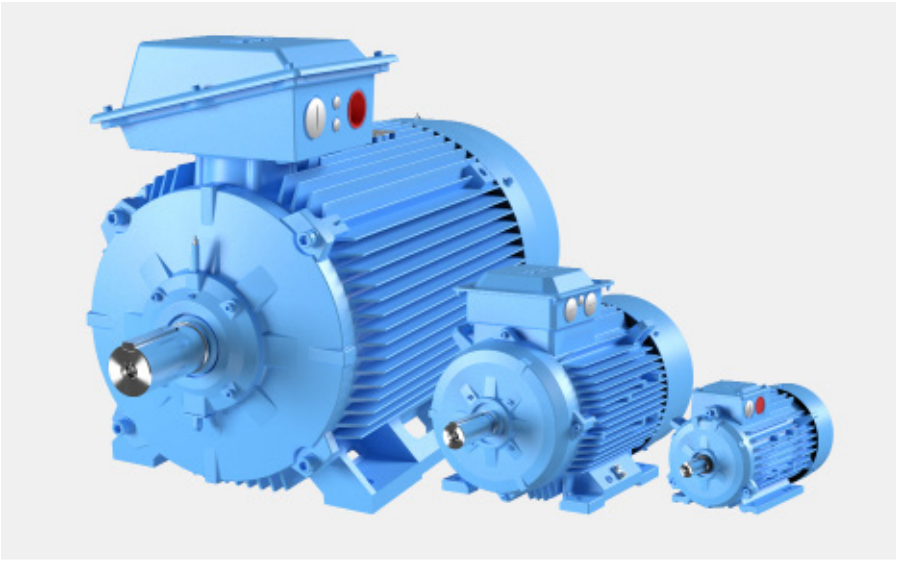
PRODUCT NOTE

IE4 General performance cast iron motors

Super premium efficiency for customers



IE4 General performance motors are ideal to build into pumps and fans, as well as for other applications including gear boxes, conveyors and general machinery. The robust, straightforward motors meet requirements for increased energy efficiency on the market.

The super premium choice for customer
In order to meet the increasing demands for higher energy efficiency and energy saving, ABB has developed a motor that meets the becoming Ecodesign legislation for IE4 efficiency.

The motor has a classic streamline appearance and it is compact in size. The use of materials, both electrically and mechnically, has been optimized and enchanced to meet today's needs.

- Flexible product, fit for purpose
- Global and local customer support
- Global service organization
- Online product documentation
- Product available from stock
- Target segments: HVAC, food and beverage, water and waste water, digital centers, automobile
- Target applications: pump, fan, compressor, crane, belt, gear and general machinery

Product scope

Frame material	Cast iron
Frame sizes	IEC 80-355
Output	0.37 kW – 355 kW *
Motor type	M2BAX
Poles	2, 4, 6
Voltage & frequency	220-690 V, 50 Hz
Efficiency	IE4 EU MEPS, IEC60034-30-1
Protection	IP55
Cooling	IC411 TEFC (IC416 as option)
Insulation	F
Genaration code	N
Mounting	B3, B5
Certification, MEPS	CE, UKCA, CEL
OMS product type	EBA4
Options	37 variant codes available Check availability from 'General performance motors' catalogs or contact ABB

* 0.75, 1.1, 1.5 kW 4 poles & 1.1 kW 6 poles in scope in Q4/2023-Q1/2024

Technical data

IP 55 - IC 411 - Insulation class F, temperature rise class B

IE4 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100 %	3/4 load 75 %	1/2 load 50 %	Power factor cos	Current I_N A	I_s/I_N	Torque T_N Nm	TI/TN	Tb/TN	Moment of inertia J = 1/4 GD^2 kgm^2	Weight kg	Sound pressure level L_{PA} dB
3000 rpm = 2 poles				400 V 50 Hz				CENELEC design							
0.75	M2BAX 80MA 2	3GBA081310-••N	2887	83.5	83.9	82.3	0.83	1.56	7.8	2.5	3.6	3.9	0.00108	18	59
1.1	M2BAX 80MLA 2	3GBA081410-••N	2884	85.2	86.1	85.2	0.84	2.2	8.0	3.7	3.8	4.0	0.00144	22	59
1.5	M2BAX 90SA 2	3GBA091110-••N	2915	86.5	87.4	86.6	0.87	2.9	8.6	4.9	3.3	4.1	0.0027	26	59
2.2	M2BAX 90SLA 2	3GBA091010-••N	2925	88.0	88.8	88.2	0.88	4.1	9.6	7.2	3.6	4.7	0.0038	34	60
3	M2BAX 100LKA 2	3GBA101810-••N	2892	89.1	90.7	91.1	0.89	5.5	8.2	10.1	3.0	3.8	0.00641	50	59
4	M2BAX 112MLA 2	3GBA111410-••N	2893	90.0	88.2	88.6	0.88	7.3	8.3	13.2	2.8	3.6	0.00828	56	62
5.5	M2BAX 132SA 2	3GBA131110-••N	2910	90.9	91.4	91.2	0.86	10.1	8.3	18.0	2.4	3.6	0.014	76	65
7.5	M2BAX 132SMA 2	3GBA131210-••N	2910	91.7	92.6	92.7	0.89	13.3	8.2	24.6	2.4	3.5	0.0166	88	65
11	M2BAX 160MLA 2	3GBA161410-••N	2953	92.6	92.9	92.4	0.88	19.5	8.3	35.6	3.3	4.1	0.0514	143	69
15	M2BAX 160MLB 2	3GBA161420-••N	2951	93.3	93.5	92.9	0.89	26.2	10.2	48.5	3.9	4.5	0.063	162	70
18.5	M2BAX 160MLC 2	3GBA161430-••N	2942	93.7	94.1	94.0	0.90	31.8	9.6	60.1	3.7	4.1	0.076	175	70
22	M2BAX 180MLA 2	3GBA181410-••N	2959	94.0	94.3	93.9	0.88	38.3	8.9	71.0	3.5	4.1	0.126	231	74
30	M2BAX 200MLA 2	3GBA201410-••N	2961	94.5	94.7	94.4	0.88	52.1	8.8	96.8	3.5	3.7	0.196	283	79
37	M2BAX 200MLB 2	3GBA201420-••N	2962	94.8	95.1	94.8	0.87	64.8	9.2	119	3.2	3.7	0.217	288	78
45	M2BAX 225SMA 2	3GBA221210-••N	2976	95.0	95.1	94.5	0.88	78.0	9.5	144	4.0	3.5	0.295	372	81
55	M2BAX 250SMA 2	3GBA251210-••N	2974	95.3	95.5	95.0	0.90	93.0	8.4	177	3.3	3.6	0.547	459	79
75	M2BAX 280SMA 2	3GBA281210-••N	2980	95.6	95.6	94.9	0.87	130	7.3	240	2.5	2.9	0.9	709	77
90	M2BAX 280SMB 2	3GBA281220-••N	2981	95.8	95.6	95.0	0.88	154	8.0	288	3.0	3.1	1.15	782	77
110	M2BAX 315SMA 2	3GBA311210-••N	2982	96.0	96.0	95.3	0.87	190	6.7	352	1.9	2.6	1.4	1028	77
132	M2BAX 315SMB 2	3GBA311220-••N	2986	96.2	96.3	95.9	0.87	228	7.9	422	2.4	3.0	1.7	1096	77
160	M2BAX 315MLA 2	3GBA311410-••N	2983	96.3	96.5	96.3	0.89	269	7.3	512	2.2	2.7	2.1	1319	77
200	M2BAX 315MLB 2	3GBA311420-••N	2983	96.5	96.9	96.8	0.89	336	6.8	640	1.9	2.6	2.2	1358	77
250	M2BAX 355SMA 2	3GBA351210-••N	2983	96.5	96.6	96.2	0.89	420	7.6	800	2.2	2.0	3.4	1590	83
315	M2BAX 355SMB 2	3GBA351220-••N	2984	96.5	96.5	95.9	0.88	535	7.8	1008	2.3	2.8	3.6	1668	83
355	M2BAX 355MLA 2	3GBA351410-••N	2981	96.5	96.8	96.4	0.89	597	7.5	1137	2.3	2.6	4.1	1845	83
1500 rpm = 4 poles				400 V 50 Hz				CENELEC design							
0.55	M2BAX 80MLA 4	3GBA082410-••N	1449	83.9	84.3	82.6	0.81	1.17	7.0	3.6	3.2	3.8	0.0028	22	47
2.2	M2BAX 100LKA 4	3GBA102810-••N	1465	89.5	90.9	89.5	0.80	4.4	8.2	14.4	2.2	3.1	0.015	46	53
3	M2BAX 100LKB 4	3GBA102820-••N	1464	90.4	91.1	90.7	0.81	5.9	8.3	19.8	2.5	3.5	0.021	52	54
4	M2BAX 112MLA 4	3GBA112410-••N	1461	91.1	91.7	91.3	0.79	8.0	8.5	26.4	2.6	3.8	0.0189	62	56
5.5	M2BAX 132SA 4	3GBA132110-••N	1473	91.9	92.1	91.1	0.79	11.0	8.3	35.6	2.4	3.7	0.044	90	64
7.5	M2BAX 132SMA 4	3GBA132210-••N	1473	92.6	92.9	92.1	0.80	14.7	8.4	48.6	2.5	3.7	0.057	102	64
11	M2BAX 160MLA 4	3GBA162410-••N	1478	93.3	93.6	93.0	0.77	22.0	8.2	71.1	3.0	3.9	0.123	181	59
15	M2BAX 160MLB 4	3GBA162420-••N	1476	93.9	94.1	93.8	0.74	31.0	8.9	97.1	3.7	4.1	0.127	178	59
18.5	M2BAX 180MLA 4	3GBA182410-••N	1484	94.2	94.3	93.5	0.81	35.0	9.2	119	3.5	4.2	0.191	205	65
22	M2BAX 180MLB 4	3GBA182420-••N	1484	94.5	94.6	94.0	0.82	41.0	9.2	142	3.5	4.1	0.22	220	65
30	M2BAX 200MLA 4	3GBA202410-••N	1488	94.9	94.9	94.1	0.75	60.8	9.3	193	4.3	4.2	0.369	268	64
37	M2BAX 225SMA 4	3GBA222210-••N	1483	95.2	95.5	95.3	0.83	67.3	9.0	239	3.8	3.6	0.54	380	64
45	M2BAX 225SMB 4	3GBA222220-••N	1481	95.4	95.7	95.6	0.82	82.7	8.7	290	3.8	3.5	0.54	380	64
55	M2BAX 250SMA 4	3GBA252210-••N	1485	95.7	95.8	95.3	0.85	97.3	9.9	354	4.7	3.8	0.939	483	69
75	M2BAX 280SMA 4	3GBA282210-••N	1487	96.0	96.4	96.1	0.86	131	7.8	481	2.8	2.9	1.85	787	72
90	M2BAX 280SMB 4	3GBA282220-••N	1486	96.1	96.3	96.1	0.84	161	8.3	580	3.2	3.4	1.88	811	63
110	M2BAX 315SMA 4	3GBA312210-••N	1491	96.3	96.4	96.0	0.85	194	7.9	705	2.4	3.1	2.64	905	66
132	M2BAX 315SMB 4	3GBA312220-••N	1489	96.4	96.6	96.1	0.84	235	7.9	846	2.6	3.2	3.02	961	68
160	M2BAX 315MLA 4	3GBA312410-••N	1490	96.6	96.8	96.5	0.86	278	7.9	1026	2.7	3.1	3.63	1106	68
200	M2BAX 315LKA 4	3GBA312810-••N	1490	96.7	96.9	96.7	0.86	347	7.8	1282	2.4	3.6	4.74	1332	66
250	M2BAX 355SMA 4	3GBA352210-••N	1490	96.7	96.9	96.6	0.85	439	7.8	1601	2.5	2.9	6.49	1646	74
315	M2BAX 355SMB 4	3GBA352220-••N	1490	96.7	96.9	96.8	0.83	566	7.4	2018	2.8	2.9	7.2	1738	74
355	M2BAX 355MLA 4	3GBA352410-••N	1491	96.7	96.9	96.6	0.85	623	7.4	2271	2.7	4.1	8.4	2001	77

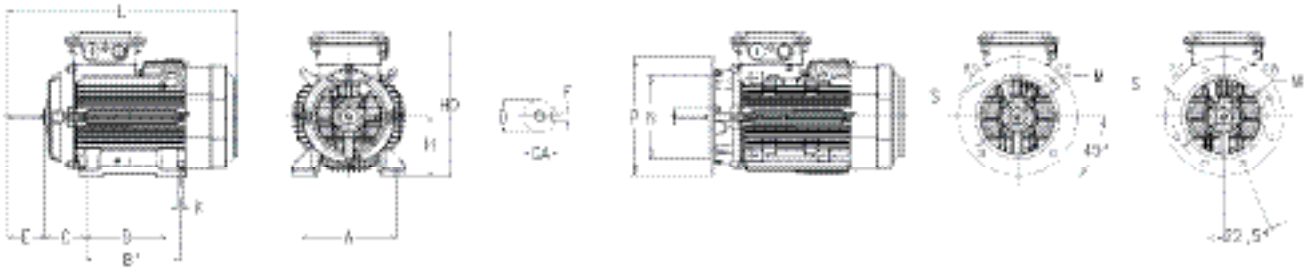
Technical data

IP 55 - IC 411 - Insulation class F, temperature rise class B

IE4 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100 %	3/4 load 75 %	1/2 load 50 %	Power factor cos	Current I_N A	I_s/I_N	Torque T_N Nm	TI/TN	Tb/TN	Moment of inertia J = 1/4 GD² kgm²	Weight kg	Sound pressure level L_{PA} dB
1000 rpm = 6 poles				400 V 50 Hz				CENELEC design							
0.37	M2BAX 80MLA 6	3GBA083410-••N	956	78,0	77,8	74,4	0,72	0,95	4,8	3,7	2,3	3,0	0,0038	22	46
0.55	M2BAX 80MLB 6	3GBA083420-••N	957	80,9	80,5	77,3	0,69	1,42	5,1	5,5	2,7	3,4	0,0044	24	47
0.75	M2BAX 90SLA 6	3GBA093010-••N	948	82,7	82,7	81,3	0,72	1,82	4,9	7,6	2,7	3,1	0,0061	32	55
1.5	M2BAX 100LKA 6	3GBA103810-••N	969	85,9	85,8	84,2	0,73	3,5	7,3	14,9	2,5	3,6	0,0121	46	47
2.2	M2BAX 112MLA 6	3GBA113410-••N	980	87,4	88,1	87,1	0,68	5,4	7,1	21,4	2,3	3,3	0,022	56	46
3	M2BAX 132SA 6	3GBA133110-••N	983	88,6	88,9	87,4	0,68	7,2	7,1	29,1	2,2	3,4	0,042	73	57
4	M2BAX 132SMA 6	3GBA133210-••N	983	89,5	89,9	88,6	0,68	9,5	7,4	38,9	2,4	3,5	0,053	86	57
5.5	M2BAX 132SMB 6	3GBA133220-••N	981	90,5	91,1	90,5	0,71	12,4	7,3	53,5	2,3	3,3	0,068	99	57
7.5	M2BAX 160MLA 6	3GBA163410-••N	984	91,3	91,0	89,4	0,75	15,8	7,1	72,8	1,8	3,6	0,133	170	59
11	M2BAX 160MLB 6	3GBA163420-••N	980	92,3	92,3	91,7	0,76	22,8	7,3	109	1,9	3,4	0,133	190	59
15	M2BAX 180MLA 6	3GBA183410-••N	985	92,9	92,8	91,8	0,71	32,8	7,2	147	2,7	3,7	0,229	227	59
18.5	M2BAX 200MLA 6	3GBA203410-••N	990	93,4	93,8	93,4	0,78	36,6	7,6	178	2,9	3,7	0,448	264	62
22	M2BAX 200MLB 6	3GBA203420-••N	989	93,7	93,8	93,3	0,79	42,9	7,8	212	3,0	3,8	0,531	291	63
30	M2BAX 225SMA 6	3GBA223210-••N	988	94,2	94,5	94,2	0,80	57,6	8,0	290	3,6	3,7	0,813	372	63
37	M2BAX 250SMA 6	3GBA253210-••N	991	94,5	94,9	94,6	0,81	69,6	8,1	356	3,4	3,3	1,5	478	62
45	M2BAX 280SMA 6	3GBA283210-••N	990	94.8	95.1	94.7	0.84	81.3	8.2	434	3.1	2.8	2.04	634	63
55	M2BAX 280SMB 6	3GBA283220-••N	990	95.1	95.4	95.1	0.84	99.9	7.1	530	2.9	2.7	2.57	728	63
75	M2BAX 315SMA 6	3GBA313210-••N	994	95.4	95.7	95.0	0.82	138	7.8	721	2.7	3.2	4.76	926	67
90	M2BAX 315SMB 6	3GBA313220-••N	993	95.6	95.8	95.3	0.80	170	7.9	865	2.6	3.1	5.19	933	67
110	M2BAX 315MLA 6	3GBA313410-••N	993	95.8	96.1	95.8	0.82	202	7.7	1058	2.3	2.7	6.16	1106	68
132	M2BAX 315LKA 6	3GBA313810-••N	993	96.0	96.2	96.1	0.83	239	6.8	1270	2.5	3.2	7.16	1288	62
160	M2BAX 355SMA 6	3GBA353210-••N	994	96.2	96.2	96.1	0.82	292	7.3	1537	2.5	3.1	9.5	1587	73
200	M2BAX 355SMB 6	3GBA353220-••N	994	96.3	96.5	96.0	0.81	370	8.1	1921	2.6	3.2	11.3	1734	73
250	M2BAX 355MLA 6	3GBA353410-••N	994	96.5	96.8	96.7	0.83	451	6.2	2403	2.0	3.5	13.2	1984	70

Dimensions



Foot-mounted motor IM1001, B3 and flange-mounted motor IM3001, B5

	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD max	K	M	N	P	S
Motor size	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6										
80M	19	19	21.5	21.5	6	6	40	40	312	312	125	100	-	50	192	10	165	130	200	12
80ML_ [1]	19	19	21.5	21.5	6	6	40	40	337	337	125	100	112	50	192	10	165	130	200	12
80ML_ [2]	19	19	21.5	21.5	6	6	40	40	367	367	125	100	112	50	192	10	165	130	200	12
90S	24	24	27	27	8	8	50	50	339	339	140	100	-	56	217	10	165	130	200	12
90SL_	24	24	27	27	8	8	50	50	390	390	140	100	125	56	217	10	165	130	200	12
100LK_	28	28	31	31	8	8	60	60	463	463	160	140	160	63	243	12	215	180	250	14.5
112ML_	28	28	31	31	8	8	60	60	480	480	190	140	159	70	264	12	215	180	250	14.5
132S_	38	38	41	41	10	10	80	80	510	510	216	140	-	89	307	12	265	230	300	14.5
132M_	38	38	41	41	10	10	80	80	560	560	216	140	178	89	307	12	265	230	300	14.5
160ML_ [1]	42	42	45	45	12	12	110	110	626.5	626.5	254	210	254	108	413	14.5	300	250	350	18.5
160ML_ [3]	42	42	45	45	12	12	110	110	683.5	683.5	254	210	254	108	413	14.5	300	250	350	18.5
180ML _	48	48	51.5	51.5	14	14	110	110	729	729	279	241	279	121	453	14.5	300	250	350	18.5
200ML_	55	55	59	59	16	16	110	110	810	810	318	267	305	133	514	18.5	350	300	400	18.5
225 SM_	55	60	59	64	16	18	110	140	864	894	356	286	311	149	557	18.5	400	350	450	18.5
250 SM_	60	65	64	69	18	18	140	140	913	913	406	311	349	168	616	24	500	450	550	18.5
280SM_ [4]	65	75	69	79.5	18	20	140	140	1182	1182	457	368	419	190	747	24	500	450	550	18.5
280SM_ [5]	65	75	69	79.5	18	20	140	140	1052	1052	457	368	419	190	747	24	500	450	550	18.5
315 SM_	65	80	69	85	18	22	140	170	1216	1246	508	406	457	216	849	28	600	550	660	24
315 ML_	65	90	69	95	18	25	140	170	1326	1356	508	457	508	216	849	28	600	550	660	24
315 LK_	-	90	-	95	-	25	-	170	-	1458	508	508	560	216	849	28	600	550	660	24
355 SM_	70	100	74.5	106	20	28	140	210	1399	1469	610	560	560	254	933	35	740	680	800	24
355 ML_	70	100	74.5	106	20	28	140	210	1514	1584	610	560	630	254	933	35	740	680	800	24

[1] MLA 2,
[2] MLB 4, MLB 6
[3] MLA 4, MLA 6, MLB 2, MLB 4, MLB 6, MLC 2
[4] SMB 2, SMA 4, SMB 4, SMB 6
[5] SMA 2, SMA 6

IMB14 (IM3601)

Motor size	M	N	P	S	T
80	100	80	120	6	3
90	115	95	140	8	3
100	130	110	160	8	3.5
112	130	110	160	8	3.5
132	165	130	200	10	3.5

new.abb.com/motors-generators

9AAU000000000038 EN 04-2023