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فروش اینترنتی

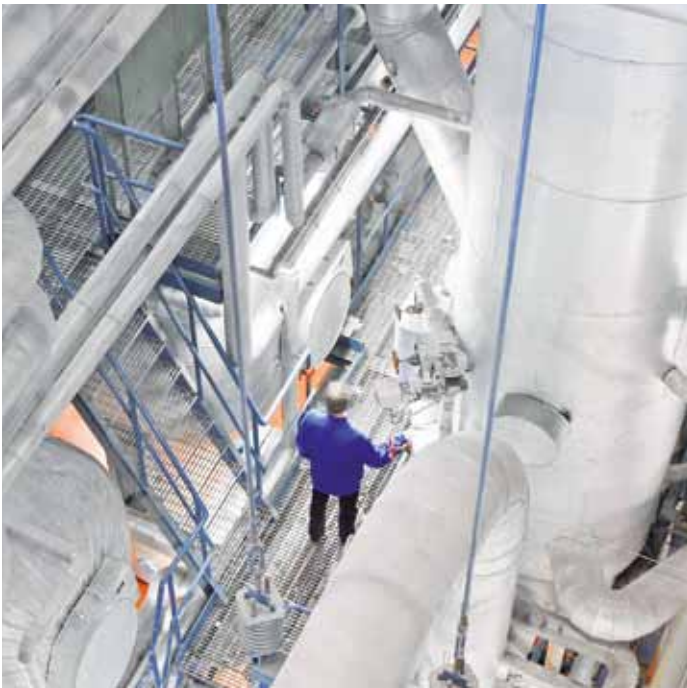
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Power and productivity
for a better world™



We provide motors, generators and mechanical power transmission products, services and expertise to save energy and improve customers' processes over the total life cycle of our products, and beyond.



Low voltage Brake Motors

Totally enclosed squirrel cage three phase low voltage motors,
 Sizes 63 - 180, 0.055 to 22 kW

Mechanical design	4
Ordering information	11
Technical data	12
Variant codes	24
Rating plates	24
Dimension drawings	25
Brake motors in brief	27



Mechanical design

Degrees of protection

The degrees of protection, as per IEC standards 60034-5, are: terminal box and electrical components of the brake – IP 55; other motor parts – IP 55.

Mechanical components of the brake – IP 23 S.
 Mechanical parts of the brake, protected with a rubber ring and V-ring – IP 55 (optional: variant code 213).

Mounting arrangements of brake motors

The design of the brake motor enables it to operate in any mounting position. Nevertheless, the position of the drain holes should be taken into account.

intended for outdoor operation, should be provided with a protective roof to avoid water ingress and the possibility of ice forming on the brake.

Vertically mounted motors with the shaft end downwards,

Operation

ABB's brake motor is a standard motor modified for braking duties, i.e. a three phase induction motor with standard dimensions and output rating.

The electro-magnetic disc brake is powered, by either DC current through a rectifier located in terminal box or three phase AC current.

When the brake coil is de-energised, the brake is actuated by spring pressure.

The axial movement of the brake disc performs a dual braking action against the moving electromagnet and the motor shield, without pressure or impact being transmitted to the bearings.

The brake linings withstand high temperatures, have great wear resistance and give long life. Because of the very low wear of the braking disc, the brakes of the ABB motor usually require only one-third of the maintenance required by other common brake types in the market.

Lubrication and bearings

The bearings incorporate two Z-type non-friction sealing plates. The amount of grease is sufficient for the life of the bearing.

The motors are fitted with the bearings listed in the table.

Motor size		D-end	N-end
M3VRF/S	63 A, B, BB	6202-2Z/C3	6202-2Z/C3
	71	6203-2Z/C3	6203-2Z/C3
	80	6204-2Z/C3	6204-2Z/C3
M3ARF/S	90	6205-2Z/C3	6205-2Z/C3
	100	6306-2Z/C3	6206-2Z/C3
	112	6206-2Z/C3	6206-2Z/C3
	132	6208-2Z/C3	6208-2Z/C3
	160	6309-2Z/C3	6209-2Z/C3
M3AA	180	6310-2Z/C3	6209-2Z/C3

Total product offering

Motors, generators and mechanical power transmission products with a complete portfolio of services

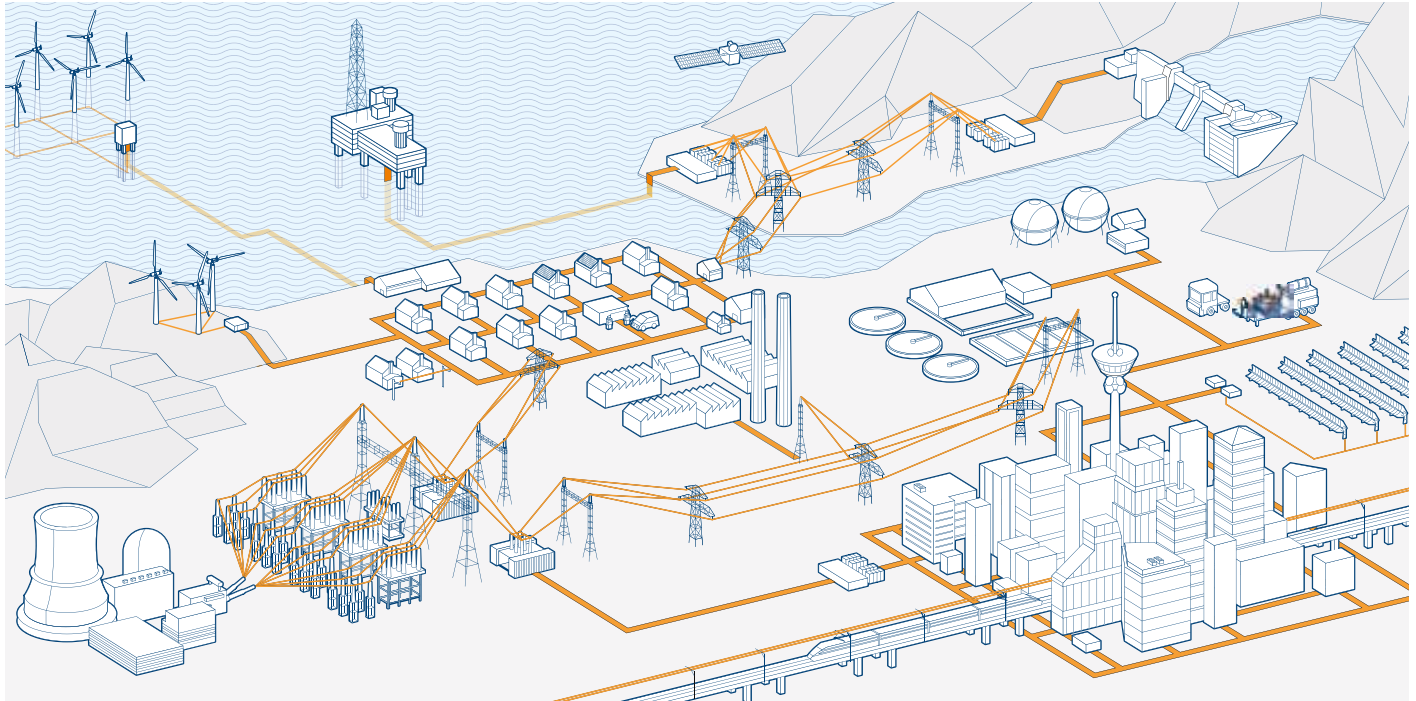


ABB is the leading manufacturer of low, medium and high voltage motors and generators, and mechanical power transmission products. ABB products are backed by a complete portfolio of services. Our in-depth knowledge of virtually every type of industrial process ensures we always specify the best solution for your needs.

> Low and high voltage IEC induction motors

- Process performance motors
- General performance motors
- High voltage cast iron motors
- Induction modular motors
- Slip-ring modular motors
- Synchronous reluctance motors

> Low and medium voltage NEMA motors

- Steel frame open drip proof (ODP) motors
- Weather protected, water cooled, fan ventilated
- Cast iron frame (TEFC)
- Air to air cooled (TEAAC) motors

> Motors and generators for explosive atmospheres

- IEC and NEMA motors and generators, for all protection types

> Synchronous motors

> Synchronous generators

- Synchronous generators for diesel and gas engines
- Synchronous generators for steam and gas turbines

> Wind power generators

> Generators for small hydro

> Other motors and generators

- Brake motors
- DC motors and generators
- Gear motors
- Marine motors and generators
- Single phase motors
- Motors for high ambient temperatures
- Permanent magnet motors and generators
- High speed motors
- Smoke extraction motors

- Wash down motors
- Water cooled motors
- Generator sets
- Roller table motors
- Low inertia motors
- Traction motors and generators

> Life cycle services

- Installation and commissioning
- Spares and consumables
- Preventive maintenance
- Predictive maintenance
- Condition monitoring
- On-site and workshop
- Remote troubleshooting
- Technical support
- Engineering and consulting
- Extensions, upgrades and retrofits
- Replacements
- Training
- Service agreements

> Mechanical power transmission components, bearings, gearings

Totally enclosed squirrel cage three phase motors, aluminium frame IP 55 IC 411 two-speed motors

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/2 GD ² kgm ²	Weight kg
						I _N	I _N	T _N	T _s	T _{max}		
						A		Nm	T _N	T _N		
3000/1500 r/min = 2/4 poles						Fan drive, two separate windings						
0.37/0.07	71 B	078 202-●	2810/1450	64/43	0.90/0.62	1.0/0.4	3.5/2.9	1.2/0.46	1.0/1.1	1.7/2.2	0.0005	6.5
0.65/0.10	80 A	088 201-●	2860/1460	68/40	0.86/0.62	1.6/0.6	4.1/2.8	2.1/0.65	1.2/1.1	2.0/2.2	0.0009	9
0.9/0.15	80 B	088 202-●	2870/1460	73/45	0.87/0.66	2.1/0.75	4.8/2.8	3.0/1.0	1.5/1.0	2.2/2.3	0.0011	10
1.4/0.22	90 S	098 201-●	2870/1470	77/48	0.89/0.63	3.0/1.1	5.3/3.3	4.6/1.4	1.7/1.0	2.4/2.7	0.0019	13
1.9/0.3	90 L	098 202-●	2880/1470	78/58	0.89/0.68	4.0/1.1	5.8/3.7	6.3/1.9	1.9/1.0	2.5/2.3	0.0024	16
2.5/0.4	100 L	108 201-●	2900/1470	80/60	0.87/0.67	5.2/1.5	6.5/4.1	8.2/2.6	2.1/1.0	3.0/2.7	0.0041	21
3.5/0.6	112 M	118 204-●	2895/1470	83.0/68.0	0.92/0.60	6.6/2.1	7.0/5.8	11.5/3.9	1.7/1.8	2.3/2.8	0.012	32
5.5/1.0	132 S	138 207-●	2900/1470	84.0/64.0	0.88/0.65	10.8/3.5	7.8/5.7	18.1/6.5	2.4/2.0	2.9/2.8	0.016	42
7.4/1.2	132 M	138 208-●	2875/1475	85.0/67.0	0.93/0.64	13.5/4.1	7.5/5.9	24.6/7.8	2.1/2.0	2.6/2.8	0.022	56
13/1.9	160 M	168 202-●	2940/1470	88.5/79.5	0.92/0.79	23.0/4.4	7.8/6.4	42/12	2.1/2.1	3.0/2.5	0.054	92
17.5/2.5	160 L	168 203-●	2925/1475	89.0/81.0	0.92/0.77	31.0/5.8	7.1/6.7	57/16	2.0/2.5	2.6/2.9	0.057	99
20/2.8	180 M	188 207-●	2930/1465	89.0/77.0	0.90/0.77	36.0/6.9	6.4/5.8	65/18	2.1/1.9	2.4/2.0	0.094	132
25/3.6	180 L	188 208-●	2940/1465	90.0/78.0	0.88/0.78	46.0/8.6	7.5/7.3	81/24	2.6/1.9	2.9/1.9	0.108	152
30/4.1	200 MLA	208 210-●	2945/1480	91.5/85.0	0.89/0.72	54/10	8.0/7.1	97/26	2.2/2.7	2.8/2.8	0.15	175
38/5.5	200 MLB	208 211-●	2945/1480	92.5/86.5	0.91/0.74	67/13	7.7/6.8	123/35	2.2/2.6	2.6/2.6	0.19	205
43/6	225 SMB	228 207-●	2950/1475	92.5/86.5	0.90/0.78	75/13	7.1/5.8	139/39	2.3/2.7	2.4/2.0	0.26	235
50/7	225 SMC	228 208-●	2955/1480	93.0/87.5	0.91/0.78	86/15	7.3/6.1	162/45	2.4/2.9	2.4/2.1	0.29	260
70/10	250 SMB	258 204-●	2965/1485	94.0/89.5	0.90/0.76	119/22	9.3/7.1	225/64	2.3/2.5	3.1/2.3	0.57	330

3000/1500 r/min = 2/4 poles

Fan drive, Dahlander-connection

0.55/0.11	71 B	078 102-●	2800/1440	68/50	0.85/0.62	1.4/0.5	4.0/3.0	1.8/0.73	1.5/1.4	2.0/2.4	0.0005	6.5
0.65/0.13	71 C	078 103-●	2800/1440	70/55	0.87/0.62	1.6/0.55	4.1/3.0	2.2/0.86	1.6/1.4	2.1/2.4	0.0006	7.5
0.75/0.15	80 A	088 101-●	2850/1460	73/57	0.80/0.57	1.9/0.67	4.5/3.5	2.5/0.98	1.8/1.4	2.4/2.4	0.0009	9
1.1/0.23	80 B	088 102-●	2860/1460	76/63	0.83/0.60	2.6/0.88	5.0/3.7	3.8/1.5	1.8/1.3	2.4/2.4	0.0011	10
1.4/0.3	80 C	088 103-●	2840/1450	75/67	0.86/0.64	3.1/1.0	5.0/3.7	4.7/2.0	1.8/1.2	2.4/2.5	0.0013	11
1.5/0.33	90 S	098 101-●	2860/1460	77/66	0.87/0.67	3.3/1.1	5.2/3.9	5.0/2.1	1.8/1.1	2.4/2.4	0.0019	13
2.2/0.45	90 L	098 102-●	2860/1460	80/73	0.88/0.65	4.6/1.4	5.9/4.4	7.3/2.9	2.1/1.2	2.6/2.6	0.0024	16
2.5/0.47	90 LB	098 103-●	2860/1460	78/75	0.88/0.62	5.2/1.5	6.1/4.5	8.3/3.1	2.2/1.4	2.7/2.8	0.0027	18
3.0/0.6	100 L	108 101-●	2880/1470	81/74	0.89/0.61	6.2/1.9	6.3/4.8	9.9/3.9	2.2/1.4	2.8/2.8	0.0041	21
3.5/0.7	100 LB	108 102-●	2880/1470	80/77	0.91/0.65	7.0/2.0	6.2/4.8	12/4.6	2.1/1.2	2.8/3.0	0.005	25
4.5/1	112 M	118 104-●	2875/1450	83.0/80.0	0.93/0.76	8.4/2.4	7.0/6.0	14.9/6.6	1.8/1.9	2.3/2.8	0.012	32
6.2/1.3	132 S	138 127-●	2880/1455	84.0/80.0	0.91/0.67	11.8/3.5	7.0/6.5	20.6/8.5	2.0/2.6	2.6/3.3	0.016	42
8.3/1.7	132 M	138 108-●	2875/1455	84.0/82.0	0.93/0.71	15.4/4.2	7.4/6.6	27.6/11.2	2.5/2.7	2.7/3.3	0.022	56
10/2	160 MA	168 101-●	2910/1465	85.0/83.5	0.89/0.73	19.0/4.8	5.9/6.1	30/43	1.5/2.4	2.3/2.8	0.039	73
16/3.2	160 M	168 102-●	2915/1465	87.5/86.5	0.92/0.76	28.5/7.0	6.6/6.3	52/21	1.8/2.5	2.4/2.8	0.054	92
19.5/4.5	160 L	168 103-●	2930/1465	89.0/88.0	0.89/0.77	36/9.7	7.6/6.4	64/29	2.3/2.5	2.9/2.8	0.057	99
21.5/4.7	180 M	188 105-●	2935/1465	90.0/88.0	0.91/0.77	38/10	7.0/5.3	70/28	2.1/2.1	2.6/2.3	0.094	132
26/5.2	180 L	188 106-●	2940/1470	90.5/89.5	0.89/0.75	47/11	6.9/5.8	85/34	2.3/2.4	2.6/2.4	0.108	152
32/8	200 MLA	208 110-●	2940/1465	90.0/89.0	0.89/0.85	58/16	7.1/6.2	104/52	2.0/2.0	2.5/2.2	0.28	180
39/10	200 MLB	208 111-●	2950/1475	91.5/91.0	0.89/0.85	69/19	7.4/6.2	126/65	2.0/2.0	2.6/2.3	0.34	205
42/11	200 MLC	208 112-●	2950/1470	92.5/91.0	0.89/0.77	75/23	7.7/5.6	136/71	2.2/2.1	3.0/2.5	0.19	205
45/13	225 SMB	228 107-●	2955/1475	93.0/91.5	0.92/0.82	76/25	7.4/5.3	145/84	2.0/2.0	2.6/2.1	0.27	235
55/15	225 SMC	228 108-●	2955/1475	93.5/92.5	0.91/0.82	94/29	7.3/5.4	178/97	2.0/2.0	2.6/2.2	0.30	260
75/25	250 SMB	258 104-●	2965/1475	94.5/93.0	0.92/0.82	125/48	8.9/5.5	241/162	2.3/2.0	3.1/2.2	0.36	330

¹⁾ Sizes 63 to 100 voltage code H.
Sizes 112 to 250 voltage code D.

The bullet indicates a 3-letter product code supplement for choice of mounting arrangement (page 11, pos. 12), voltage and frequency (below) and generation code (page 11, pos. 14).

Code letters for supplementing the product code

Motor size	Code letter for voltage and frequency					
	A	S	B	D	H	E
63-100	-	220-230 V	-	380-400 V ¹⁾	400-415 V	500 V
112-132	-	220-230 V	-	380-400 V	400-415 V	500 V
160-250	220 V	230 V	380 V	400 V	415 V	500 V

¹⁾ Restamping from code H. Note that this results in a certain reduction of output. Rated output on request.

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD ² kgm ²	Weight kg
						I _N A	$\frac{I_s}{I_N}$	T _N Nm	$\frac{T_s}{T_N}$	$\frac{T_{max}}{T_N}$		
1500/1000 r/min = 4/6 poles						Fan drive, two separate windings						
0.30/0.10	71 B	078 205-●	1400/950	64/41	0.78/0.66	0.9/0.56	3.3/2.3	2.0/1.1	1.5/1.4	2.0/2.1	0.0009	6.5
0.45/0.15	80 A	088 204-●	1400/960	66/46	0.78/0.65	1.3/0.73	3.7/2.6	3.0/1.5	1.7/1.3	2.1/2.2	0.0017	8.5
0.65/0.22	80 B	088 205-●	1400/960	70/53	0.82/0.64	1.7/0.94	3.9/2.9	4.4/2.2	1.7/1.4	2.1/2.2	0.0021	9.5
1.0/0.3	90 S	098 204-●	1400/940	73/53	0.83/0.75	2.5/1.2	4.2/2.6	6.8/3.0	1.8/1.0	2.2/1.7	0.0032	13
1.5/0.45	90 L	098 205-●	1400/940	75/58	0.84/0.73	3.5/1.6	4.3/2.9	10.0/4.5	1.7/1.0	2.1/1.8	0.0043	16
2.0/0.6	100 LA	108 203-●	1430/960	77/62	0.85/0.72	4.5/2.0	5.0/3.3	13.0/5.9	1.8/1.0	2.4/1.9	0.0069	20
2.5/0.8	100 LB	108 204-●	1430/960	79/68	0.84/0.71	5.5/2.5	5.6/3.5	16.0/7.9	2.0/1.1	2.5/2.0	0.0082	23
3.0/1.0	112 M	118 205-●	1445/975	82.0/67.0	0.84/0.68	6.3/3.1	6.0/4.0	19.8/9.8	1.3/1.0	2.3/2.2	0.018	33
4.5/1.5	132 S	138 229-●	1460/985	83.0/67.0	0.85/0.64	9.2/5.1	6.5/4.2	29.4/14.5	1.5/1.0	2.3/2.2	0.038	48
6.0/2.0	132 M	138 230-●	1460/980	84.0/71.0	0.86/0.73	12.0/5.6	7.1/4.5	39.2/19.5	1.8/1.3	2.5/2.0	0.048	59
10.5/3.5	160 M	168 204-●	1460/965	87.0/75.5	0.84/0.78	21/8.6	6.4/4.1	69/35	2.0/1.3	2.5/1.7	0.089	93
14.5/4.5	160 L	168 205-●	1460/970	88.5/77.0	0.85/0.76	28/11.0	6.9/4.6	95/44	2.2/1.5	2.6/1.9	0.119	117
16/5	180 M	188 209-●	1470/980	89.0/78.0	0.83/0.73	31/12.5	6.3/4.6	104/49	1.9/1.5	2.5/2.0	0.176	131
20/6.5	180 L	188 210-●	1470/980	90.0/79.5	0.83/0.74	39/16.0	7.2/5.0	130/63	2.4/1.8	2.7/2.0	0.224	159
23/7.2	200 MLA	208 213-●	1475/985	89.5/84.0	0.88/0.87	43/15	7.7/7.8	149/70	1.6/1.9	2.8/2.9	0.44	175
30/9	200 MLB	208 214-●	1470/985	90.0/83.5	0.90/0.89	54/18	7.7/7.9	195/87	1.6/1.7	2.7/2.5	0.53	200
34/11	225 SMB	228 209-●	1470/985	91.0/85.0	0.91/0.89	60/21	7.7/6.7	221/107	1.5/1.3	2.7/2.3	0.67	225
42/14	225 SMC	228 210-●	1475/985	91.5/89.0	0.89/0.89	75/27	8.4/6.8	272/136	1.7/1.4	3.0/2.3	0.78	255
63/18.5	250 SMB	258 205-●	1475/985	93.5/87.0	0.89/0.79	110/40	7.5/7.3	408/179	2.4/3.0	2.7/2.6	0.89	335

¹⁾ Sizes 63 to 100 voltage code H.
 Sizes 112 to 250 voltage code D.

Recalculation factors

Recalculation factors for current at rated voltages other than 400 V 50 Hz

Motor sizes 63-100 Rated voltage at 50 Hz and motor wound for		Motor sizes 112-250 Rated voltage at 50 Hz and motor wound for	
	Recalculation factor		Recalculation factor
220 V	¹⁾	220 V	1.82
230 V	1.74	230 V	1.74
380 V	²⁾	380 V	1.05
		415 V	0.96
500 V	0.80	500 V	0.80
660 V	0.61	660 V	0.61
690 V	0.58	690 V	0.58

¹⁾ Code S.

²⁾ Restamping of code H. Note that this results in a certain reduction of output. Rated output on request.

Totally enclosed squirrel cage three phase motors, aluminium frame IP 55, IC 411, two-speed motors

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/2 GD ² kgm ²	Weight kg
						I _N	I _S	T _N	T _S	T _{max}		
						A	I _N	Nm	T _N	T _N		
1500/750 r/min = 4/8-poles						Fan drive, two separate windings						
0.45/0.07	80 A	088 207-●	1380/710	66/34	0.83/0.65	1.3/0.47	3.3/2.0	3.0/0.94	1.3/1.2	1.8/1.8	0.0017	8.5
0.65/0.09	80 B	088 208-●	1380/710	69/34	0.84/0.67	1.7/0.56	3.6/2.0	4.4/1.2	1.6/1.0	1.9/1.8	0.0021	9.5
1.0/0.13	90 S	098 207-●	1400/700	71/38	0.83/0.70	2.6/0.72	3.9/2.1	6.8/1.8	1.5/1.0	2.0/1.8	0.0032	13
1.4/0.18	90 L	098 208-●	1420/710	74/41	0.81/0.62	3.5/1.0	4.5/2.3	9.4/2.4	1.7/1.1	2.3/2.1	0.0043	16
1.85/0.25	100 LA	108 206-●	1430/720	78/45	0.84/0.60	4.2/1.4	4.9/2.5	12.0/3.3	1.7/1.1	2.3/2.2	0.0069	20
2.3/0.33	100 LB	108 207-●	1430/720	80/49	0.86/0.60	5.0/1.6	5.2/2.6	15.0/4.3	1.8/1.1	2.4/2.2	0.0082	23
3.0/0.4	112 M	118 206-●	1440/730	81.0/51.0	0.87/0.58	6.2/2.0	6.8/3.8	19.9/5.2	1.5/1.6	2.4/2.6	0.018	32
4.0/0.6	132 S	138 231-●	1465/740	84.0/51.0	0.84/0.53	8.2/3.2	6.5/3.5	26.1/7.7	1.5/1.1	2.4/2.5	0.038	48
5.5/0.9	132 M	138 232-●	1455/735	84.0/53.0	0.87/0.64	10.9/3.9	6.2/3.1	36.1/11.7	1.5/1.1	2.2/2.0	0.048	59
9/1.3	160 M	168 206-●	1460/735	87.0/60.0	0.84/0.53	18/5.9	6.6/4.0	59/17	2.0/2.2	2.5/2.7	0.089	94
13.5/2.0	160 L	168 207-●	1455/735	88.0/64.0	0.86/0.54	26/8.4	6.0/4.1	89/26	1.9/2.2	2.3/2.6	0.119	117
16/2.3	180 M	188 211-●	1475/740	88.5/64.0	0.82/0.53	32/9.7	6.8/4.1	104/30	2.2/2.2	2.7/2.6	0.176	137
19/2.7	180 L	188 212-●	1475/740	89.5/68.0	0.83/0.54	37/10.5	7.5/7.2	123/35	2.6/2.6	2.9/2.6	0.224	161
26/3.3	200 MLA	208 216-●	1475/740	91.0/73.0	0.85/0.59	49.0/11.0	6.9/4.6	168/46	2.1/2.2	2.5/2.3	0.28	180
30/3.8	200 MLB	208 217-●	1470/740	91.5/75.5	0.86/0.59	55.0/12.5	6.7/4.6	195/49	2.1/2.2	2.4/2.2	0.34	205
38/5.2	225 SMB	228 211-●	1480/740	91.5/80.5	0.84/0.63	72/15	7.3/5.2	245/67	2.1/2.3	2.6/2.3	0.41	230
46/7	225 SMC	228 212-●	1480/740	92.5/82.0	0.86/0.66	85/19	7.7/4.9	297/90	2.3/2.1	2.7/2.1	0.49	265
63/10	250 SMB	258 206-●	1475/740	93.5/83.0	0.89/0.65	110/27	7.5/6.0	408/129	2.4/3.0	2.7/2.7	0.89	335

1500/750 r/min = 4/8-poles Fan drive, Dahlander-connection

0.37/0.09	71 B	078 104-●	1390/680	65/42	0.73/0.63	1.2/0.49	3.3/2.0	2.5/1.2	1.8/1.4	1.8/1.8	0.009	6.5
0.45/0.1	71 C	078 105-●	1390/690	64/62	0.73/0.59	1.4/0.57	3.4/2.1	3.1/1.4	1.9/1.6	2.3/2.1	0.0012	7.5
0.55/0.11	80 A	088 104-●	1380/700	67/48	0.80/0.61	1.6/0.54	3.1/2.3	3.8/1.5	1.5/1.4	1.8/1.8	0.0017	8.5
0.75/0.16	80 B	088 105-●	1390/700	71/51	0.80/0.62	2.0/0.70	3.4/2.4	5.1/1.2	1.5/1.2	1.9/1.9	0.0021	9.5
0.9/0.2	80 C	088 106-●	1390/700	70/57	0.80/0.62	2.4/0.83	3.6/2.4	6.2/2.8	1.7/1.3	2.1/1.9	0.0024	11
1.1/0.26	90 S	098 104-●	1410/700	73/53	0.80/0.63	2.8/1.2	4.2/2.4	7.4/3.6	1.8/1.2	2.3/1.9	0.0032	13
1.5/0.31	90 L	098 105-●	1420/710	77/57	0.78/0.54	3.7/1.5	4.8/2.8	10/4.2	2.2/1.7	2.7/2.5	0.0043	16
1.8/0.35	90 LB	098 106-●	1410/710	76/60	0.83/0.56	4.2/1.5	4.3/2.7	12/4.8	1.9/1.6	2.3/2.3	0.0048	18
2.2/0.48	100 LA	108 103-●	1430/720	79/65	0.82/0.59	5.1/1.8	5.1/3.0	14/6.4	1.9/1.2	2.5/2.1	0.0069	20
2.8/0.6	100 LB	108 104-●	1430/720	81/68	0.82/0.58	6.4/2.2	5.2/3.0	18/8.0	2.0/1.2	2.6/2.2	0.0082	23
3.0/0.65	100 LC	108 105-●	1430/720	81/67	0.81/0.56	6.8/2.5	5.6/3.0	20/8.7	2.2/1.3	2.8/2.3	0.009	26
3.5/0.7	112 M	118 126-●	1430/720	81.0/71.0	0.89/0.58	7.0/2.5	6.8/4.4	23.4/9.3	1.6/1.7	2.5/2.7	0.018	32
5.0/1.0	132 S	138 131-●	1450/725	83.0/74.0	0.87/0.59	9.9/3.3	6.4/3.6	32.9/13.2	1.5/1.0	2.3/2.0	0.038	48
6.8/1.4	132 M	138 132-●	1460/730	85.0/73.0	0.84/0.55	13.7/5.1	7.6/3.6	44.5/18.3	2.0/1.4	2.8/2.7	0.048	59
10.5/2.2	160M	168 104-●	1460/735	87.5/79.0	0.84/0.54	21/7.4	6.9/3.7	69/29	2.2/1.5	2.7/2.3	0.089	92
15.5/2.7	160 L	168 105-●	1460/735	88.5/79.5	0.85/0.51	30/9.5	6.9/3.9	101/35	2.2/1.7	2.6/2.6	0.119	117
17/3.4	180 M	188 107-●	1470/730	88.5/78.0	0.85/0.56	33/11	5.8/4.3	111/44	1.7/1.2	2.3/1.9	0.176	130
22/4.4	180 L	188 108-●	1475/735	89.5/79.0	0.83/0.53	43/15	6.7/3.9	143/57	2.0/1.7	2.6/2.3	0.224	159
29/6.5	200 MLA	208 116-●	1470/730	90.5/86.0	0.86/0.64	54/17	6.9/4.2	188/81	2.2/1.9	2.4/1.9	0.28	180
33/8	200 MLB	208 117-●	1475/730	91.5/86.5	0.86/0.64	61/21	7.8/4.2	214/105	2.6/1.9	2.6/1.8	0.34	205
42/10	225 SMB	228 111-●	1480/740	92.0/89.5	0.78/0.61	85/27	7.8/5.0	271/129	2.5/2.2	3.0/2.3	0.49	265
50/11	225 SMC	228 112-●	1465/735	92.5/89.5	0.87/0.65	91/28	7.3/4.7	324/143	2.3/2.0	2.5/2.0	0.49	265
60/15	250 SMB	258 106-●	1475/735	93.0/90.0	0.86/0.70	104/34	7.9/4.7	388/195	2.6/2.1	2.7/2.0	0.89	335

¹⁾ Sizes 63 - 100 voltage code H.
Sizes 112 - 250 voltage code D.

The bullets indicates a 3-letter product code supplement for choice of mounting arrangement (page 11, pos. 12), voltage and frequency (below) and generation code (page 11, pos. 4).

Code letters for supplementing the product code

Motor size	Code letters for voltage and frequency					
	A	S	B	D	H	E
63-100	-	220-230 V	-	380-400 V ¹⁾	400-415 V	500 V
112-132	-	220-230 V	-	380-400 V	400-415 V	500 V
160-250	220 V	230 V	380 V	400 V	415 V	500 V

¹⁾ Restamping from code H. Note that this results in a certain reduction of output. Rated output on request.

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power- factor cos φ	Current		Torque			Moment of inertia J=1/2 GD ² kgm ²	Weight kg
						I _n A	I _s I _n	T _n Nm	T _s T _n	T _{max} T _n		
1000/750 r/min = 6/8-poles						Fan drive, two separate windings						
0.25/0.10	80 A	088 210-●	930/700	52/39	0.74/0.67	0.95/0.56	2.6/2.0	2.6/1.3	1.2/1.1	1.8/1.8	0.0017	8.5
0.33/0.14	80 B	088 211-●	940/700	57/44	0.71/0.67	1.2/0.70	3.0/2.1	3.3/1.9	1.4/1.1	2.0/1.7	0.0021	9.5
0.45/0.2	90 S	098 210-●	940/700	59/44	0.72/0.67	1.6/1.0	3.1/2.2	4.6/2.7	1.4/1.0	2.0/1.7	0.0032	13
0.7/0.3	90 L	098 211-●	930/700	63/49	0.75/0.64	2.2/1.5	3.1/2.3	7.2/4.1	1.3/1.1	1.8/1.8	0.0043	16
0.9/0.37	100 LA	108 209-●	940/710	69/55	0.79/0.63	2.4/1.55	3.3/2.7	9.2/5.0	1.2/1.1	1.8/1.8	0.0069	20
1.2/0.5	100 LB	108 210-●	940/710	73/58	0.75/0.67	3.2/1.9	3.4/2.6	12.0/6.7	1.2/1.1	1.9/1.9	0.0082	23
1.6/0.8	112 M	118 207-●	965/720	73.0/57.0	0.70/0.66	4.5/3.1	5.8/4.0	15.8/10.6	2.0/1.6	2.6/2.2	0.018	33
2.6/1.3	132 S	138 213-●	975/730	77.0/64.0	0.72/0.64	6.8/4.6	6.5/4.3	25.5/17.0	1.6/1.4	2.8/2.5	0.031	48
3.5/1.6	132 M	138 214-●	975/730	79.0/66.0	0.72/0.66	8.9/5.2	7.0/4.9	34.3/20.9	1.8/1.5	3.0/2.5	0.049	59
	160 M	On request										
	160 L	On request										
	180 M	On request										
	180 L	On request										
17/7.5	200 MLB	208 221-●	985/740	88.0/81.5	0.85/0.77	33/17	7.1/6.4	165/97	2.2/2.2	2.5/2.5	0.42	185
20/9	200 MLC	208 222-●	985/740	88.5/82.5	0.84/0.74	39/21	7.6/7.0	194/116	2.4/2.6	2.7/2.9	0.48	200
26/12	225 SMB	228 215-●	985/740	89.5/84.5	0.85/0.76	49/27	7.4/7.1	252/155	2.2/2.4	2.5/2.7	0.63	225
32/14	225 SMC	228 216-●	985/740	90.5/85.5	0.83/0.76	62/31	7.0/7.2	310/180	2.4/2.5	2.4/2.5	0.74	250
43/15	250 SMB	258 208-●	990/745	91.0/86.0	0.84/0.75	81/34	7.3/7.4	415/198	2.2/2.7	2.5/2.8	1.41	320
1000/500 r/min = 6/12-poles						Fan drive, Dahlander-connection						
0.28/0.05	80 A	088 107-●	920/440	54/31	0.72/0.60	1.1/0.40	2.6/1.7	2.9/1.1	1.3/1.4	1.8/1.8	0.0017	8.5
0.42/0.07	80 B	088 108-●	920/440	57/34	0.74/0.57	1.5/0.54	2.7/1.7	4.4/1.5	1.2/1.5	1.7/1.9	0.00212	9.5
0.5/0.08	90 S	098 107-●	920/440	60/31	0.74/0.59	1.7/0.63	2.9/1.7	5.2/1.7	1.2/1.5	1.8/2.0	0.0032	13
0.75/0.12	90 L	098 108-●	930/450	64/36	0.73/0.54	2.4/0.90	3.0/1.8	7.7/2.5	1.3/1.6	1.9/2.1	0.0043	16
0.9/0.16	100 LA	108 106-●	940/470	69/50	0.73/0.49	2.6/0.96	3.6/2.1	9.0/3.2	1.3/1.2	2.0/2.1	0.0069	20
1.3/0.2	100 LB	108 107-●	940/470	71/52	0.76/0.47	3.5/1.2	3.4/2.2	13.0/4.0	1.2/1.2	1.8/2.2	0.0082	23

¹⁾ Sizes 63 -100 voltage code H.
 Sizes 112 - 250 voltage code D.

Recalculation factors

Recalculation factors for current at rated voltages other than 400 V 50 Hz

Motor sizes 63-100
 Rated voltage at 50 Hz
 and motor wound for

Recalculation factor

220 V	¹⁾
230 V	1.74
380 V	²⁾
500 V	0.80
660 V	0.61
690 V	0.58

Motor sizes 112-250
 Rated voltage at 50 Hz
 and motor wound for

Recalculation factor

220 V	1.82
230 V	1.74
380 V	1.05
500 V	0.80
660 V	0.61
690 V	0.58

¹⁾ Code S.

²⁾ Restamping from code H. Note that this results in a certain reduction of output. Rated output on request.

Totally enclosed squirrel cage three phase motors, aluminium frame

IP 55 IC 411 two-speed motors

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/2 GD ² kgm ²	Weight kg
						I _N A	I _s I _N	T _N Nm	T _s T _N	T _{max} T _N		
3000/1500 r/min = 2/4 poles Highest output at both speeds, two separate windings												
0.45/0.22	80 A	088 213-●	2890/1440	65/55	0.82/0.62	1.25/0.95	3.8/3.0	1.5/1.5	1.1/1.4	2.1/2.4	0.0009	9
0.65/0.33	80 B	088 214-●	2880/1440	69/61	0.88/0.68	1.6/1.2	4.2/3.4	2.2/2.2	1.2/1.2	2.1/2.1	0.0011	10
1.1/0.55	90 S	098 213-●	2900/1450	74/62	0.87/0.64	2.5/2.0	5.1/3.6	3.6/3.6	1.4/1.5	2.3/2.5	0.0019	13
1.5/0.75	90 L	098 214-●	2900/1450	77/70	0.87/0.67	3.3/2.4	5.7/4.1	4.9/4.9	1.5/1.5	2.5/2.5	0.0024	16
2.0/1.0	100 L	108 212-●	2890/1450	76/68	0.91/0.75	4.2/2.9	5.8/3.7	6.6/6.6	1.7/1.1	2.5/2.0	0.0041	21
2.6/1.3	112 M	118 201-●	2900/1460	80.0/75.0	0.92/0.72	5.1/3.5	6.4/5.0	8.6/8.5	1.6/1.6	2.3/2.3	0.012	32
4.4/2.2	132 SB	138 201-●	2925/1450	81.0/74.0	0.86/0.73	9.1/5.9	7.3/4.4	14.4/14.5	2.0/1.3	2.3/2.2	0.016	42
5.6/2.8	132 M	138 202-●	2885/1440	82.0/77.0	0.93/0.75	10.6/7.0	6.7/5.0	18.5/18.6	1.8/1.4	2.1/2.2	0.022	56
12/6	160 M	168 209-●	2835/1460	87.5/84.5	0.92/0.80	22/13.0	7.7/6.0	39/39	2.1/2.3	2.8/2.4	0.054	92
15/7.5	160 L	168 210-●	2940/1460	88.5/84.5	0.93/0.78	27/16.5	7.9/6.0	49/49	2.2/2.4	2.9/2.4	0.057	99
18/9	180 L	188 202-●	2945/1460	89.0/84.0	0.90/0.77	32/20	7.7/5.2	58/59	2.5/2.3	2.8/2.1	0.108	152
23/12	200 MLA	208 201-●	2960/1475	90.0/89.0	0.89/0.85	42/23	7.8/7.4	74/77	1.7/2.2	2.8/2.5	0.28	178
30/16	200 MLB	208 202-●	2960/1475	91.0/90.0	0.90/0.87	53/30	8.2/7.3	97/104	1.8/2.2	2.9/2.5	0.34	204
36/18	225 SMB	228 201-●	2960/1480	91.5/91.5	0.91/0.76	63/38	8.0/7.2	116/116	2.5/3.8	2.7/2.5	0.26	236
40/20	225 SMC	228 202-●	2960/1475	92.0/91.5	0.91/0.79	69/41	8.5/6.5	129/129	2.8/3.3	2.8/2.2	0.29	261
50/25	250 SMB	258 201-●	2965/1485	93.0/93.0	0.91/0.76	86/52	8.9/8.5	161/161	2.1/3.5	2.9/2.9	0.57	333
3000/1500 r/min = 2/4 poles Highest output at both speeds, Dahlander-connection												
0.45/0.3	71 B	078 111-●	2700/1390	60/61	0.87/0.77	1.3/1.0	3.0/3.2	1.6/2.0	1.6/1.6	1.8/2.0	0.0009	6.5
0.6/0.45	80 A	088 110-●	2770/1400	63/66	0.83/0.80	1.7/1.3	3.4/3.4	2.0/3.0	1.6/1.4	2.0/1.9	0.0017	9
0.85/0.65	80 B	088 111-●	2770/1400	68/68	0.86/0.84	2.1/1.7	3.8/3.5	2.9/4.4	1.7/1.4	2.1/1.8	0.0021	10
1.3/1.0	90 S	098 110-●	2730/1400	71/71	0.88/0.80	3.1/2.6	3.9/3.8	4.5/6.8	2.0/1.5	2.2/2.0	0.0032	13
1.9/1.5	90 L	098 111-●	2820/1420	76/75	0.82/0.76	4.4/3.9	5.1/4.4	6.4/10	2.8/2.0	3.0/2.5	0.0043	16
2.5/2.1	100 LA	108 109-●	2800/1430	68/76	0.89/0.81	6.0/5.0	4.8/4.4	8.5/14	2.4/1.6	2.7/2.2	0.0069	20
3.1/2.5	100 LB	108 110-●	2820/1440	72/79	0.90/0.80	7.0/5.7	5.5/5.1	10/16	2.6/1.8	2.9/2.5	0.0082	23
4/2.6	112 M	118 101-●	2865/1430	82.0/77.0	0.94/0.76	7.6/6.5	6.3/6.2	13.3/17.4	1.8/2.3	2.1/2.6	0.012	32
4.7/3.1	132 SB	138 101-●	2820/1420	79.0/77.0	0.93/0.76	9.2/7.7	5.5/5.7	15.9/20.8	1.8/2.2	2.1/2.4	0.016	42
7.2/4.8	132 M	138 102-●	2870/1435	84.0/81.0	0.93/0.76	13.3/11.5	7.1/6.2	24.0/31.9	2.4/2.5	2.6/2.7	0.022	56
9/6.5	160 MA	168 106-●	2885/1440	83.0/82.0	0.92/0.74	17.1/15.6	4.6/4.3	40/43	1.3/1.7	1.9/1.9	0.039	73
12.5/9	160 M	168 107-●	2890/1440	85.5/85.5	0.93/0.80	22.5/19	5.2/4.6	41/60	1.4/1.8	1.9/1.9	0.054	92
15/10.5	160 L	168 108-●	2900/1445	87.0/86.0	0.93/0.77	27/23	5.8/4.9	49/69	1.6/2.1	2.1/2.1	0.057	99
18/12	180 M	188 101-●	2940/1455	89.0/89.0	0.88/0.79	33/25	6.8/5.3	59/79	2.1/2.4	2.6/2.2	0.094	132
24/17	180 L	188 102-●	2945/1455	90.0/90.0	0.89/0.80	43/34	7.4/5.2	78/111	2.4/2.4	2.8/2.1	0.108	152
32/24	200 MLA	208 101-●	2940/1470	89.0/90.5	0.89/0.86	58/45	6.8/5.9	104/156	1.8/2.1	2.4/2.1	0.28	180
39/29	200 MLB	208 102-●	2950/1470	90.5/91.0	0.84/0.86	75/53	6.8/7.0	126/188	1.7/2.2	2.6/2.4	0.34	205
42/32	225 SMB	228 101-●	2955/1475	92.5/93.0	0.92/0.88	71/57	7.1/6.5	136/207	1.5/1.9	2.5/2.3	0.49	230
50/40	225 SMC	228 102-●	2960/1475	92.5/93.0	0.84/0.87	94/71	7.4/7.1	161/259	1.8/2.0	2.8/2.5	0.49	265
68/50	250 SMB	258 101-●	2940/1475	93.0/93.5	0.93/0.88	113/87	6.6/6.9	220/324	1.5/2.1	2.4/2.5	0.89	335

¹⁾ Sizes 63 to 100 voltage code H.
Sizes 112 to 250 voltage code D.

The bullet indicates a 3-letter product code supplement for choice of mounting arrangement (page 11, pos. 12), voltage and frequency (below) and generation code (page 11, pos. 14).

Code letters for supplementing the product code

Motor size	Code letter for voltage and frequency					
	A	S	B	D	H	E
63-100	-	220-230 V	-	380-400 V ¹⁾	400-415 V	500 V
112-132	-	220-230 V	-	380-400 V	400-415 V	500 V
160-250	220 V	230 V	380 V	400 V	415 V	500 V

¹⁾ Restamping from code H. Note that this results in a certain reduction of output. Rated output on request.

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD ² kgm ²	Weight kg
						I _N A	I _s I _N	T _N Nm	T _s T _N	T _{max} T _N		
1500/1000 r/min = 4/6 poles						Highest output at both speeds, two separate windings						
0.28/0.18	71 B	078 217-●	1410/930	57/45	0.75/0.67	1.0/0.90	3.0/2.2	1.8/1.8	1.5/1.3	2.0/1.9	0.0009	6.5
0.35/0.30	80 A	088 216-●	1430/930	59/52	0.65/0.69	1.4/1.2	3.5/2.4	2.3/3.0	1.8/1.3	2.4/1.9	0.0017	8.5
0.5/0.37	80 B	088 217-●	1430/940	64/59	0.71/0.67	1.6/1.4	3.7/2.8	3.3/3.7	1.8/1.4	2.4/2.0	0.0021	9.5
0.8/0.5	90 S	098 216-●	1430/940	68/57	0.80/0.66	2.2/2.0	3.9/2.8	5.3/5.0	1.5/1.4	2.1/2.1	0.0032	13
1.2/0.75	90 L	098 217-●	1430/940	73/63	0.81/0.67	3.0/2.6	4.4/3.1	8.0/7.6	1.7/1.5	2.3/2.1	0.0043	16
1.5/0.9	100 LA	108 214-●	1440/960	75/69	0.84/0.65	3.5/3.0	4.7/3.8	9.9/8.9	1.5/1.5	2.2/2.4	0.0069	20
1.8/1.1	100 LB	108 215-●	1460/960	77/70	0.78/0.64	4.4/3.6	5.8/3.9	11/11	2.1/1.6	3.0/2.5	0.0082	23
2.6/1.7	112 M	118 202-●	1445/960	80.0/73.0	0.86/0.76	5.5/4.4	5.9/5.2	17.2/16.9	1.5/1.5	2.2/2.4	0.018	33
3.3/2.2	132 S	138 223-●	1470/980	82.0/76.0	0.82/0.65	7.1/6.4	6.8/4.6	21.4/21.4	1.4/1.2	2.5/2.4	0.038	48
4.5/3	132 M	138 224-●	1470/980	82.0/77.0	0.85/0.70	9.3/8.0	7.2/5.6	29.2/29.2	1.4/1.5	2.3/2.6	0.048	59
7.5/5.5	160 M	168 211-●	1465/965	85.5/80.5	0.83/0.77	15.5/13.0	7.1/4.7	49/54	2.1/1.8	2.7/1.9	0.089	93
11.5/8.5	160 L	168 212-●	1465/965	86.5/82.5	0.84/0.76	23.0/19.5	7.0/4.9	75/84	2.1/1.8	2.8/2.0	0.119	117
13/8	180 M	188 203-●	1475/975	88.0/82.5	0.82/0.75	26.0/19.0	6.5/4.3	84/78	1.9/1.4	2.6/1.8	0.176	131
15/10	180 L	188 204-●	1475/975	88.5/84.0	0.83/0.74	30.0/23.0	7.1/4.4	97/98	2.3/1.5	2.7/1.9	0.224	159
18/12	200 MLA	208 204-●	1475/985	88.5/86.0	0.91/0.86	33/24	7.6/7.8	117/116	2.1/2.6	2.5/2.6	0.42	185
22/14.7	200 MLB	208 205-●	1480/985	89.5/86.5	0.89/0.87	40/29	8.2/7.6	142/143	2.4/2.6	2.8/2.5	0.48	200
25/16.7	200 MLC	208 206-●	1475/980	89.0/85.5	0.87/0.88	47/32	7.7/6.7	162/162	2.3/2.3	2.6/2.2	0.48	200
32/21	225 SMB	228 203-●	1480/985	90.0/89.5	0.88/0.86	58/40	8.6/8.0	206/204	2.3/2.4	2.8/2.7	0.63	225
36/24	225 SMC	228 204-●	1480/985	90.5/90.0	0.88/0.87	66/45	8.4/7.4	232/233	2.2/2.2	2.8/2.5	0.74	250
50/32	250 SMB	258 202-●	1475/985	92.5/90.5	0.89/0.80	89/65	7.5/7.1	324/310	2.3/3.1	2.6/2.6	0.89	335

¹⁾ Sizes 63 to 100 voltage code H.
Sizes 112 to 250 voltage code D.

Recalculation factors

Recalculation factors for current at rated voltages other than 400 V 50 Hz

Motor sizes 63-100
Rated voltage at 50 Hz
and motor wound for

Recalculation factor

220 V
230 V
380 V

¹⁾
1.74
²⁾

500 V
660 V
690 V

0.80
0.61
0.58

Motor sizes 112-250
Rated voltage at 50 Hz
and motor wound for

Recalculation factor

220 V
230 V
380 V
415 V
500 V
660 V
690 V

1.82
1.74
1.05
0.96
0.80
0.61
0.58

¹⁾ Code S.

²⁾ Restamping of code H. Note that this results in a certain reduction of output. Rated output on request.

Totally enclosed squirrel cage three phase motors, aluminium frame

IP 55 IC 411 two-speed motors

Insulation class F
Temperature rise class F

400 V 50 Hz¹⁾

Output kW	Motor type M2AA	Product code 3GAA	Speed r/min	Efficiency %	Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD ² kgm ²	Weight kg
						I _N A	I _s I _N	T _N Nm	T _s T _N	T _{max} T _N		
1500/750 r/min = 4/8 poles Highest output at both speeds, two separate windings												
0.22/0.11	80 A	088 219-●	1420/700	61/45	0.80/0.58	0.7/0.65	3.4/2.2	1.5/1.5	1.2/1.4	2.0/2.2	0.0017	8.5
0.33/0.16	80 B	088 220-●	1420/690	63/49	0.83/0.60	0.95/0.80	3.2/2.3	2.2/2.2	1.2/1.3	1.9/2.0	0.0021	9.5
0.5/0.25	90 S	098 219-●	1440/690	64/51	0.78/0.65	1.5/1.1	3.6/2.3	3.3/3.4	1.3/1.2	2.2/1.9	0.0032	13
0.7/0.33	90 L	098 220-●	1440/690	69/57	0.80/0.61	1.9/1.4	4.2/2.4	4.6/4.6	1.3/1.2	2.2/1.9	0.0043	16
1.0/0.5	100 LA	108 217-●	1440/700	71/61	0.86/0.63	2.4/1.95	4.2/2.5	6.6/6.8	1.2/1.1	2.0/1.9	0.0069	20
1.4/0.7	100 LB	108 218-●	1440/700	73/62	0.87/0.62	3.2/2.7	4.3/2.6	9.3/9.5	1.2/1.1	2.0/1.9	0.0082	23
1.8/0.9	112 M	118 203-●	1470/715	77.0/65.0	0.76/0.66	4.4/3.0	6.5/4.0	11.7/12.0	1.2/1.6	2.2/2.4	0.018	32
2.5/1.3	132 S	138 225-●	1470/730	80.0/69.0	0.79/0.58	5.7/4.7	6.7/4.4	16.2/17.0	1.6/1.4	2.6/2.7	0.038	48
3.3/1.7	132 M	138 226-●	1470/725	81.0/71.0	0.83/0.67	7.1/5.2	8.0/4.8	21.4/22.4	1.8/1.8	2.7/2.2	0.048	59
5.5/2.7	160 M	168 213-●	1465/730	85.0/71.0	0.83/0.57	11.5/9.6	6.8/4.0	36/35	2.1/2.0	2.6/2.3	0.089	92
9/4.5	160 L	168 214-●	1465/730	86.5/73.5	0.83/0.56	18/16	7.0/4.1	59/59	2.1/2.1	2.7/2.5	0.119	117
14/7	180 L	188 206-●	1475/735	88.0/76.0	0.83/0.56	28/24	7.7/4.2	91/91	2.6/2.3	2.9/2.3	0.225	159
18.5/9.4	200 MLA	208 207-●	1475/730	89.5/82.5	0.85/0.65	35/26	7.3/4.3	120/123	2.2/1.9	2.5/1.8	0.28	180
22/11	200 MLB	208 208-●	1480/735	90.5/83.0	0.84/0.60	42/32	8.4/4.7	142/143	2.6/2.4	2.9/2.2	0.34	205
28/14	225 SMB	228 205-●	1480/735	90.0/85.5	0.85/0.61	53/39	7.7/4.9	181/182	2.1/2.4	2.7/2.2	0.41	230
34/17	225 SMC	228 206-●	1480/735	92.0/87.0	0.86/0.66	63/43	7.9/4.8	219/221	2.2/2.2	2.7/2.0	0.49	265
50/25	250 SMB	258 203-●	1480/740	92.5/88.0	0.87/0.60	90/68	8.6/6.0	323/323	2.6/3.5	3.0/2.9	0.89	335

1500/750 r/min = 4/8 poles Highest output at both speeds, Dahlander-connection

0.22/0.12	71 B	078 114-●	1410/680	61/36	0.73/0.62	0.75/0.80	3.4/1.8	1.4/1.6	1.6/1.5	1.9/1.9	0.0009	6.5
0.4/0.2	80 A	088 113-●	1410/700	63/45	0.78/0.60	1.2/1.1	3.1/2.1	2.7/2.7	1.3/1.4	1.9/2.0	0.0017	8.5
0.6/0.28	80 B	088 114-●	1410/700	67/50	0.78/0.56	1.7/1.5	3.5/2.2	4.0/3.8	1.5/1.7	2.0/2.2	0.0021	9.5
0.7/0.37	90 S	098 113-●	1420/700	72/50	0.80/0.57	1.8/1.9	4.4/2.3	4.7/5.1	1.6/1.6	2.3/2.2	0.0032	13
1.1/0.55	90 L	098 114-●	1420/700	73/55	0.84/0.58	2.6/2.6	4.1/2.3	7.4/7.5	1.4/1.5	2.0/2.1	0.0043	16
1.5/0.75	100 LA	108 112-●	1440/710	76/62	0.85/0.57	3.4/3.2	4.6/2.8	10.0/10.0	1.4/1.5	2.2/2.2	0.0069	20
2.0/0.95	100 LB	108 113-●	1440/710	78/64	0.86/0.55	4.4/4.0	4.8/2.9	13.0/12.0	1.4/1.6	2.2/2.3	0.0082	23
2.5/1.5	112 M	118 103-●	1410/705	78.0/67.0	0.90/0.66	5.1/4.9	5.5/4.1	16.9/20.3	1.4/1.5	2.1/2.4	0.018	32
3.8/1.9	132 S	138 125-●	1450/730	82.0/70.0	0.86/0.52	7.7/7.6	5.6/3.7	25.0/24.9	1.4/1.3	2.1/2.7	0.038	48
5/2.5	132 M	138 126-●	1455/730	85.0/73.0	0.88/0.52	9.6/9.6	6.9/4.8	32.8/32.7	1.7/2.0	2.4/2.8	0.048	59
8/4.5	160 M	168 109-●	1440/730	84.5/79.5	0.86/0.60	16/13.5	4.5/3.4	53/59	1.3/1.4	1.8/1.9	0.089	92
12/7	160 L	168 110-●	1445/730	86.5/81.0	0.87/0.59	23/21	5.0/3.5	79/92	1.5/1.4	1.9/1.9	0.119	117
16/8	180 L	188 104-●	1460/730	88.0/78.5	0.86/0.53	31/28	1.9/3.4	105/104	1.4/1.6	1.9/2.1	0.224	159
22/13	200 MLA	208 107-●	1475/735	87.5/86.0	0.81/0.69	45/32	6.5/5.9	142/169	2.0/2.5	2.6/2.7	0.36	165
25/15	200 MLB	208 108-●	1475/735	89.0/86.0	0.86/0.67	47/38	7.6/6.0	162/195	2.2/2.6	2.7/2.7	0.42	185
29/17	200 MLC	208 109-●	1475/735	90.0/88.0	0.91/0.75	52/38	7.2/6.1	188/221	2.2/2.6	2.4/2.4	0.48	200
35/21	225 SMB	228 105-●	1475/735	90.0/89.0	0.90/0.74	63/47	6.7/5.8	227/273	1.7/2.1	2.2/2.3	0.63	225
42/25	225 SMC	228 106-●	1475/735	91.0/89.5	0.91/0.75	74/54	6.8/5.9	272/325	1.8/2.1	2.2/2.2	0.74	250
55/33	250 SMB	258 103-●	1480/740	92.0/90.5	0.90/0.75	97/71	7.3/6.4	355/426	2.1/2.5	2.5/2.5	1.50	320

1000/750 r/min = 6/8 poles Highest output at both speeds, two separate windings

16/12	200 MLB	208 219-●	985/740	86.5/82.5	0.85/0.73	31/29	7.0/6.3	155/155	2.1/2.4	2.4/2.6	0.42	185
18/13.5	200 MLC	208 220-●	985/740	87.5/83.5	0.83/0.72	36/32	7.9/6.6	174/174	2.5/2.6	2.8/2.8	0.48	200
23/17	225 SMB	228 213-●	985/740	89.0/85.5	0.84/0.78	46/37	7.9/6.3	222/220	2.3/2.2	2.7/2.3	0.63	225
28/20	225 SMC	228 214-●	985/740	89.0/86.5	0.86/0.77	57/43	7.1/6.5	272/259	2.0/2.3	2.4/2.4	0.74	250
37/27	250 SMB	258 207-●	990/740	90.0/87.5	0.83/0.75	71/59	7.8/6.7	357/348	2.3/2.5	2.7/2.5	1.41	320

¹⁾ Sizes 63 to 100 voltage code H. Sizes 112 to 250 voltage code D.

The bullet indicates a 3-letter product code supplement for choice of mounting arrangement (page 11, pos. 12), voltage and frequency (below) and generation code (page 11, pos. 14).

Code letters for supplementing the product code

Motor size	Code letter for voltage and frequency						
	A	S	B	D	H	E	X
63-100	-	220-230 V	-	380-400 V ¹⁾	400-415 V	500 V	Other rated voltage or frequency, 690 V maximum
112-132	-	220-230 V	-	380-400 V	400-415 V	500 V	
160-250	220 V	230 V	380 V	400 V	415 V	500 V	

¹⁾ Restamping from code H. Note that this results in a certain reduction of output. Rated output on request.

Motors with other number of poles

Data on these, and on bigger frame size, on request. IP 55 IC 411

Single-speed motors

No. of poles	Speed r/min	Motor type M2AA
10	600	90-100
12	500	80-100
14	430	90-100
16	375	90-100
18	330	90-100

Two-speed motors for fan drives

No. of poles	Type of winding	Speed r/min	Motor type M2AA
4/6	PAM	1500/1000	71-100
6/8	PAM	1000/750	71-100
6/12	Dahlander	1000/500	71-100
8/16	Dahlander	750/375	90-100
2/6	2 windings	3000/1000	71-100
4/12	2 windings	1500/500	80-100
4/16	2 windings	1500/375	90-100
6/12	2 windings	1000/500	80-100
8/12	2 windings	750/500	80-100
8/16	2 windings	750/375	90-100

Two-speed motors with highest output at both speeds

No. of poles	Type of winding	Speed r/min	Motor type M2AA
4/6	PAM	1500/1000	71-100
6/8	PAM	1000/750	71-100
6/12	Dahlander	1000/500	80-100
2/6	2 windings	3000/1000	71-100
2/8	2 windings	3000/750	71-100
2/12	2 windings	3000/500	80-100
2/16	2 windings	3000/375	90-100
4/12	2 windings	1500/500	80-100

Three-speed motors for fan drives

No. of poles	Type of winding	Speed r/min	Motor type M2AA
2/4/6	Dahlander + 1 winding	3000/1500/1000	80-100
2/4/8	Dahlander + 1 winding	3000/1500/750	80-100
4/6/8	Dahlander + 1 winding	1500/1000/750	71-100
4/6/12	Dahlander + 1 winding	1500/1000/500	80-100

Three-speed motors with highest output at all speeds

No. of poles	Type of winding	Speed r/min	Motor type M2AA
2/4/6	Dahlander + 1 winding	3000/1500/1000	90-100
4/6/8	Dahlander + 1 winding	1500/1000/750	90-100

Life cycle services and support

From pre-purchase to migration and upgrades



ABB offers a complete portfolio of services to ensure trouble-free operation and long product lifetimes. These services cover the entire life cycle. Local support is provided through a global network of ABB service centers and certified partners.

Pre-purchase

- ABB's front-end sales organization can help customers to quickly and efficiently select, configure and optimize the right motor or generator for their application.

Installation and commissioning

- Professional installation and commissioning by ABB's certified engineers represent an investment in availability and reliability over the entire life cycle.

Engineering and consulting

- ABB's experts provide energy efficiency and reliability appraisals, advanced condition and performance assessments and technical studies.

Condition monitoring and diagnosis

- Unique services collect and analyze data to provide early warnings of problems before failures can occur. All critical areas of the equipment are covered.

Maintenance and field services

- ABB offers life cycle management plans and preventive maintenance products. The recommended four-level maintenance program covers the entire product lifetime.

Spare parts

- Spare parts and support are offered throughout the life cycle of ABB products. In addition to individual spares, tailored spare part packages are also available.

Repair and refurbishment

- Support for all ABB motors and generators and other brands is provided by ABB's global service organization. Specialist teams can also deliver emergency support.

Migration and upgrades

- Life cycle audits determine the optimum upgrades and migration paths. Upgrades range from individual components to direct replacement motors and generators.

Training

- Product and service training courses take a practical approach. The training ranges from standard courses to specially tailored programs to suit customer requirements.

Specialized support

- Specialized support is offered through ABB's global service organization. Local units provide major and minor repairs as well as overhauls and reconditioning.

Service contracts

- Service contracts are tailored to the customer's needs. The contracts combine ABB's entire service portfolio and 120 years of experience to deploy the optimal service practices.

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