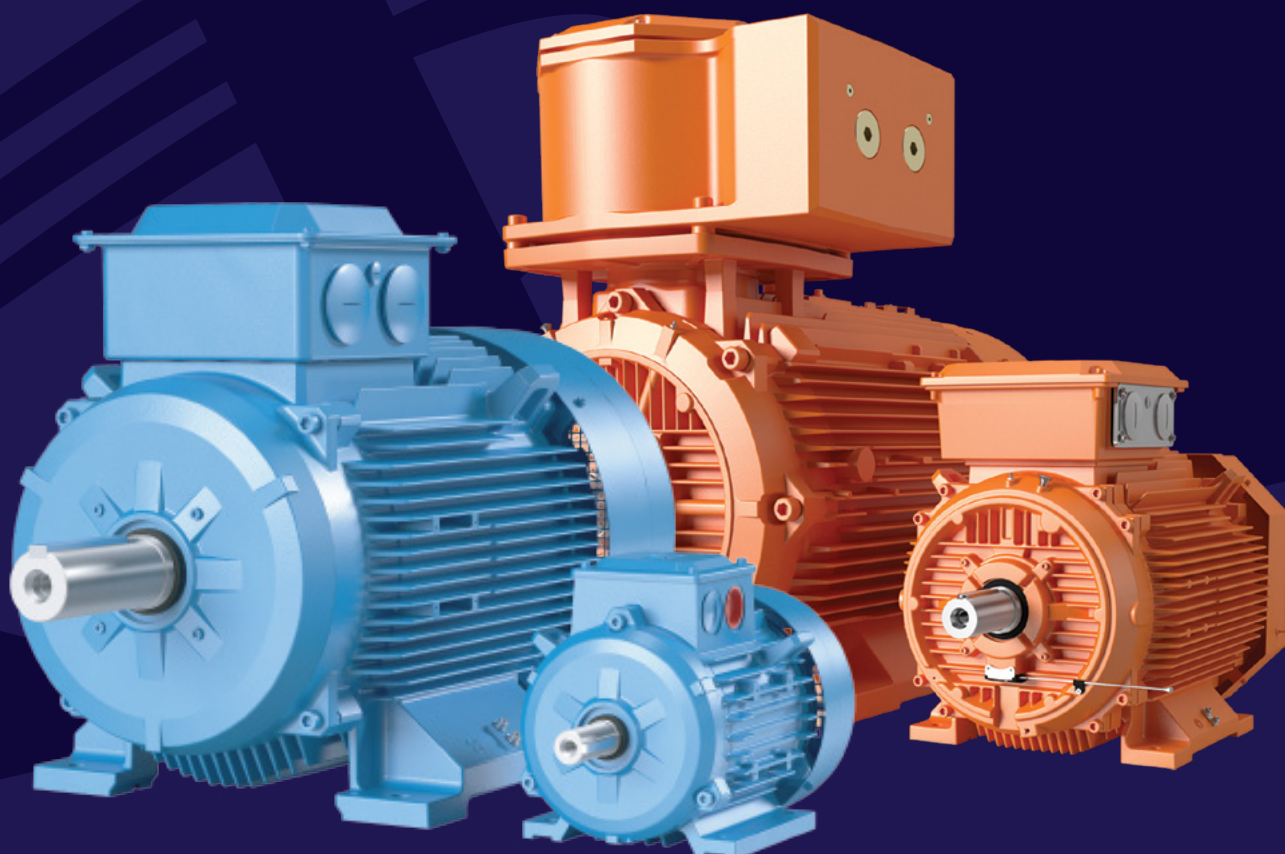




# LOW VOLTAGE GENERAL PERFORMANCE & MINING MOTORS



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# ORDERING INFORMATION

## EXPLANATION OF THE PRODUCT CODE

Motor type	Motor size	Product code	Mounting arrangement code, Voltage and frequency code, Generation code	Variant codes
M2BAX	112MA	<b>3GBA 112 310</b>	<b>-ADD</b>	002, etc.
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		

### Positions 1 to 4

3GBA: Totally enclosed fan cooled squirrel cage motor with cast iron frame

### Positions 5 and 6

IEC size

07: 71

08: 80

09: 90

10: 100

11: 112

13: 132

16: 160

18: 180

20: 200

22: 225

25: 250

28: 280

31: 315

35: 355

### Position 7

Speed (Pole pairs)

1: 2 poles

2: 4 poles

3: 6 poles

### Positions 8 to 10

Running number

### Position 11

-(dash)

### Position 12 (marked with black dot in data tables)

Mounting arrangement

A: Foot-mounted, top-mounted terminal box

B: Flange-mounted, large flange

### Position 13 (marked with black dot in data tables)

#### Voltage and frequency

Single-speed motors

D: 400 VΔ, 690 VY, 380 VΔ, 660 VY, 50 Hz  
440 VΔ, 460 VΔ, 60 Hz

S: 230 VΔ, 400 VY, 220 VΔ, 380 VY, 50 Hz  
440 VY, 460 VΔ 60 Hz\*

\*] M2AA 200 is not available for voltages less than 380 VD

### Position 14

A, B, C...= Generation code followed by variant codes

Efficiency values are given according to IEC 60034-2-1; 2014

For detailed dimension drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

01 Rating plate for IE2  
General performance cast  
iron M2BAX motor.

02 Rating plate for IE3  
General performance cast  
iron M2BAX motor.

The motor's main rating plate shows the motor's performance values with various connections at nominal speed. The rating plate also shows the efficiency level (IE2, IE3), year of manufacture, and the lowest nominal efficiency at 100, 75, and 50 % nominal load.

The lubrication plate specifies regreasing amount, regreasing interval in hours - depending on the mounting position and ambient temperature - and types of lubricant recommended.

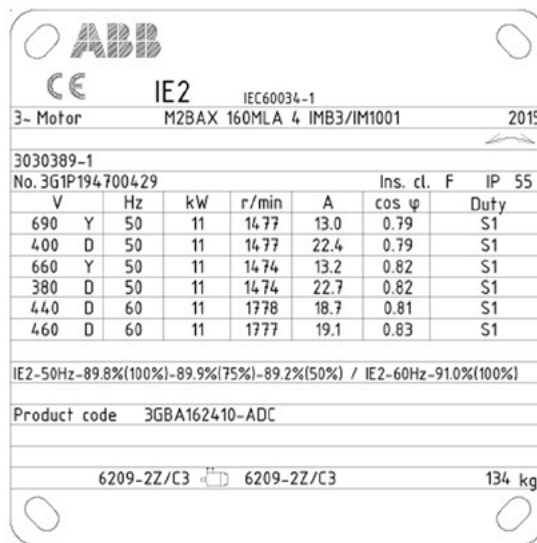


ABB  
CE IE2 IEC60034-1  
3-Motor M2BAX 160MLA 4 IMB3/IM1001 2015

3030389-1  
No. 3G1P194700429 Ins. cl. F IP 55

V	Hz	kW	r/min	A	cos φ	Duty
690 Y	50	11	1477	13.0	0.79	S1
400 D	50	11	1477	22.4	0.79	S1
660 Y	50	11	1474	13.2	0.82	S1
380 D	50	11	1474	22.7	0.82	S1
440 D	60	11	1778	18.7	0.81	S1
460 D	60	11	1777	19.1	0.83	S1

IE2-50Hz-89.8%(100%)-89.9%(75%)-89.2%(50%) / IE2-60Hz-91.0%(100%)

Product code 3GBA162410-ADC

6209-2Z/C3 6209-2Z/C3 134 kg

01

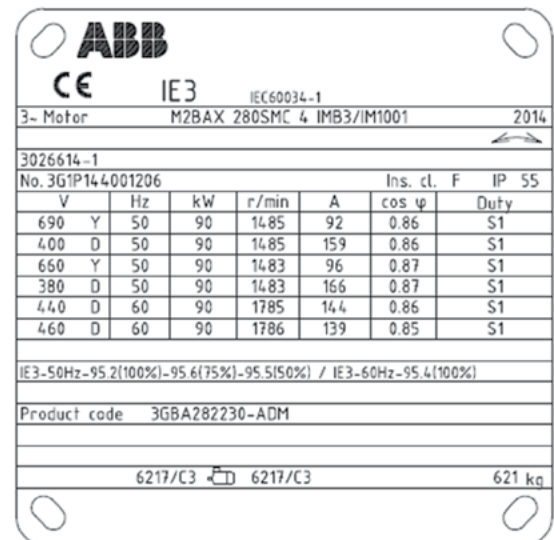


ABB  
CE IE3 IEC60034-1  
3-Motor M2BAX 280SMC 4 IMB3/IM1001 2014

3026614-1  
No. 3G1P144001206 Ins. cl. F IP 55

V	Hz	kW	r/min	A	cos φ	Duty
690 Y	50	90	1485	92	0.86	S1
400 D	50	90	1485	159	0.86	S1
660 Y	50	90	1483	96	0.87	S1
380 D	50	90	1483	166	0.87	S1
440 D	60	90	1785	144	0.86	S1
460 D	60	90	1786	139	0.85	S1

IE3-50Hz-95.2(100%)-95.6(75%)-95.5(50%) / IE3-60Hz-95.4(100%)

Product code 3GBA282230-ADM

6217/C3 6217/C3 621 kg

02

## IE3 General performance cast iron motors 2 Pole / 3000 RPM



IP 66 - IC 411 - Insulation class F, temperature rise class B  
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current		Torque		Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB	
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>r</sub> /T <sub>N</sub>				T <sub>b</sub> /T <sub>N</sub>
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>				<b>CENELEC-design</b>								
0.37	M2BAX 71MC 2	<b>3GBA071330-...D</b>	2819	76,5	76	73,4	0,8	0,86	6,6	1,26	2,7	3,2	0,00035	10	50
0.55	M2BAX 71MB 2	<b>3GBA071320-...D</b>	2816	78,4	78,1	75,9	0,8	1,27	6,1	1,88	2,7	3,2	0,0004	10	49
1.1	M2BAX 80MD 2	<b>3GBA081340-...D</b>	2862	82,7	83,1	82,4	0,81	2,37	7,5	3,67	3,2	4	0,00102	17	59
1.5	M2BAX 90SB 2	<b>3GBA091120-...D</b>	2913	84,2	84,1	82,6	0,84	3,02	8,7	4,93	2,9	3,9	0,00234	23	54
2.2	M2BAX90SLA 2	<b>3GBA091010-...D</b>	2917	85,9	85,6	84,2	0,83	4,39	9,8	7,22	3,4	4,2	0,003	26	66
3	M2BAX 100LKA 2	<b>3GBA101810-...D</b>	2908	87,1	88,1	87,8	0,91	5,41	9,7	9,79	3,1	4	0,00691	42	60
4	M2BAX 112MB 2	<b>3GBA111320-...D</b>	2904	88,1	89	89,2	0,9	7,23	9,3	13,19	2,8	3,7	0,00711	42	64
5.5	M2BAX 132SMA 2	<b>3GBA131210-...D</b>	2934	89,2	89,8	89	0,82	10,6	8,9	17,91	2,4	4,1	0,0136	64	65
7.5	M2BAX 132SME 2	<b>3GBA131250-...D</b>	2901	90,1	91,1	91,2	0,91	13,1	7,3	24,72	2,2	3,7	0,02	83	71
11	M2BAX 160MLA 2	<b>3GBA161410-...F</b>	2943	91,2	92	91,6	0,91	19,1	7,2	35,57	2,6	3,6	0,057	121	69
15	M2BAX 160MLB 2	<b>3GBA161420-...F</b>	2947	91,9	92,2	91,8	0,88	26,5	8,2	48,49	3,2	4,2	0,063	128	69
18.5	M2BAX 160MLC 2	<b>3GBA161430-...F</b>	2949	92,4	93	92,6	0,9	32	9	59,81	3,3	3,9	0,076	145	73
22	M2BAX 180MLA 2	<b>3GBA181410-...F</b>	2941	92,7	93	92,7	0,84	41,1	8,7	71,42	3,4	4,1	0,073	152	70
30	M2BAX 200MLA 2	<b>3GBA201410-...F</b>	2961	93,3	93,3	92,6	0,89	52	10	96,89	3,7	4,1	0,144	250	80
37	M2BAX 200MLB 2	<b>3GBA201420-...F</b>	2951	93,7	93,9	93,3	0,89	63,9	10,5	119	4,2	4,1	0,16	268	78
45	M2BAX 225SMA 2	<b>3GBA221210-...F</b>	2962	94	94	93,3	0,85	81,3	9,3	145,4	3,8	4,1	0,223	278	80
55	M2BAX 250SMA 2	<b>3GBA251210-...F</b>	2965	94,3	94,3	93,7	0,87	96,4	7,4	177,1	3,4	3	0,344	335	78
75	M2BAX 280SMB 2	<b>3GBA281220-...M</b>	2978	94,7	94,6	93,6	0,88	130	7	240	2,3	3	0,9	596	74
90	M2BAX 280SMC 2	<b>3GBA281230-...M</b>	2975	95	95	94,2	0,88	156	6,4	289	2,1	2,8	0,99	618	74
110	M2BAX 315SMB 2	<b>3GBA311220-...M</b>	2982	95,2	94,9	93,9	0,87	192	7	352	1,8	2,7	1,3	801	78
132	M2BAX 315SMC 2	<b>3GBA311230-...M</b>	2982	95,4	95,4	94,6	0,87	229	6,8	422	2	2,8	1,5	852	78
160	M2BAX 315SMD 2	<b>3GBA311240-...M</b>	2983	95,6	95,6	94,9	0,87	275	7,4	512	2,2	2,8	1,7	909	78
200	1) M2BAX 315MLA 2	<b>3GBA311410-...M</b>	2983	95,8	96	95,5	0,88	342	7,5	640	2,3	3,1	2,1	1051	81
250	M2BAX 355SMA 2	<b>3GBA351210-...M</b>	2985	95,8	95,6	94,6	0,89	423	7,7	800	2,1	3,3	3	1412	83
315	M2BAX 355SMB 2	<b>3GBA351220-...M</b>	2980	95,8	95,7	95	0,89	529	7	1009	2,1	3	3,4	1495	83
355	M2BAX 355SMC 2	<b>3GBA351230-...M</b>	2984	95,8	95,8	95	0,88	605	7,2	1136	2,2	3	3,6	1565	83

<sup>1)</sup>Temperature rise class F

## IE3 General performance cast iron motors 4 Pole / 1500 RPM



IP 66 - IC 411 - Insulation class F, temperature rise class B  
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current		Torque		Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB	
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>r</sub> /T <sub>N</sub>				T <sub>b</sub> /T <sub>N</sub>
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.25	M2BAX 71MB 4	<b>3GBA072320-***D</b>	1440	73,5	70,1	63,8	0,64	0,78	6,1	1,67	2,7	3,5	0,00075	10	41
0.37	M2BAX 71MLA 4	<b>3GBA072410-***D</b>	1441	77,3	74,9	69,8	0,66	1,06	6,8	2,47	2,7	3,8	0,00098	12	50
0.55	M2BAX 80MC 4	<b>3GBA082330-***D</b>	1445	80,8	80,8	78,1	0,75	1,31	7,8	3,64	2,6	3,9	0,00228	17	48
0.75	M2BAX 80MLA 4	<b>3GBA082410-***D</b>	1444	82,5	81,3	78	0,72	1,79	8,4	4,86	3,8	4,6	0,00295	21	48
1.1	M2BAX 90SB 4	<b>3GBA092120-***D</b>	1439	84,1	83,2	80,9	0,74	2,57	7,7	7,23	3,6	4,2	0,00394	23	47
1.5	M2BAX 90SLA 4	<b>3GBA092010-***D</b>	1444	85,3	84,2	81,3	0,7	3,65	8,3	9,87	4,6	5,4	0,00485	25	44
2.2	M2BAX 100LB 4	<b>3GBA102520-***D</b>	1451	86,7	86,6	84,5	0,77	4,77	9,2	14,54	3,4	4,4	0,00863	34	50
3	M2BAX 100LKA 4	<b>3GBA102810-***D</b>	1450	87,7	87,6	86,5	0,8	6,18	9,8	19,78	3,7	4,6	0,0115	41	56
4	M2BAX 112MLA 4	<b>3GBA112410-***D</b>	1443	88,6	88,9	88,1	0,81	8,11	9,4	26,53	3,6	4,4	0,0152	50	57
5.5	M2BAX 132SMA 4	<b>3GBA132210-***D</b>	1463	89,6	90,4	90,2	0,77	11,5	7,9	35,89	2,6	3,3	0,0297	67	68
7.5	M2BAX 132SME 4	<b>3GBA132250-***D</b>	1465	90,4	90,7	90,3	0,78	15,5	7,4	48,96	2,5	4	0,037	77	60
11	M2BAX 160MLA 4	<b>3GBA162410-***F</b>	1477	91,4	91,8	91,1	0,82	21,1	7,6	71,27	2,6	3,3	0,11	136	61
15	M2BAX 160MLB 4	<b>3GBA162420-***F</b>	1477	92,1	92,4	91,6	0,82	28,5	8,2	96,99	3	3,7	0,135	161	61
18.5	M2BAX 180MLA 4	<b>3GBA182410-***F</b>	1472	92,6	92,6	92	0,82	35	10,3	120,1	3,6	4	0,135	169	64
22	M2BAX 180MLB 4	<b>3GBA182420-***F</b>	1473	93	93,2	92,5	0,8	42,8	10,1	142,58	3,3	4,2	0,167	198	65
30	M2BAX 200MLA 4	<b>3GBA202410-***F</b>	1481	93,6	94	93,5	0,82	56,3	10	192,76	3,9	3	0,32	282	69
37	M2BAX 225SMA 4	<b>3GBA222210-***F</b>	1479	93,9	94,2	93,7	0,81	70,3	9,3	237,79	2,5	3	0,376	278	67
45	M2BAX 225SMB 4	<b>3GBA222220-***F</b>	1481	94,2	94,4	93,8	0,79	87,8	9,1	288,31	4,2	3,6	0,415	293	68
55	M2BAX 250SMA 4	<b>3GBA252210-***F</b>	1479	94,6	94,7	94	0,83	102	10,1	351,77	4,4	3,4	0,62	386	74
75	M2BAX 280SMB 4	<b>3GBA282220-***M</b>	1485	95	95,2	94,8	0,86	133	6,4	483	2,3	2,8	1,38	573	75
90	M2BAX 280SMC 4	<b>3GBA282230-***M</b>	1485	95,2	95,3	94,8	0,86	159	7,1	588	2,5	2,9	1,73	636	75
110	M2BAX 315SMB 4	<b>3GBA312220-***M</b>	1489	95,4	95,4	94,8	0,85	196	7	705	2,1	3	2,43	823	71
132	M2BAX 315SMC 4	<b>3GBA312230-***M</b>	1488	95,6	95,8	95,3	0,86	231	6,7	847	2,2	2,9	2,9	892	71
160	M2BAX 315SMD 4	<b>3GBA312240-***M</b>	1488	95,8	96	95,8	0,85	282	6,9	1026	2,2	3	3,2	933	71
200	M2BAX 315MLB 4	<b>3GBA312420-***M</b>	1487	96	96,4	96,4	0,86	351	6,8	1284	2,4	3	3,9	1091	74
250	M2BAX 355SMA 4	<b>3GBA352210-***M</b>	1491	96	96	95,6	0,86	435	6,4	1601	2,1	2,9	5,9	1445	78
315	M2BAX 355SMB 4	<b>3GBA352220-***M</b>	1491	96	96	95,6	0,86	545	6,7	2018	2,3	3	6,9	1595	78
355	M2BAX 355SMC 4	<b>3GBA352230-***M</b>	1490	96	96,2	95,8	0,86	616	6,3	2273	2,3	2,8	7,2	1635	78

## IE3 General performance cast iron motors 6 Pole / 1000 RPM



IP 66 - IC 411 - Insulation class F, temperature rise class B  
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current		Torque		Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB	
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>i</sub> /T <sub>N</sub>				T <sub>v</sub> /T <sub>N</sub>
<b>1000 r/min = 6 poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.18	M2BAX 71MB 6	<b>3GBA073320-...D</b>	931	63,9	60	53,2	0,69	0,6	3,8	1,87	2,1	2,6	0,00103	10	39
0.25	M2BAX 71MLA 6	<b>3GBA073410-...D</b>	926	68,6	66,3	60,9	0,67	0,8	4,3	2,58	2,6	2,9	0,0014	13	46
0.37	M2BAX 80MC 6	<b>3GBA083330-...D</b>	940	73,5	71,2	66,4	0,67	1,08	5,8	3,77	2,8	3,2	0,0024	17	42
1.1	M2BAX 90LB 6	<b>3GBA093520-...D</b>	954	81	79,2	75,5	0,63	3,13	6	11,05	3,3	3,8	0,00643	30	53
1.5	M2BAX 100LKA 6	<b>3GBA103810-...D</b>	955	82,5	82	79,7	0,66	3,95	5,4	15,01	2,8	3,1	0,00975	37	48
2.2	M2BAX 112MLA 6	<b>3GBA113410-...D</b>	957	84,3	83,6	81,5	0,65	5,85	6,7	21,84	2,9	3,7	0,013	46	49
3	M2BAX 132SMA 6	<b>3GBA133210-...D</b>	968	85,6	86,3	84,9	0,68	7,33	6,8	29,58	2,2	3,2	0,0291	65	48
4	M2BAX 132SMB 6	<b>3GBA133220-...D</b>	972	86,8	86,8	84,9	0,65	10,1	7	39,32	2,7	3,6	0,0343	71	52
5.5	M2BAX 132MLA 6	<b>3GBA133410-...D</b>	974	88	87,4	86	0,67	13,5	7,3	54,2	2,9	3,5	0,0511	97	65
7.5	M2BAX 160MLA 6	<b>3GBA163410-...F</b>	979	89,1	89,5	88,9	0,75	15,9	7,6	73,39	1,8	3,1	0,099	131	59
11	M2BAX 160MLB 6	<b>3GBA163420-...F</b>	976	90,3	91,3	91,3	0,78	22,5	7,8	107,71	1,9	3	0,134	161	57
15	M2BAX 180MLA 6	<b>3GBA183410-...F</b>	971	91,2	91,8	91,2	0,75	31,8	9,4	146,02	2,3	3,6	0,162	197	63
18.5	M2BAX 200MLA 6	<b>3GBA203410-...F</b>	978	91,7	92,1	91,5	0,75	38,8	6,7	180,06	2,1	2,8	0,207	208	64
22	M2BAX 200MLB 6	<b>3GBA203420-...F</b>	978	92,2	92,5	91,8	0,75	45,9	7,3	213,75	2,3	3	0,255	251	62
30	M2BAX 225SMA 6	<b>3GBA223210-...F</b>	988	92,9	93,3	92,7	0,79	59	8,2	290,09	2,9	3,3	0,592	286	63
37	M2BAX 250SMA 6	<b>3GBA253210-...F</b>	986	93,3	93,6	93,1	0,79	72,4	8,5	353,33	3,3	3	0,83	360	64
45	M2BAX 280SMB 6	<b>3GBA283220-...M</b>	991	93,7	94	93,5	0,84	81,9	7,4	433	2,7	3	1,87	562	72
55	M2BAX 280SMC 6	<b>3GBA283230-...M</b>	993	94,1	94,3	93,8	0,86	98,2	7,5	530	2,8	3	2,57	615	71
75	M2BAX 315SMB 6	<b>3GBA313220-...M</b>	994	94,6	94,9	94,6	0,84	136	6,8	720	1,8	2,6	4,1	791	75
90	M2BAX 315SMC 6	<b>3GBA313230-...M</b>	994	94,9	95,1	94,7	0,84	164	7,2	864	2	3	4,6	859	76
110	M2BAX 315SMD 6	<b>3GBA313240-...M</b>	994	95,1	95,3	95	0,83	200	7,3	1056	2,2	3,1	4,9	912	75
132	M2BAX 315MLB 6	<b>3GBA313420-...M</b>	995	95,4	95,5	95,1	0,82	242	7,3	1266	2,3	3,2	6,3	1068	72
160	M2BAX 355SMA 6	<b>3GBA353210-...M</b>	993	95,6	95,9	95,6	0,82	292	6,7	1538	2,5	2,6	7,9	1348	75
200	M2BAX 355SMB 6	<b>3GBA353220-...M</b>	993	95,8	96,2	96,1	0,82	365	6,7	1923	2,6	2,5	9,7	1512	75
250	M2BAX 355SMC 6	<b>3GBA353230-...M</b>	993	95,8	96,1	95,8	0,81	464	7,7	2404	3	3,1	11,3	1656	75

## IE3 General performance cast iron motors



Variant codes specify additional options and features to the standard motor. The desired features are listed as three-digit variant codes in the motor order. Note also that there are variants that cannot be used together. Most of the variant codes apply to IE2 and IE3 motors. For details please contact your ABB sales office before making an order.

Code/Variants M2BAX	Frame size													
	71	80	90	100	112	132	160	180	200	225	250	280	315	355
<b>Bearings and Lubrication</b>														
037 Roller bearing at D-end.	-	-	-	-	-	-	●	●	●	●	●	●	●	●
041 Bearings regreasable via grease nipples.	-	-	-	-	-	-	●	●	●	●	●	○	○	○
043 SPM compatible nipples for vibration measurement	-	-	-	-	-	-	●	●	●	●	●	-	-	-
<b>Branch standard designs</b>														
178 Stainless steel / acid proof bolts.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Cooling system</b>														
068 Light alloy metal fan	●	●	●	●	●	●	●	●	●	●	●	●	●	●
183 Separate motor cooling (fan axial, N-end).	●	●	●	●	●	●	●	●	●	●	●	●	●	-
<b>Drain holes</b>														
065 Plugged existing drain holes.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Heating elements</b>														
450 Heating element, 100-120 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●
451 Heating element, 200 - 240 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Marine</b>														
096 Fulfilling Lloyds Register of Shipping (LR) requirements, without certificate (non-essential duty only)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
186 Fulfilling Det Norske Veritas (DNV) requirements, without certificate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
492 Fulfilling Registro Italiano Navale (RINA) requirements, without certificate.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
496 Fulfilling Bureau Veritas (BV) requirements, without certificate(non-essential duty only)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
675 Fulfilling American Bureau of Shipping (ABS) requirements, without certificate (non-essential duty only)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
676 Fulfilling Germanischer Lloyd (GL) requirements, without certificate (non-essential duty only)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Mounting arrangements</b>														
008 IM 2101 foot/flange mounted, IEC flange, from IM 1001 (B34 from B3).	●	●	●	●	●	●	-	-	-	-	-	-	-	-
009 IM 2001 foot/flange mounted, IEC flange, from IM 1001 (B35 from B3).	●	●	●	●	●	●	●	●	●	●	●	●	●	●
047 IM 3601 flange mounted, IEC flange, from IM 3001 (B14 from B5).	●	●	●	●	●	●	-	-	-	-	-	-	-	-
048 IM 3001 flange mounted, IEC flange, from IM 3601 (B5 from B14).	●	●	●	●	●	●	-	-	-	-	-	-	-	-
066 Modified for specified mounting position differing from IM B3 (1001), IM B5 (3001), B14 (3601), IM B35 (2001), IM B34 (2101)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Painting</b>														
114 Special paint color, standard grade	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Protection</b>														
005 Protective roof.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
072 Radial seal at D-end. Not possible for 2-pole , 280 and 315 frames	●	●	●	●	●	●	●	●	●	●	●	●	●	●
158 Degree of protection IP65.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
403 Degree of protection IP56.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
784 Gamma-seal at D-end.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Rating &amp; instruction plates</b>														
002 Restamping voltage, frequency and output, continuous duty.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
095 Restamping output (maintained voltage, frequency), intermittent duty.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
098 Stainless steel rating plate	○	○	○	○	○	○	○	○	○	○	○	○	○	○
135 Mounting of additional identification plate, stainless.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
159 Additional plate with text "Made in ...."	●	●	●	●	●	●	●	●	●	●	●	●	●	●
161 Additional rating plate delivered loose.	●	●	●	●	●	●	●	●	●	●	●	-	-	-
163 Frequency converter rating plate. Rating data according to quotation.	●	●	●	●	●	●	●	●	●	●	●	●	●	●

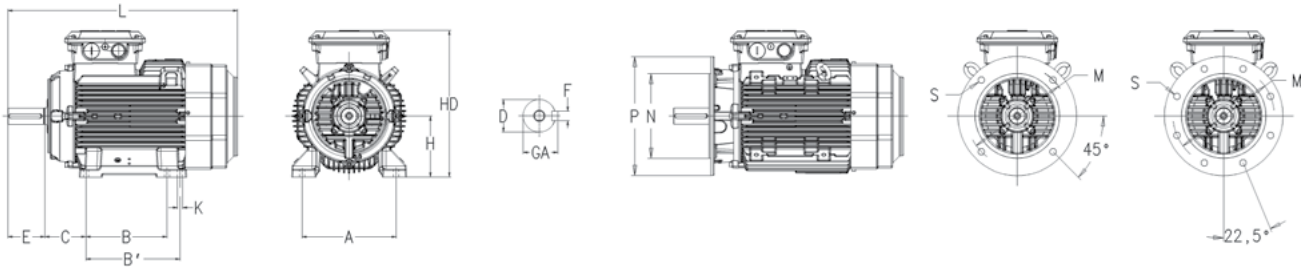
○ = Included as standard | ● = Available as option | - = Not applicable

Code/Variants M2BAX	Frame size													
	71	80	90	100	112	132	160	180	200	225	250	280	315	355
<b>Standards and Regulations</b>														
331	●	●	●	●	●	●	●	●	●	●	●	-	-	-
540	●	●	●	●	●	●	●	●	●	●	●	●	●	●
544	-	-	-	-	-	●	●	●	●	●	●	●	●	●
822	●	●	●	●	●	●	●	●	●	●	●	●	●	●
823	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Stator winding temperature sensors</b>														
122	●	●	●	●	●	●	●	●	●	●	●	●	●	●
435	●	●	●	●	●	●	●	●	●	●	●	●	●	●
436	○	○	○	○	○	○	○	○	○	○	○	○	○	○
439	●	●	●	●	●	●	●	●	●	●	●	●	●	●
441	●	●	●	●	●	●	●	●	●	●	●	●	●	●
445	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Terminal box</b>														
022	●	●	●	●	●	●	●	●	●	●	●	●	●	●
230	●	●	●	●	●	●	●	●	●	●	●	●	●	●
375	●	●	●	●	●	●	●	●	●	●	●	-	-	-
376	●	●	●	●	●	●	●	●	●	●	●	-	-	-
400	●	●	●	●	●	●	●	●	●	●	●	○	○	○
418	●	●	●	●	●	●	●	●	●	●	●	-	-	-
447	-	-	-	-	-	-	-	-	-	-	-	●	●	●
468	-	-	-	-	-	-	-	-	-	-	-	●	●	●
731	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Testing</b>														
145	●	●	●	●	●	●	●	●	●	●	●	●	●	●
148	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Variable speed drives</b>														
470	-	-	-	-	-	-	●	●	●	●	●	-	-	-
472	-	-	-	-	-	-	●	●	●	●	●	-	-	-
473	-	-	-	-	-	-	●	●	●	●	●	-	-	-
701	-	-	-	-	-	-	-	-	-	-	-	●	●	●
704	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○ = Included as standard | ● = Available as option | - = Not applicable



## IE3 General performance cast iron motors



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

Motor size	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD max	K	M	N	P	S
	2	4-8	2	4-8	2	4-8	2	4-8	2	4-8										
71M	14	14	16	16	5	5	30	30	257	257	112	90	-	45	175	7	130	110	160	10
71ML	14	14	16	16	5	5	30	30	282	282	112	90	-	45	175	7	130	110	160	10
80M	19	19	21.5	21.5	6	6	40	40	309	309	125	100	-	50	192	10	165	130	200	12
80ML	19	19	21.5	21.5	6	6	40	40	334	334	125	100	112	50	192	10	165	130	200	12
90S	24	24	27	27	8	8	50	50	335	335	140	100	-	56	217	10	165	130	200	12
90SL	24	24	27	27	8	8	50	50	351	351	140	100	125	56	217	10	165	130	200	12
90L <sup>1)</sup>	24	24	27	27	8	8	50	50	351	351	140	125	-	56	217	10	165	130	200	12
100L	28	28	31	31	8	8	60	60	376	376	160	140	-	63	240	12	215	180	250	14.5
100LK	28	28	31	31	8	8	60	60	411	411	160	140	160	63	240	12	215	180	250	14.5
112M	28	28	31	31	8	8	60	60	411	411	190	140	-	70	252	12	215	180	250	14.5
112ML	28	28	31	31	8	8	60	60	456	456	190	140	159	70	252	12	215	180	250	14.5
132S	38	38	41	41	10	10	80	80	479	479	216	140	-	89	302	12	265	230	300	14.5
132SM	38	38	41	41	10	10	80	80	521	521	216	140	178	89	302	12	265	230	300	14.5
132M	38	38	41	41	10	10	80	80	521	521	216	178	-	89	302	12	265	230	300	14.5
132ML	38	38	41	41	10	10	80	80	586	586	216	178	203	89	302	12	265	230	300	14.5
160 <sup>1)</sup>	42	42	45	45	12	12	110	110	639	639	254	210	254	108	414	14.5	300	250	350	18.5
160 <sup>2)</sup>	42	42	45	45	12	12	110	110	696	696	254	210	254	108	414	14.5	300	250	350	18.5
180	48	48	51.5	51.5	14	14	110	110	728	728	279	241	279	121	454	14.5	300	250	350	18.5
200	55	55	59	59	16	16	110	110	809	809	318	267	305	133	515	18.5	350	300	400	18.5
225	55	60	59	64	16	18	110	140	812	842	356	286	311	149	560	18.5	400	350	450	18.5
250	60	65	64	69	18	18	140	140	853	853	406	311	349	168	613	24	500	450	550	18.5
280	65	75	69	79.5	18	20	140	140	1012	1012	457	368	419	190	710	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
355 SM_	70	100	74.5	106	20	28	140	210	1399	1469	610	500	560	254	933	35	740	680	800	24

<sup>1)</sup>MLA 2-6, MLB2 <sup>2)</sup>MLC, MLB4-6

### IMB14 (IM3601)

Motor size	M	N	P	S	T
71	85	70	105	6	2.5
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

# CAST IRON MINING MOTOR FEATURES

Main terminal box can be relocated to either side of the motor using optional adapter on shaft height 225 and above.

Labyrinth seals on both ends from shaft height 160 and up.

Winding temperature detectors (PTC)

Class F insulation with class B temperature rise

Steel gland plate + metal closing plugs

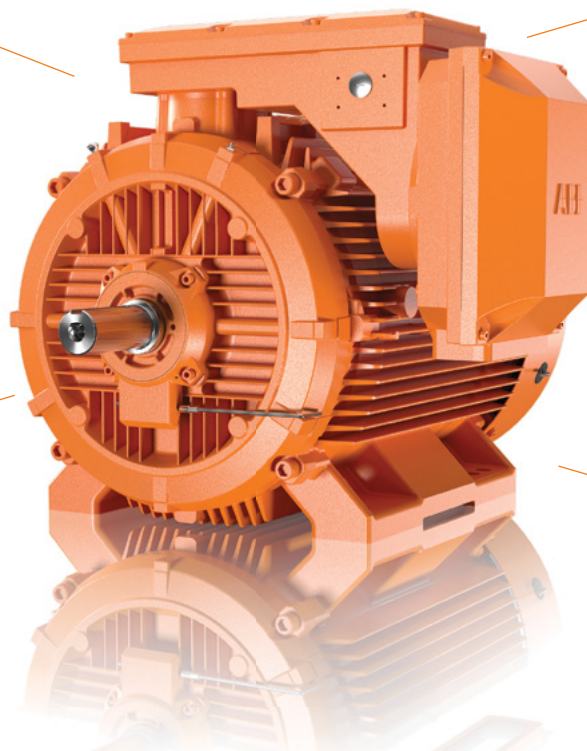
Metal fan

Components cast from EN-GJL-200 and EN-GJL-250 grade material for extra strength.

Closable grease ejection port with handle located safely on side of motor.

Standard surface treatment. Color RAL 2011 (orange).

IP 66 protection class



Cast iron mining motors are suitable for use in underground mines and open pit quarries. Typical applications include conveyors, pumps, fans, winches, crushers, mills and floatation tank agitators.

The grease ports can be operated safely from the side of the motor without the need to reach close to the spinning shaft.

The cooling ribs on the end shields help to reduce bearing temperatures. Smooth, ribless end shields are available for vertical applications where it is necessary to prevent water from accumulating on top of the motor.

## Cast iron mining motors

Output	0.55 - 1000 kW
Frame sizes	IEC 71 - 450
Poles	2 - 8
Efficiency classes	IE2, IE3, IE4
Voltages	230 - 1300 V (DOL) U <sub>p</sub> to 550 V (VSD)*

\* Reinforced insulation for higher VSD voltages optionally available.

A robust steel fan is fitted to avoid wear caused by abrasive contaminants in the cooling air. The IP66 enclosure is dust tight and protects against powerful jets of water. All but the smallest motors in the range have labyrinth type bearing seals at both ends. These proven and safe seals protect against dust and water, as well as corrosion, and do not cause friction or require maintenance.

A steel gland plate and metal cable entry closing plugs complete the all steel and cast iron design. Components are cast from high tensile strength EN-GJL-200 and -250 material.

## IE3 cast iron mining motors 2 Pole / 3000 RPM



Technical data for 415V 50 Hz motors can be found in the table below, data for other voltages on request

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L <sub>PA</sub> dB	
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>I</sub> /T <sub>N</sub>				T <sub>b</sub> /T <sub>N</sub>
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>				<b>CENELEC-design</b>								
0.37	M3BP 71MC 2	3GBP071330-••L	2743	73,8	74,4	71,7	0,76	0,94	4,9	1,26	2,3	2,8	0,00088	10	58
0.55	M3BP 71ME 2	3GBP071350-••L	2755	77,8	79,3	78,4	0,83	1,25	6,8	1,9	2,8	3,1	0,00045	11	56
0.75	M3BP 80MC 2	3GBP081330-••L	2879	80,7	81,0	78,8	0,82	1,6	7,2	2,5	3,4	4,2	0,001	17	57
1.1	M3BP 80ME 2	3GBP081350-••L	2865	82,7	83,8	83,1	0,84	2,3	7,2	3,7	3,5	4,1	0,0012	18	60
1.5	M3BP 90SLA 2	3GBP091010-••L	2901	84,2	84,8	83,8	0,89	2,9	7,7	4,9	2,1	3,5	0,0028	27	69
2.2	M3BP 90LA 2	3GBP091510-••L	2904	85,9	86,3	84,8	0,89	4,2	8,8	7,2	3,1	3,8	0,0036	30	64
3	M3BP 100MLA 2	3GBP101410-••L	2895	87,1	87,9	87,3	0,92	5,4	8,2	9,9	3,3	3,9	0,0013	42	68
4	M3BP 112ME 2	3GBP111350-••L	2882	88,1	89,9	90,9	0,93	6,9	8,3	13	2,9	3,7	0,0139	56	70
5.5	M3BP 132SMC 2	3GBP131230-••L	2908	89,2	89,5	88,5	0,90	9,8	7,6	18	2,3	3,8	0,0182	69	70
7.5	M3BP 132SME 2	3GBP131250-••L	2916	90,1	90,5	90,1	0,90	13,3	8,4	24,6	2,5	4,3	0,0203	75	70
11	M3BP 160MLA 2	3GBP161410-••L	2943	91,2	92,0	91,6	0,91	19,1	7,2	35,6	2,6	3,6	0,057	144	69
15	M3BP 160MLB 2	3GBP161420-••L	2947	91,9	92,2	91,8	0,88	26,5	8,2	48,5	3,2	4,2	0,063	152	69
18.5	M3BP 160MLC 2	3GBP161430-••L	2949	92,4	93,0	92,6	0,90	32	9,0	59,8	3,3	3,9	0,076	164	73
22	M3BP 180MLA 2	3GBP181410-••L	2956	92,7	93,1	92,7	0,90	37,7	7,8	71	3,4	3,8	0,11	205	73
30	M3BP 200MLA 2	3GBP201410-••L	2957	93,3	93,8	93,6	0,88	52,4	7,5	96,9	2,5	3,1	0,182	263	73
37	M3BP 200MLB 2	3GBP201420-••L	2960	93,7	94,2	94,1	0,89	64,2	8,2	120	3,1	3,4	0,222	289	73
45	M3BP 225SMA 2	3GBP221210-••L	2968	94	94,0	93,0	0,87	79,6	7,3	145	3,2	3,1	0,296	335	76
55	M3BP 250SMA 2	3GBP251210-••L	2968	94,3	93,7	93,6	0,89	94,8	6,8	177	2,4	3,0	0,426	400	76
75	M3BP 280SMB 2	3GBP281220-••L	2978	94,7	94,4	93,5	0,88	130	7,0	240	2,3	3,0	0,9	665	74
90	M3BP 280SMC 2	3GBP281230-••L	2975	95,0	95,0	94,2	0,88	158	6,4	289	2,1	2,8	0,99	690	74
110	M3BP 315SMB 2	3GBP311220-••L	2982	95,2	94,9	93,9	0,87	192	7,0	352	1,8	2,7	1,3	910	78
132	M3BP 315SMC 2	3GBP311230-••L	2982	95,4	95,4	94,6	0,87	229	6,8	422	2,0	2,8	1,5	965	78
160	M3BP 315SMD 2	3GBP311240-••L	2983	95,6	95,6	94,9	0,87	275	7,4	512	2,2	2,8	1,7	1025	78
200	M3BP 315MLA 2	3GBP311410-••L	2983	95,8	95,8	95,3	0,88	342	7,7	640	2,5	3,1	2,1	1190	81
250 <sup>2)</sup>	M3BP 355SMA 2	3GBP351210-••L	2985	95,8	95,6	94,6	0,89	423	7,7	800	2,1	3,3	3,0	1600	83
315 <sup>2)</sup>	M3BP 355SMB 2	3GBP351220-••L	2980	95,8	95,7	95,0	0,89	529	7,0	1009	2,1	3,0	3,4	1680	83
355 <sup>2)</sup>	M3BP 355SMC 2	3GBP351230-••L	2984	95,8	95,8	95,0	0,88	605	7,2	1136	2,2	3,0	3,6	1750	83
400	M3BP 355MLA 2	3GBP351410-••G	2982	96,9	96,6	95,9	0,88	677	7,1	1280	2,3	2,9	4,1	2000	83
450	M3BP 355MLB 2	3GBP351420-••G	2983	97,1	97,0	96,4	0,90	743	7,9	1440	2,2	2,9	4,3	2080	83
500	M3BP 355LKA 2	3GBP351810-••G	2982	96,9	96,9	96,5	0,90	827	7,5	1601	2,0	3,9	4,8	2320	83
560	M3BP 355LKB 2	3GBP351820-••G	2983	97,0	97,0	96,5	0,90	925	8,0	1792	2,2	4,1	5,2	2460	83
560 <sup>2)</sup>	M3BP 400LA 2	3GBP401510-••G	2988	97,2	97,2	96,6	0,89	934	7,8	1789	2,5	3,7	7,9	2950	82
630 <sup>2)</sup>	M3BP 400LB 2	3GBP401520-••G	2987	97,4	97,2	96,7	0,89	1049	7,6	2014	2,6	3,7	8,2	3050	82
710 <sup>2)</sup>	M3BP 400LC 2	3GBP401530-••G	2987	97,5	97,4	96,9	0,89	1178	7,2	2270	2,6	3,4	9,3	3300	82
800 <sup>1)2)</sup>	M3BP 450LA 2	3GBP451510-••G	2990	97,4	97,2	96,6	0,87	1362	7,8	2555	1,3	3,4	12,2	4000	85
900 <sup>1)2)</sup>	M3BP 450LB 2	3GBP451520-••G	2990	97,0	96,8	96,2	0,87	1534	7,6	2874	1,5	3,1	13,5	4200	85

Mining industry design must be selected when ordering. Option code: 625 - Design for mining applications.

High output motors Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L <sub>PA</sub> dB	
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>I</sub> /T <sub>N</sub>				T <sub>b</sub> /T <sub>N</sub>
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>				<b>High-output design</b>								
22	M3BP 160MLD 2	3GBP161440-••L	2944	92,7	93,5	93,5	0,90	38	8,4	71,4	3,2	3,7	0,071	174	74
30	M3BP 180MLB 2	3GBP181420-••L	2957	93,3	94,0	93,9	0,88	52,7	8,7	96,9	3	3,8	0,104	215	74
37	M3BP 180MLC 2	3GBP181430-••L	2952	93,7	94,5	94,5	0,88	64,7	8,7	120	3,1	3,7	0,115	229	74
45	M3BP 200MLC 2	3GBP201430-••L	2955	94,0	94,5	94,4	0,89	77,6	8,0	145	2,9	3,3	0,214	305	77
55	M3BP 225SMB 2	3GBP221220-••L	2966	94,3	94,6	94,1	0,88	95,6	7,4	177	2,9	2,9	0,274	355	79
75	M3BP 225SMC 2	3GBP221230-••L	2966	94,7	94,8	94,1	0,88	129	8,1	241	3,3	3,0	0,329	408	79
75	M3BP 250SMB 2	3GBP251220-••L	2971	94,7	95,1	94,8	0,90	127	7,9	241	2,8	3,3	0,644	479	81
90 <sup>1)</sup>	M3BP 250SMC 2	3GBP251230-••L	2968	95,0	95,4	95,0	0,90	151	8,4	290	2,7	3,4	0,644	495	81
110	M3BP 280SMD 2	3GBP281240-••L	2977	95,2	95,2	94,4	0,88	190	7,5	353	2,4	3,1	1,15	725	75
250	M3BP 315LKB 2	3GBP311820-••L	2983	95,8	96,0	95,5	0,90	419	7,7	800	2,5	3,3	2,9	1540	81

<sup>1)</sup> Temperature rise class F <sup>2)</sup> Unidirectional fan, variant code 044 or 045 is mandatory

Mining industry design must be selected when ordering. Option code: 625 - Design for mining applications.

## IE3 cast iron mining motors 4 Pole / 1500 RPM



Technical data for 415V 50 Hz motors can be found in the table below, data for other voltages on request

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current			Torque			Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB
				Full load	3/4 load	1/2 load		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>i</sub> /T <sub>N</sub>	T <sub>b</sub> /T <sub>N</sub>				
				100%	75%	50%		CENELEC-design								
<b>1500 r/min = 4 poles</b>				<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.25	M3BP 71MD 4	3GBP072340-••L	1416	73,5	75,1	73,8	0,80	0,6	4,8	1,68	2	2,6	0,0009	11	45	
0.37	M3BP 71MLE 4	3GBP072450-••L	1432	77,3	77,4	74,5	0,76	0,9	5,8	2,46	2,7	3,3	0,00122	15	45	
0.55	M3BP 80MLC 4	3GBP082430-••L	1444	80,8	81,6	80,1	0,80	1,2	6,7	4	3,0	3,5	0,0028	20	45	
0.75	M3BP 80MLE 4	3GBP082450-••L	1448	82,5	82,5	80,1	0,78	1,7	7,4	4,9	3,5	4,0	0,0033	22	50	
1.1	M3BP 90LA 4	3GBP092510-••L	1443	84,1	84,6	83,5	0,76	2,4	5,2	7,3	3,4	4,2	0,0049	28	56	
1.5	M3BP 90LB 4	3GBP092520-••L	1445	85,3	85,0	82,6	0,77	3,3	5,7	9,9	3,8	4,6	0,0067	32	56	
2.2	M3BP 100LA 4	3GBP102510-••L	1448	86,7	89,0	86,1	0,81	4,5	7,5	14	2,3	3,6	0,0109	38	56	
3	M3BP 100MLB 4	3GBP102420-••L	1444	87,7	88,4	87,6	0,81	6,1	7,0	19,8	3,3	4,1	0,0121	42	58	
4	M3BP 112ME 4	3GBP112350-••L	1453	88,6	88,9	88,0	0,74	8,9	7,8	26	3,5	4,3	0,0188	52	59	
5.5	M3BP 132SMB 4	3GBP132220-••L	1463	89,6	89,8	88,7	0,74	11,9	7,6	36	2,8	3,9	0,0295	68	70	
7.5	M3BP 132SME 4	3GBP132250-••L	1462	90,4	90,8	90,2	0,76	15,7	7,9	49	3,0	4,0	0,0376	78	64	
11	M3BP 160MLA 4	3GBP162410-••L	1477	91,4	91,8	91,1	0,82	21,1	7,6	71,3	2,6	3,3	0,11	160	61	
15	M3BP 160MLB 4	3GBP162420-••L	1477	92,1	92,4	91,6	0,82	28,5	8,2	97	3,0	3,7	0,135	179	61	
18.5	M3BP 180MLA 4	3GBP182410-••L	1481	92,6	93,2	92,9	0,83	34,9	7,2	119	2,8	3,0	0,219	215	60	
22	M3BP 180MLB 4	3GBP182420-••L	1481	93	93,5	93,3	0,82	41,4	6,5	142	3,0	3,2	0,243	229	60	
30	M3BP 200MLA 4	3GBP202410-••L	1483	93,6	93,8	93,4	0,84	54,8	7,5	193	2,7	3,2	0,385	292	63	
37	M3BP 225SMA 4	3GBP222210-••L	1482	93,9	94,1	93,8	0,83	68,9	7,2	239	3,1	3,1	0,427	322	67	
45	M3BP 225SMB 4	3GBP222220-••L	1482	94,2	94,4	94,0	0,84	82,3	8,0	290	3,2	3,5	0,525	357	66	
55	M3BP 250SMA 4	3GBP252210-••L	1482	94,6	94,7	94,0	0,84	100	7,1	354	2,9	3,4	0,694	406	68	
75	M3BP 280SMB 4	3GBP282220-••L	1485	95,0	95,2	94,8	0,86	133	6,4	483	2,3	2,8	1,38	645	75	
90	M3BP 280SMC 4	3GBP282230-••L	1485	95,2	95,5	95,2	0,86	158	7,1	578	2,5	2,9	1,73	700	75	
110	M3BP 315SMB 4	3GBP312220-••L	1489	95,4	95,5	94,9	0,84	195	7,0	705	2,1	3,0	2,43	930	71	
132	M3BP 315SMC 4	3GBP312230-••L	1488	95,6	95,9	95,5	0,86	231	6,7	847	2,2	2,9	2,9	1000	71	
160	M3BP 315SMD 4	3GBP312240-••L	1488	95,8	96,0	95,8	0,85	282	6,9	1026	2,2	3,0	3,2	1065	71	
200	M3BP 315MLB 4	3GBP312420-••L	1487	96,0	96,4	96,4	0,86	351	6,8	1284	2,4	3,0	3,9	1220	74	
250	M3BP 355SMA 4	3GBP352210-••L	1491	96,0	96,0	95,6	0,86	435	6,4	1601	2,1	2,9	5,9	1610	78	
315	M3BP 355SMB 4	3GBP352220-••L	1491	96,0	96,1	95,7	0,85	550	7,3	2018	2,4	3,3	6,9	1780	78	
355	M3BP 355SMC 4	3GBP352230-••L	1490	96,0	96,2	95,8	0,86	616	6,3	2273	2,3	2,8	7,2	1820	78	
400	M3BP 355MLA 4	3GBP352410-••G	1489	96,3	96,3	95,9	0,85	705	6,8	2565	2,3	2,6	8,4	2140	78	
450	M3BP 355MLB 4	3GBP352420-••G	1490	96,7	96,7	96,1	0,86	780	6,9	2884	2,3	2,9	8,4	2140	78	
500	M3BP 355LKA 4	3GBP352810-••G	1490	97,0	97,0	96,5	0,86	865	6,8	3204	2,0	3,0	10	2500	78	
560	<sup>1)</sup> M3BP 355LKB 4	3GBP352820-••G	1490	96,9	96,9	96,5	0,85	981	7,2	3588	2,6	2,7	10,6	2600	78	
560	<sup>1)</sup> M3BP 400LA 4	3GBP402510-••G	1491	96,8	96,8	96,3	0,85	982	7,4	3586	2,4	2,8	15	3200	78	
630	M3BP 400LB 4	3GBP402520-••G	1491	97,0	97,0	96,5	0,87	1077	7,6	4034	2,2	2,9	16	3300	78	
710	<sup>1)</sup> M3BP 400LC 4	3GBP402530-••G	1491	97,1	97,1	96,7	0,86	1227	7,6	4547	2,4	3,0	17	3400	78	
800	M3BP 450LA 4	3GBP452510-••G	1491	96,9	96,9	96,4	0,86	1396	7,0	5121	1,3	2,8	23	4050	85	
900	M3BP 450LB 4	3GBP452520-••G	1492	97,1	97,0	96,5	0,86	1573	7,0	5761	1,3	2,8	25	4350	85	
1000	<sup>1)</sup> M3BP 450LC 4	3GBP452530-••G	1491	97,2	97,2	96,7	0,86	1724	6,8	6404	1,3	2,7	30	4700	85	

Mining industry design must be selected when ordering. Option code: 625 - Design for mining applications.

High output motors	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current			Torque			Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB
				Full load	3/4 load	1/2 load		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>i</sub> /T <sub>N</sub>	T <sub>b</sub> /T <sub>N</sub>				
				100%	75%	load 50%		High-output design								
<b>1500 r/min = 4 poles</b>				<b>400 V 50 Hz</b>			<b>High-output design</b>									
18.5	M3BP 160MLC 4	3GBP162430-••L	1473	92,6	93,3	93,1	0,82	35,1	8,3	120	3,1	3,5	0,124	180	67	
37	M3BP 200MLB 4	3GBP202420-••L	1480	93,9	94,8	94,8	0,82	69,3	7,5	239	2,8	2,9	0,362	305	68	
55	M3BP 225SMC 4	3GBP222230-••L	1478	94,6	94,9	94,8	0,84	99,9	7,7	355	3,3	3,3	0,536	391	71	
75	M3BP 250SMB 4	3GBP252220-••L	1482	95,0	95,4	95,0	0,84	135	7,9	483	3,3	3,5	0,941	464	73	
110	M3BP 280SMD 4	3GBP282240-••L	1486	95,4	95,7	95,3	0,85	196	7,3	707	2,7	3,0	1,95	750	76	
132	M3BP 280MLA 4	3GBP282410-••L	1483	95,6	95,9	95,7	0,86	232	7,0	849	2,7	2,8	2,3	840	75	
160	M3BP 280MLB 4	3GBP282420-••L	1484	95,8	96,0	95,8	0,86	280	7,4	1029	2,9	2,9	2,5	890	75	
250	M3BP 315LKA 4	3GBP312810-••L	1488	96,0	96,3	96,1	0,85	442	6,9	1604	2,5	3,2	4,4	1410	78	
280	M3BP 315LKB 4	3GBP312820-••L	1488	96,0	96,2	96,0	0,86	490	7,8	1797	2,7	3,1	5	1520	78	
315	M3BP 315LKC 4	3GBP312830-••L	1489	96,0	96,1	95,8	0,85	557	8,3	2020	3,0	3,3	5,5	1600	78	

<sup>1)</sup> Temperature rise class F. Mining industry design must be selected when ordering. Option code: 625 - Design for mining applications.

## IE3 cast iron mining motors 6 Pole / 1000 RPM



Technical data for 415V 50 Hz motors can be found in the table below, data for other voltages on request

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current			Torque		Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>I</sub> /T <sub>N</sub>	T <sub>b</sub> /T <sub>N</sub>			
				400 V 50 Hz				CENELEC-design							
0.18	M3BP 71ME 6	3GBP073350-••L	887	63,9	64,2	59,7	0,74	0,57	3,2	1,9	1,9	2,2	0,00091	10	45
0.25	M3BP 80MB 6	3GBP083320-••L	942	68,6	67,0	61,7	0,61	0,82	4,8	2,5	2,7	2,9	0,0019	14	47
0.37	M3BP 80MC 6	3GBP083330-••L	936	73,5	73,9	71,1	0,67	1,06	5,1	3,8	2,6	2,9	0,0028	16	50
0.55	M3BP 80ME 6	3GBP083350-••L	933	77,2	77,9	75,9	0,68	1,52	5,0	5,6	2,7	2,9	0,0035	18	47
0.75	M3BP 90SLD 6	3GBP093040-••L	940	78,9	80,3	79,2	0,75	1,8	4,4	7,6	2,1	2,8	0,0056	29	44
1.1	M3BP 90LF 6	3GBP093560-••L	944	81,0	81,7	80,1	0,75	2,6	4,7	11,1	2,1	2,8	0,0068	33	44
1.5	M3BP 100MLB 6	3GBP103420-••L	960	82,5	82,5	80,1	0,68	3,8	5,4	14,9	2,7	3,4	0,012	41	49
2.2	M3BP 112MJ 6	3GBP113390-••L	962	84,3	85,5	84,7	0,68	5,3	4,2	21,8	1,4	2,3	0,0196	53	66
3	M3BP 132SMB 6	3GBP133220-••L	973	85,6	85,1	82,9	0,62	8	6,6	29,2	2,7	3,8	0,0355	75	57
4	M3BP 132SMF 6	3GBP133260-••L	971	86,8	86,5	84,7	0,62	10,7	6,6	39	2,7	3,8	0,0416	82	57
5.5	M3BP 132SMJ 6	3GBP133290-••L	966	88,0	89,1	88,9	0,73	12,3	4,2	54	1,7	2,7	0,0408	81	57
7.5	M3BP 160MLA 6	3GBP163410-••L	975	89,1	90,0	90,0	0,77	15,7	5,7	73,2	1,4	3,0	0,089	146	59
11	M3BP 160MLB 6	3GBP163420-••L	975	90,3	91,1	91,1	0,78	22,5	6,4	108	1,6	3,1	0,138	180	64
15	M3BP 180MLA 6	3GBP183410-••L	979	91,2	91,9	91,6	0,79	30,1	5,2	147	1,5	2,7	0,212	212	63
18.5	M3BP 200MLA 6	3GBP203410-••L	989	91,7	91,9	91,2	0,82	35,2	6,5	179	2,2	3,2	0,496	272	59
22	M3BP 200MLB 6	3GBP203420-••L	989	92,2	92,4	91,4	0,81	42,4	7,3	212	2,6	3,5	0,585	297	59
30	M3BP 225SMA 6	3GBP223210-••L	988	92,9	93,0	92,2	0,77	60,4	7,7	291	2,9	3,6	0,724	349	63
37	M3BP 250SMA 6	3GBP253210-••L	990	93,3	93,7	93,5	0,80	71,1	6,5	357	2,4	3,1	1,3	431	58
45	M3BP 280SMB 6	3GBP283220-••L	991	93,7	94,0	93,5	0,84	82	7,4	433	2,7	3,0	1,87	645	72
55	M3BP 280SMC 6	3GBP283230-••L	992	94,1	94,3	93,8	0,86	99	7,5	528	2,8	3,0	2,57	725	71
75	M3BP 315SMB 6	3GBP313220-••L	994	94,6	94,9	94,6	0,84	136	6,8	720	1,8	2,6	4,1	930	75
90	M3BP 315SMC 6	3GBP313230-••L	994	94,9	95,1	94,7	0,84	164	7,2	864	2,0	3,0	4,6	1000	76
110	M3BP 315SMD 6	3GBP313240-••L	994	95,1	95,3	95	0,83	200	7,3	1056	2,2	3,1	4,9	1040	75
132	M3BP 315MLB 6	3GBP313420-••L	995	95,4	95,5	95,1	0,82	242	7,3	1266	2,3	3,2	6,3	1200	72
160	M3BP 355SMA 6	3GBP353210-••L	993	95,6	95,8	95,6	0,82	292	6,7	1538	2,5	2,6	7,9	1520	75
200	M3BP 355SMB 6	3GBP353220-••L	993	95,8	96,2	96,1	0,82	365	6,7	1923	2,6	2,5	9,7	1680	75
250	M3BP 355SMC 6	3GBP353230-••L	993	95,8	96,1	95,8	0,81	465	7,7	2404	3	3,1	11,3	1820	75
315	M3BP 355MLB 6	3GBP353420-••L	993	95,8	96,1	96,0	0,83	571	6,8	3029	2,6	3,2	13,5	2180	76
355	M3BP 355LKA 6	3GBP353810-••L	993	95,8	96,0	95,9	0,81	653	7,5	3413	2,9	3,2	15,5	2500	76
400	M3BP 355LKB 6	3GBP353820-••G	992	96,0	96,0	95,5	0,83	724	7,2	3850	2,6	2,6	16,5	2600	75
400	M3BP 400LA 6	3GBP403510-••G	993	96,2	96,2	95,6	0,82	731	7,1	3846	2,3	2,7	17	2900	76
450	M3BP 400LB 6	3GBP403520-••G	994	96,6	96,6	96,1	0,82	819	7,4	4323	2,4	2,8	20,5	3150	76
500	M3BP 400LC 6	3GBP403530-••G	993	96,6	96,5	96,1	0,83	891	7,2	4809	2,5	2,7	22	3300	76
560	M3BP 400LD 6	3GBP403540-••G	993	96,9	96,9	96,4	0,85	984	7,4	5386	2,4	2,8	24	3400	77
630	M3BP 450LA 6	3GBP453510-••G	994	96,7	96,7	96,3	0,84	1127	6,5	6053	1,1	2,5	31	4150	81
710	M3BP 450LB 6	3GBP453520-••G	995	96,9	97,0	96,5	0,85	1244	7,0	6814	1,3	2,5	37	4500	81
800	<sup>1)</sup> M3BP 450LC 6	3GBP453530-••G	995	96,9	96,9	96,4	0,84	1415	7,2	7677	1,3	2,7	41	4800	81

High output motors Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor Cos $\phi$	Current			Torque		Moment of inertia J = 1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure Level L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>S</sub> A	T <sub>N</sub> Nm	T <sub>I</sub> T <sub>N</sub>	T <sub>b</sub> T <sub>N</sub>			
				400 V 50 Hz				High-output design							
18.5	M3BP 180MLB 6	3GBP183420-••L	980	91,7	92,5	92,0	0,75	38,8	6,4	180	2,1	3,1	0,22	219	65
37	M3BP 225SMB 6	3GBP223220-••L	985	93,3	93,7	93,4	0,80	71,5	7,0	359	2,7	3,0	0,813	382	68
45	M3BP 250SMB 6	3GBP253220-••L	991	93,7	94,1	93,6	0,81	85,5	7,6	434	2,9	3,3	1,5	465	68
55	M3BP 250SMC 6	3GBP253230-••L	989	94,1	94,7	94,5	0,80	105	7,1	531	3,0	3,1	1,49	466	68
75	M3BP 280SMD 6	3GBP283240-••L	991	94,6	94,9	94,5	0,85	135	7,6	723	2,8	3,0	3	740	73
160	M3BP 315LKA 6	3GBP313810-••L	994	95,6	95,8	95,4	0,81	298	7,5	1535	2,2	3,1	7,3	1410	76
180	M3BP 315LKB 6	3GBP313820-••L	994	95,8	95,9	95,4	0,82	331	7,6	1729	2,3	3,1	8,3	1520	76
200	M3BP 315LKC 6	3GBP313830-••L	993	95,8	96,1	95,8	0,82	367	7,0	1923	2,2	2,8	9,2	1600	76

<sup>1)</sup> Temperature rise class F

Mining industry design must be selected when ordering. Option code: 625 - Design for mining applications.

## IE3 cast iron mining motors 3000 RPM



Variant codes specify additional options and features to the standard motor. The desired features are listed as three-digit variant codes in the motor order. Note also that there are variants that cannot be used together. The most common variant codes are listed here. For further information see Process performance motors catalogue. Most of the variant codes apply to IE2 and IE3 motors. However, confirm the availability of variants for IE3 motors with your ABB sales office before making an order.

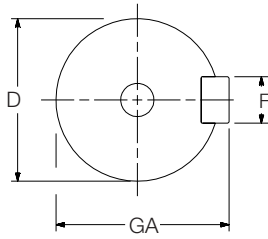
Code/Variants	Frame size																
	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400	450	
<b>Administration</b>																	
530	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●
533	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Bearings and Lubrication</b>																	
036	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
037	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
130	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●
797	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
798	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Branch standard designs</b>																	
209	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
425	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Cooling system</b>																	
075	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
183	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
514	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●	●
<b>Coupling</b>																	
035	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●	●
<b>Documentation</b>																	
141	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Heating elements</b>																	
450	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
451	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Insulation system</b>																	
014	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
405	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
406	-	-	-	-	-	-	-	-	-	●	●	●	●	●	●	●	●
<b>Mounting arrangements</b>																	
009	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Noise reduction</b>																	
055	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●	●
<b>Painting</b>																	
114	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
711	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
754	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Protection</b>																	
005	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Rating &amp; instruction plates</b>																	
002	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
126	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
135	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
163	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Shaft &amp; rotor</b>																	
069	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
070	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Stator winding temperature sensors</b>																	
437	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
441	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
442	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
503	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●
<b>Terminal box</b>																	

○ = Included as standard | ● = Available as option | - = Not applicable

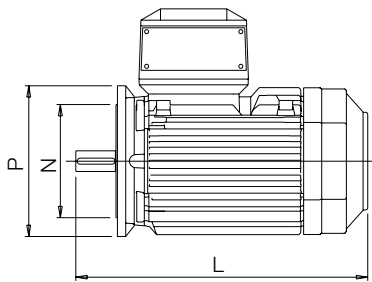
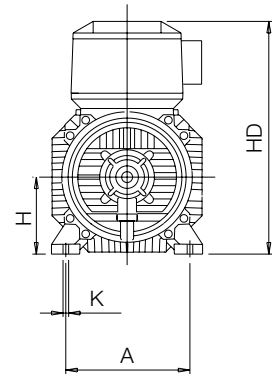
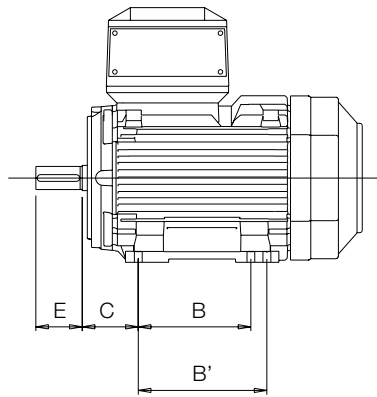
Code/Variants	Frame size															
	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400	450
019 Larger than standard terminal box.	●	●	●	●	●	●	-	-	-	-	-	●	●	●	●	-
021 Terminal box LHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-
022 Cable entry LHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
180 Terminal box RHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-
380 Separate terminal box for temperature detectors, std. material	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●
418 Separate terminal box for auxiliaries, standard material.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
466 Terminal box at N-end.	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●
468 Cable entry from D-end.	●	●	●	●	●	●	-	-	-	-	-	●	●	●	●	-
469 Cable entry from N-end.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-
567 Separate terminal box material: cast Iron	-	-	-	-	-	-	○	○	○	○	○	●	●	●	●	●
568 Separate terminal box for heating elements, std. material	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●
746 Stainless steel cable flange equipped with standard nickel plated brass cable glands	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●
<b>Testing</b>																
146 Type test with report for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
148 Routine test report.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
149 Test according to separate test specification.	-	-	-	-	-	-	●	●	●	●	●	-	-	-	-	-
150 Customer witnessed testing. Specify test procedure with other codes.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
222 Torque/speed curve, type test and multi-point load test with report for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Variable speed drives</b>																
181 Rating plate with ABB standard loadability values for VSD operation. Other auxiliaries for VSD operation to be selected as necessary.	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●
472 1024 pulse tachometer (L&L 861007455-1024).	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●	●
473 2048 pulse tachometer (L&L 861007455-2048).	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●	●
701 Insulated bearing at N-end.	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●
704 EMC cable entry.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○ = Included as standard | ● = Available as option | - = Not applicable

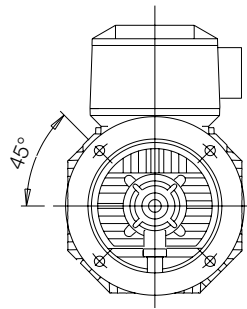
## Cast iron mining motors



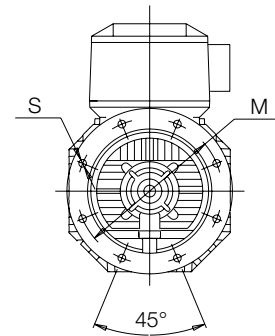
Foot-mounted motor IM 1001, IM B3



Flange-mounted motor IM 3001, IM B5



Sizes 80 to 200



Sizes 225 to 450

Motor size	D poles		GA poles		F poles		E poles		L max poles		O	A	B	B'	C	HD	K	H	M	N	P	S
	2	↗ 4	2	↗ 4	2	↗ 4	2	↗ 4	2	↗ 4												
71M <sub>-</sub>	14	14	16	16	5	5	30	30	264	264	20	112	90		45	178	7	71	130	110	160	10
71ML <sub>-</sub>	14	14	16	16	5	5	30	30	294	294	20	112	90		45	178	7	71	130	110	160	10
80M <sub>-</sub>	19	19	21.5	21.5	6	6	40	40	331	331	20	125	100		50	194	10	80	165	130	200	12
80ML <sub>-</sub>	19	19	21.5	21.5	6	6	40	40	363	363	20	125	100	112	50	194	10	80	165	130	200	12
90SL <sub>-</sub>	24	24	27	27	8	8	50	50	356	356	20	140	100	125	56	218	10	90	165	130	200	12
90L <sub>-</sub>	24	24	27	27	8	8	50	50	390	390	20	140	100	125	56	218	10	90	165	130	200	12
100L <sub>-</sub>	28	28	31	31	8	8	60	60	381	381	25	160	140		63	247	12	100	215	180	250	15
100ML <sub>-</sub>	28	28	31	31	8	8	60	60	403	403	25	160	140		63	247	12	100	215	180	250	15
100LK <sub>-</sub>	28	28	31	31	8	8	60	60	435	435	25	160	140	160	63	247	12	100	215	180	250	15
112 <sup>1)</sup>	28	28	31	31	8	8	60	60	403	403	25	190	140		70	259	12	112	215	180	250	15
112 <sup>2)</sup>	28	28	31	31	8	8	60	60	442	442	25	190	140		70	258	12	112	215	180	250	15
132	38	38	41	41	10	10	80	80	532	532	30	216	140	178	89	300	12	132	265	230	300	15
160 <sup>3)</sup>	42	42	45	45	12	12	110	110	584	584	45	254	210	254	108	421	14.5	160	300	250	350	19
160 <sup>4)</sup>	42	42	45	45	12	12	110	110	681	681	45	254	210	254	108	421	14.5	160	300	250	350	19
180	48	48	51.5	51.5	14	14	110	110	726	726	50	279	241	279	121	461	14.5	180	300	250	350	19
200	55	55	59	59	16	16	110	110	821	821	70	318	267	305	133	528	18.5	200	350	300	400	19
225	55	60	59	64	16	18	110	140	849	879	80	356	286	311	149	573	18.5	225	400	350	450	19
250	60	65	64	69	18	18	140	140	884	884	90	406	311	349	168	626	24	250	500	450	550	19
280SM <sub>-</sub>	65	75	69	79.5	18	20	140	140	1088	1088	100	457	368	419	190	762 <sup>5)</sup>	24	280	500	450	550	18
280ML <sub>-</sub>	65	75	69	79.5	18	20	140	140	1189	1189	100	457	419	457	190	762 <sup>5)</sup> / 785 <sup>6)</sup>	24	280	500	450	550	18
315SM <sub>-</sub>	65	75	69	85	18	22	140	170	1174	1204	115	508	406	457	216	852 <sup>6)</sup>	28	315	600	550	660	23
315ML <sub>-</sub>	65	75	69	95	18	25	140	170	1285	1315	115	508	457	508	216	852 <sup>6)</sup>	28	315	600	550	660	23

<sup>1)</sup> IE2

<sup>2)</sup> IE3

<sup>3)</sup> IE2: MLA, MLB 2 and 8, MLC 2. IE3: MLA 2 only

<sup>4)</sup> IE2: MLB 4-6, MLC 4-8, MLD, MLE. IE3: all others



<sup>5)</sup> Terminal box 210

<sup>6)</sup> Terminal box 370

<sup>7)</sup> Terminal box 750

<sup>8)</sup> Terminal box 1200



Product/ Offering	Benefits and features	Suggested applications
 <p><b>IEC Stainless steel motors for food and beverage industry</b></p>	<p>Withstands extreme washdown conditions - easy to clean, H1 food grade grease used to avoid food contamination and maximize food safety. Encapsulated windings ensure longer lifetime in humid conditions.</p>	<p>Applications in harsh industries like meat, poultry, fish, dairy, beverage and basically wherever high food safety is essential.</p>
 <p><b>Synchronous reluctance motor-drive packages</b></p>	<p>Synchronous reluctance motor-drive packages provide the advantages of permanent magnet motors together with the cost-efficiency, simplicity and service-friendliness of an induction motor.</p> <p><b>Two packages available:</b></p> <p><b>The High Output SynRM package</b></p> <ul style="list-style-type: none"> <li>• Powerful, yet highly compact motor with up to two frame sizes smaller than conventional induction motor without compromising efficiency.</li> <li>• Lighter and smaller motors enable cost effective machine designs</li> </ul> <p><b>The IE4 Super Premium Efficiency SynRM package</b></p> <ul style="list-style-type: none"> <li>• Energy losses reduced by up to 40% compared to IE2 efficiency class</li> <li>• Interchangeable with IE2 induction motor without costly mechanical modifications</li> </ul>	<p>Suitable for a wide range of applications such as pumps, fans, compressors, extruders, conveyors and mixers.</p>
<p><b>Motors for special applications</b></p> <ul style="list-style-type: none"> <li>High speed motors</li> <li>Motors for high ambient temperatures</li> <li>Roller table motors</li> <li>Permanent magnet motors</li> <li>Water cooled motors</li> </ul>	<p>Safe bearing working conditions, state of the art insulation system, maximum tailoring possibilities and good interchangeability.</p>	<p>Motors for a wide range of applications aimed to profitably grow the business of our customers in the process industry.</p>

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