Squirrel Cage	Pressure diecast aluminum		
Balancing method	Half Key Balancing as Standard			
Key ways	Closed Key Way			
Enclosure	IP 55, Higher protection on request			
Cooling method	IC 411			
Drain holes	Drain holes with closable plastic plugs, open on delivery			
Lifting lugs	Integrated with the stator			

Application note

Aluminum motors are used for various applications where low weight is preferred. Aluminum has reduced weight due to its relatively low density. Also due to its anti corrosive properties & better finishing, these motors are preferred in applications like Food and Beverage that require clean environment. Better heat dissipation of Aluminum motors make it more reliable for longer operations.

With more than 130 years of manufacturing experience we make sure the motors we supply will continue to operate reliably well into the future. ABB has been manufacturing Aluminum motors globally and catering to various segments since decades.

ABB Aluminum motors are highly acclaimed in the market due to its high performance and ensuring a reliable service over the lifetime. These motors are highly efficient for energy cost savings, as well as competitive delivery times.





Notes

Notes section containing 20 horizontal dotted lines for writing.



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