

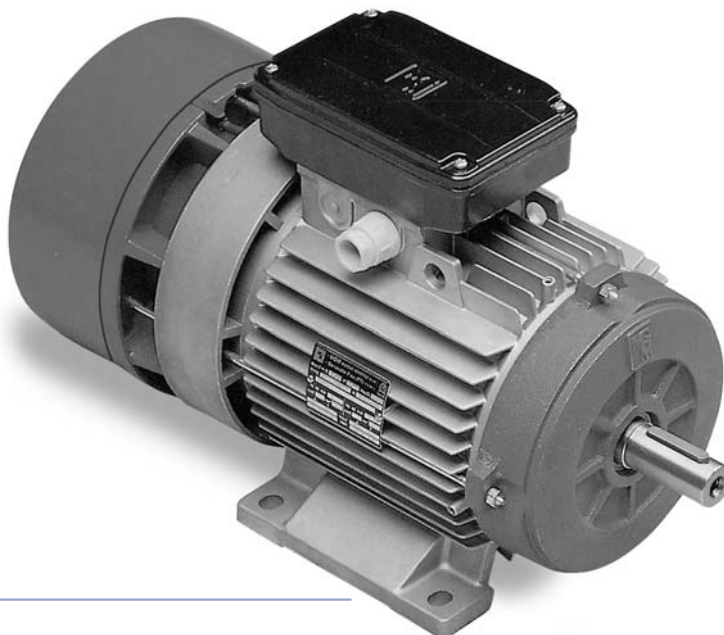
B5



B14



B3



BA Series

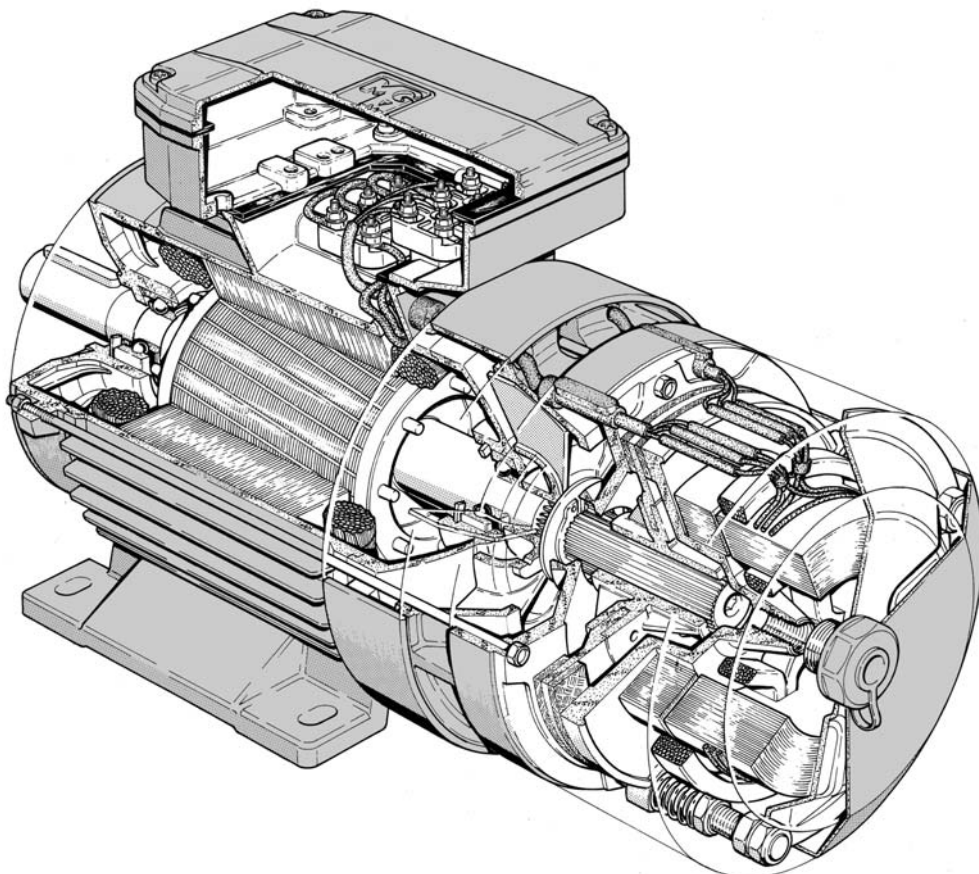
BA series consists of three phase, asynchronous brake motors totally enclosed fan cooled. BA series range starts from 71 up to 225 frame size. The motor brakes in case of power supply failure. The braking action is always secured through a very quick and precise stop assuring a safe and prompt stop in case of unintentional power supply failure. The brake torque remains the same in both directions of rotation and the motor brakes without shaft axial sliding. As a standard the brake is AC 3-phase voltage supply with brake leads connected with motor leads in a single terminal board while on request it is possible to supply the brake separately with a second terminal board or to have a DC brake supply with a built-in rectifier fitted inside the terminal box. The rectifier is provided with over-voltage and radio frequencies emission protection devices. BA series motors tolerate high overloading rate and are capable of withstanding overheating so as to guarantee the best reliability even under tough operating conditions. All MGM series motors have been designed to be controlled by inverters. The motor winding insulation is class F, while class H is available on request. Motor construction type is totally enclosed externally cooled and IP54 enclosure (IP55 and IP56 available on request). Motors up to 132 frame size are fitted as standard with a hexagonal hole on the shaft at the non drive end to allow manual rotation, even if power is off. All BA series motors are provided as standard with hand brake release screw.

BA series brake disc has a large lining surface that allows high brake torque, low disc wear and consequently low maintenance cost. The brake torque can be easily adjustable to the desired value just by screwing some nuts. Thanks to its special construction the brake friction surface is self-ventilated on the motor side, permitting a high brake workload and keeping brake time constant. The brake lining material is asbestos free.

BA series motor frame is made of die cast, light metal on motors up to 132 size and the terminal board box, provided with cable glands and plugs, is positioned 180° above the motor support feet. The frame is made of cast iron starting from 160 frame size and the terminal box is located on the right side (drive-end view). Shields and flanges are made of aluminium on motors up to 90 frame size, and of cast iron on motors of 100 frame size and above. As standard feet are frame integrated (they are not simply attached to the frame) on IM B3 mounting (foot mounted) making the motor very sturdy. This feature is very important for those applications where the motor is much stressed during the starts and stops.

The brake friction surfaces are made of cast iron as a standard. The brake moving element and the brake coil have a laminated nucleus to reduce electrical losses and to secure a very quick brake intervention.

BA series main features are its sturdy construction, quick braking action, constant braking time, high number of permissible start/stop cycles also under severe applications, easily adjustable brake torque, low maintenance costs.



BA series brake group

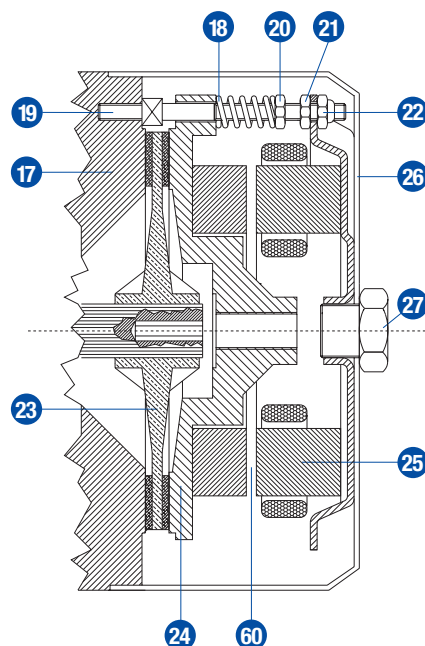
Air gap adjustment

The air gap (60), that is the distance between the two magnetic cores, the brake coil (25) and brake moving element (24), must stay within the value expressed in the chart below. It is not advisable to exceed the expressed value, in order to avoid vibrations of the brake moving element, very loud noise, the brake coil burning or even the whole brake assembly failure. It is advisable to check periodically the air gap because it increases as a consequence of the brake disc wear. In order to set the air gap to the indicated value, you have to loosen the nuts (21) (22) so to move the brake coil (25) towards the brake moving element (24). Once this operation has been settled be sure to tighten the locknuts.

Frame Size	71-80	90-100	112-132	160-200	225
Air Gap	0.25-0.5	0.3-0.6	0.4-0.8	0.5-1.0	0.6-1.2

Brake torque adjustment

The brake torque is proportional to the springs (18) compression, which can be adjusted tightening or loosening the locknuts (20). The compression of the three springs must be as even as possible. Once the brake is properly supplied, if the brake coil isn't able to attract the brake moving element with a quick stroke and to keep it attracted without any vibrations, check the air gap adjustment and, if this inconvenience still persists, loosen the locknut (20) by two threads and try again until the proper functioning is obtained. It is important to consider that some motors can be equipped with 3 springs and some others with 6. (see page 23). Once this operation is completed, check the brake torque to make sure it is set to the desired value. Never set the brake torque to a higher value than the one indicated on the motor nameplate.

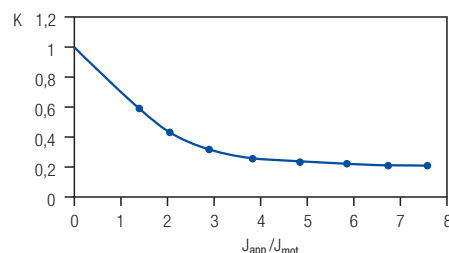
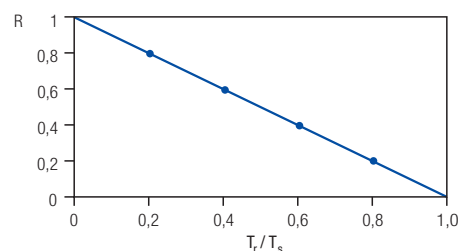


Permissible start frequency under load

The technical data tables provide the ideal no-load start frequency (Z_0). The permissible start frequency when an external load is applied (Z_{load}) can be found with the following formula:

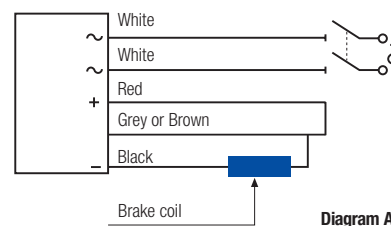
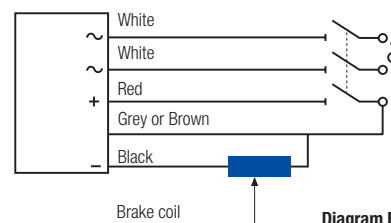
$$Z_{load} = Z_0 \cdot K \cdot R$$

where " Z_0 " is the table-value for the selected motor and " K " and " R " are factors determined by the curves on the side; the factor " K " is related to the ratio of the moment of inertia of the applied load (J_{app}) to that of the motor (J_{mot}) while the factor " R " is related to the ratio of the resisting torque (T_r) to the starting torque (T_s). This calculation gives an approximative indication only. If the required starting frequency is close to Z_{load} , it is advisable to use a motor equipped with thermal protectors. It is necessary to check the maximum energy dissipation limit of the brake group and the maximum motor RPM in those applications where high moment of inertia is involved. On request is available a special brake disc material capable to withstand very high dissipation energy. Please contact MGM technical staff for additional information.



Brake coil wiring diagram

As standard BA series motors are equipped with AC brakes with single terminal board for the brake and the motor while on request it is possible to supply the brake separately. On request DC brakes are available for BA series with the rectifier located inside the terminal box. The rectifier is provided with over-voltage protection devices and with a RFI filter. MGM brake motors equipped with DC brakes can be connected as in diagram A or B according to the needed braking time. MGM motors provided with DC brake coil are connected as in diagram A. The DC brake coil has to be connected according to diagram B to have a reduced brake reaction time.

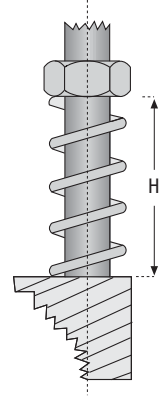

Diagram A

Diagram B

Brake torque and brake spring compression



BA series

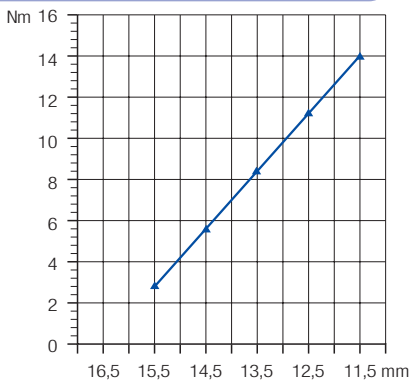
BA series motors are provided as standard with a brake torque set to 60 - 70% of the maximum admissible brake torque indicated on the nameplate. On request the motor can come already set to a specific brake torque value different from the standard one. The brake torque is shown in the diagrams here below as a function of the brake assembly spring compression. The shown values refer to BA series motors mounted in horizontal position with an AC brake coil. DC brakes have the same trend as AC brakes even if they have lower brake torque, as shown in the table below.



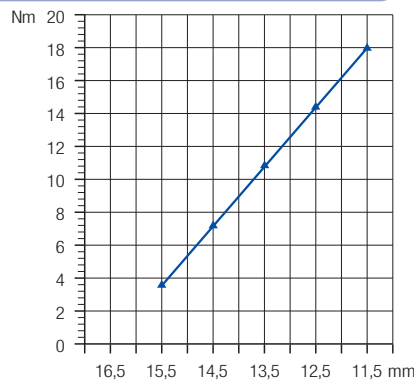
The values shown in the diagrams are only indicative as application conditions, brake lining wear and temperature, can affect the real brake torque. Whenever it is necessary to adjust the braking torque to a specific value it is advisable to directly measure the obtained brake torque after each brake torque adjustment. Consider that the motor mounting position influences remarkably the effective braking torque when low brake torque values are involved. Please contact MGM for further information.

Frame size	71	80	90	100	112	132	160	180	200	225
Max AC Brake Torque (Nm):	14	18	38	50	80	150	190	300	300	400
Max DC Brake Torque (Nm):	9	15	30	42	60	120	155	180	180	240

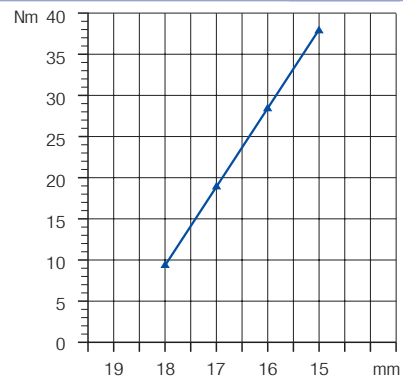
BA 71



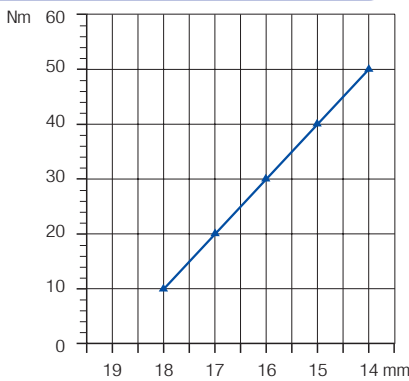
BA 80



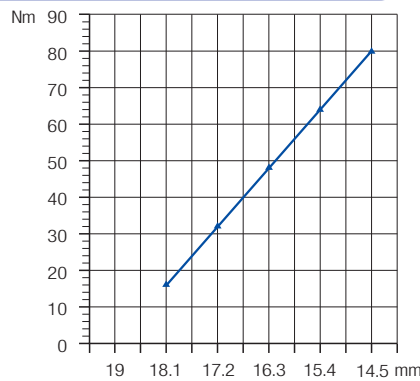
BA 90



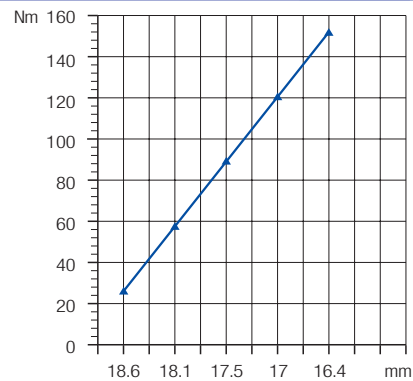
BA 100



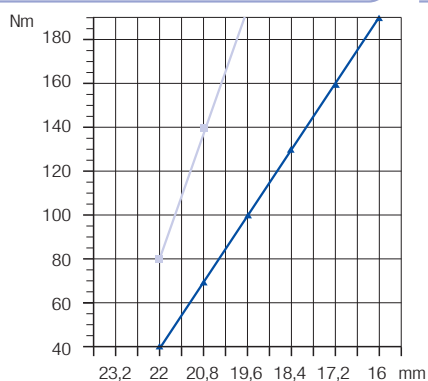
BA 112



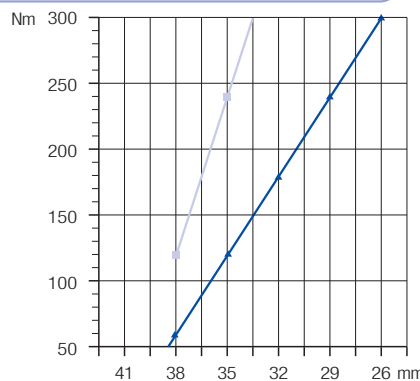
BA 132



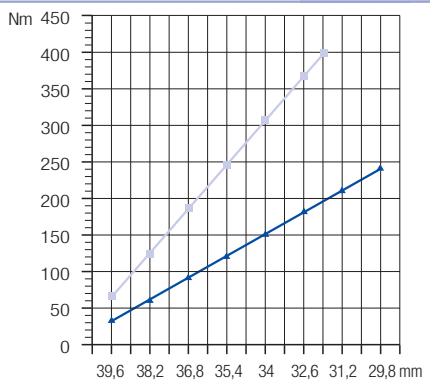
BA 160



BA 180-200



BA 225



Light blue line: 6 springs brake group
Blue line: 3 springs brake group
Consider that DC brake groups always have 3 springs and 155 Nm max. brake torque.

Light blue line: 6 springs brake group
Blue line: 3 springs brake group
Consider that DC brake groups always have 3 springs and 180 Nm max. brake torque.

Light blue line: 6 springs brake group
Blue line: 3 springs brake group
Consider that DC brake groups always have 3 springs and 240 Nm max. brake torque.

Technical Data Single Speed Motor – Single Winding

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kg ^m ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
2 poles													3000 r.p.m.
BA 71 A2	0.37	2810	0.90	0.78	2.6	4.5	90	110	6000	4.88	14	59	9.5
BA 71 B2	0.55	2810	1.40	0.78	2.6	4.5	90	110	6000	5.48	14	59	10.5
BA 71 C2 *	0.75	2810	1.8	0.80	2.5	4.5	90	110	5000	6.15	14	59	11.0
BA 80 A2	0.75	2800	1.7	0.86	3.1	5.3	140	150	6000	11.64	18	65	14.5
BA 80 B2	1.1	2800	2.4	0.86	3.1	5.3	140	150	6000	12.96	18	65	15.5
BA 90 SA2	1.5	2850	3.2	0.86	3.0	6.9	300	150	4500	18.95	38	72	20.0
BA 90 LA2	2.2	2840	4.5	0.86	3.0	6.9	300	150	4500	21.84	38	72	22.5
BA 100 LA2	3.0	2860	6.2	0.84	3.2	8.1	300	150	2800	39.82	50	74	30.0
BA 112 MB2	4.0	2880	8.1	0.84	2.5	7.4	280	470	1700	68.96	80	75	44
BA 112 MC2*	5.5	2880	11.4	0.85	2.5	7.4	280	470	1400	85.00	80	75	48
BA 132 SA2	5.5	2890	10.8	0.86	2.8	7.4	580	680	480	192.0	150	75	71
BA 132 SB2	7.5	2890	14.6	0.85	2.8	7.4	580	680	480	231.0	150	75	77
BA 132 MA2 *	9.2	2890	17.9	0.85	2.8	7.4	580	680	420	270.0	150	75	83
BA 132 MB2 *	11.0	2890	21.4	0.85	2.8	7.4	580	680	400	308.0	150	75	90
BA 160 MA2	11.0	2920	19.5	0.94	3.0	8.6	1390	860	350	537.0	190	77	160
BA 160 MB2	15.0	2930	26.3	0.93	3.1	8.8	1390	860	350	537.0	190	77	160
BA 160 LA2	18.5	2930	32.4	0.93	3.1	8.8	1390	860	350	616.0	190	77	171
BA 180 LA2	22.0	2950	36.7	0.95	2.7	9.0	950	1100	120	1150.0	300	78	243
BA 200 LA2	30.0	2940	52.0	0.94	2.8	9.0	950	1100	90	1160.0	300	79	274
BA 200 LB2	37.0	2940	64.1	0.93	2.8	9.0	950	1100	90	1290.0	300	79	289
4 poles													1500 r.p.m.
BA 71 A4	0.25	1400	0.8	0.65	2.5	3.7	90	110	20000	7.20	14	45	9.5
BA 71 B4	0.37	1400	1.10	0.68	2.7	3.9	90	110	19000	8.10	14	45	10.5
BA 71 C4 *	0.55	1360	1.65	0.70	2.4	3.7	90	110	18000	9.43	14	45	11.5
BA 71 D4 *	0.65	1350	2.00	0.69	2.1	3.7	90	110	16000	9.92	14	45	12.0
BA 80 A4	0.55	1400	1.70	0.69	2.1	4.0	140	150	10000	14.97	18	47	14.0
BA 80 B4	0.75	1400	2.20	0.67	2.5	4.3	140	150	10000	17.19	18	47	15.0
BA 80 C4 *	0.9	1390	2.60	0.67	2.8	4.5	140	150	10000	18.30	18	47	16.0
BA 90 SA4	1.1	1400	2.7	0.77	2.3	4.6	300	150	15000	26.15	38	55	20.0
BA 90 LA4	1.5	1400	3.6	0.75	2.7	4.8	300	150	12000	30.53	38	55	22.5
BA 90 LB4 *	1.85	1400	4.3	0.77	2.7	5.8	300	150	9000	34.57	38	55	24.0
BA 90 LC4 *	2.2	1390	5.4	0.75	2.7	5.0	300	150	7000	34.57	38	55	24.0
BA 100 LA4	2.2	1410	5.0	0.78	2.5	5.4	300	150	8000	51.14	50	57	32
BA 100 LB4	3.0	1410	6.5	0.80	2.8	6.4	300	150	7000	60.07	50	57	36
BA 112 MB4	4.0	1415	8.1	0.84	2.6	6.4	280	470	4000	125.7	80	61	45
BA 112 MC4*	5.5	1420	11.5	0.83	2.8	6.9	280	470	3500	145.0	80	61	50
BA 132 SB4	5.5	1430	11.3	0.82	2.4	6.0	580	680	1200	277.0	150	62	78
BA 132 MA4	7.5	1435	14.8	0.84	2.4	6.0	580	680	950	352.0	150	62	87
BA 132 MB4 *	9.2	1445	18.3	0.85	2.5	6.3	580	680	900	432.0	150	62	100
BA 132 MBX4 *	11.0	1440	21.7	0.86	2.5	6.0	580	680	800	432.0	150	62	100
BA 160 MA4	9.2	1460	18.6	0.84	3.0	7.0	1390	860	850	604.0	190	63	148
BA 160 MB4	11.0	1460	21.2	0.85	2.9	7.0	1390	860	850	683.0	190	63	154
BA 160 LA4	15.0	1460	28.5	0.87	2.7	7.0	1390	860	850	858.0	190	63	171
BA 180 LA4	18.5	1460	33.7	0.89	2.9	8.0	950	1100	540	1740.0	300	64	243.0
BA 180 LB4	22.0	1460	41.8	0.85	2.5	7.6	950	1100	540	1740.0	300	64	243.0
BA 200 LB4	30.0	1455	56.5	0.87	2.5	7.4	950	1100	300	1980.0	300	66	274.0
BA 225 S4	37.0	1475	68.1	0.85	2.5	7.9	1350	1500	300	4470.0	400	68	392.0
BA 225 M4	45.0	1475	82.6	0.85	2.5	7.9	1350	1500	300	5140.0	400	68	440.0

* Non Standard Power

Technical Data Single Speed Motor – Single Winding

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kgm ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
6 poles													1000 r.p.m.
BA 71 A6	0.18	875	0.60	0.71	2.0	2.6	90	110	28000	10.08	14	45	10.5
BA 71 B6	0.25	900	0.80	0.71	2.0	2.8	90	110	28000	11.54	14	45	11.0
BA 80 A6	0.37	910	1.25	0.67	2.6	3.4	140	150	18000	23.40	18	47	14.5
BA 80 B6	0.55	900	1.8	0.68	2.2	2.8	140	150	18000	27.21	18	47	15.5
BA 90 SA6	0.75	910	2.3	0.68	2.1	3.5	300	150	18000	35.93	38	54	19.5
BA 90 LA6	1.1	910	3.2	0.68	2.2	3.6	300	150	15000	46.08	38	54	22.0
BA 90 LB6*	1.3	910	3.5	0.68	2.5	4.0	300	150	12000	53.00	38	54	24.0
BA 100 LA6	1.5	930	3.9	0.71	2.3	4.3	300	150	11000	87.40	50	56	33.0
BA 100 LB6 *	1.85	920	5.0	0.68	2.6	4.5	300	150	8500	99.19	50	56	35.0
BA 112 MB6	2.2	945	5.2	0.79	2.0	5.3	280	470	6500	168.3	80	58	45
BA 132 SB6	3.0	960	7.2	0.72	2.5	6.5	580	680	1800	346.0	150	58	78
BA 132 MA6	4.0	960	9.5	0.72	2.3	6.5	580	680	1500	401.0	150	58	83
BA 132 MB6	5.5	960	12.3	0.75	2.3	6.5	580	680	1200	508.0	150	58	94
BA 160 MB6	7.5	965	15.9	0.79	2.2	7.1	1390	860	1200	943.0	190	59	156
BA 160 LA6 *	9.2	970	18.3	0.81	2.2	7.1	1390	860	1100	1240.0	190	59	174
BA 160 LB6	11.0	970	22.7	0.80	2.5	7.5	1390	860	950	1240.0	190	59	174
BA 180 LB6	15.0	970	29.4	0.84	2.3	7.8	950	1100	600	2070.0	300	60	243
BA 200 LA6	18.5	970	38.1	0.82	2.2	8.0	950	1100	350	2360.0	300	61	289
BA 200 LB6	22.0	965	43.5	0.85	2.2	8.0	950	1100	350	2360.0	300	61	289
BA 225 M6	30.0	985	58.7	0.82	2.0	7.0	1350	1500	350	7470.0	400	63	440
8 poles													750 r.p.m.
BA 71 A8	0.08	660	0.60	0.53	2.0	2.0	90	110	30000	7.20	14	43	10.0
BA 71 B8	0.11	660	0.80	0.55	2.0	2.0	90	110	30000	8.10	14	43	10.5
BA 80 A8	0.18	675	0.95	0.59	2.0	2.2	140	150	30000	23.40	18	45	14.5
BA 80 B8	0.25	675	1.25	0.62	2.0	2.2	140	150	30000	27.21	18	45	15.5
BA 90 SA8	0.37	680	1.50	0.60	2.1	2.9	300	150	20000	35.93	38	46	20.0
BA 90 LA8	0.55	690	2.20	0.56	2.1	2.8	300	150	17000	46.08	38	46	22.5
BA 90 LB8*	0.65	690	2.70	0.56	2.1	2.8	300	150	14000	53.00	38	46	24.0
BA 100 LA8	0.75	700	2.75	0.58	2.1	3.0	300	150	14000	87.40	50	49	33.0
BA 100 LB8	1.1	700	4.1	0.59	2.5	4.0	300	150	9400	99.19	50	49	35.0
BA 112 MB8	1.5	705	4.9	0.60	2.0	4.5	280	470	7200	168.3	80	52	45
BA 132 SB8	2.2	700	5.2	0.75	2.1	4.7	580	680	2100	325.0	150	55	73
BA 132 MB8	3.0	700	7.1	0.75	2.1	4.7	580	680	2100	413.0	150	55	80
BA 160 MA8	4.0	725	9.6	0.72	2.3	6.5	1390	860	1800	1030.0	190	58	156
BA 160 MB8	5.5	725	13.6	0.70	2.3	6.1	1390	860	1800	1030.0	190	58	156
BA 160 LA8	7.5	725	18.6	0.70	2.3	6.1	1390	860	1800	1360.0	190	58	174
BA 180 LB8	11.0	730	25.9	0.72	2.0	5.9	950	1100	800	2460.0	300	59	243
BA 200 LA8	15.0	730	32.8	0.77	1.9	6.1	950	1100	500	2880.0	300	60	243

* Non Standard Power

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n \text{ (Nm)} = \frac{9,55 \times P_n \text{ (W)}}{\text{RPM}}$

Technical Data Two Speed Motor – Single Winding

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kg ^m ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
2 / 4 poles													3000 / 1500 r.p.m.
BAD 71 A2/4	0.25 0.18	2820 1415	0.75 0.70	0.73 0.66	2.2 2.4	3.8 3.1	90	110	8500 18000	7.20	14	59 45	10.0
BAD 71 B2/4	0.37 0.25	2820 1415	1.00 0.85	0.77 0.63	2.3 2.8	4.7 4.2	90	110	7000 16000	8.10	14	59 45	11.0
BAD 80 A2/4	0.65 0.45	2790 1400	1.80 1.35	0.81 0.72	2.0 2.1	4.1 4.0	140	150	3000 10000	14.97	18	65 47	14.5
BAD 80 B2/4	0.88 0.62	2800 1390	2.2 1.7	0.80 0.74	2.0 2.2	4.9 4.5	140	150	3000 10000	17.19	18	65 47	15.5
BAD 90 SB2/4	1.3 0.9	2800 1420	3.2 2.3	0.85 0.73	2.3 2.5	5.2 5.0	300	150	3000 9500	26.15	38	72 55	20
BAD 90 LA2/4	1.8 1.2	2800 1420	4.4 3.1	0.83 0.71	2.6 3.0	5.6 6.0	300	150	2500 9000	30.53	38	72 55	23
BAD 90 LB2/4	2.2 1.5	2860 1430	5.4 3.8	0.82 0.73	2.5 3.0	5.9 6.0	300	150	2500 8500	34.57	38	72 55	24
BAD 100 LA2/4	2.2 1.5	2875 1425	5.0 3.8	0.85 0.81	2.3 2.5	6.0 5.6	300	150	1800 6500	51.14	50	74 57	32
BAD 100 LB2/4	3.1 2.3	2875 1425	6.7 5.2	0.85 0.82	2.3 2.4	7.0 6.5	300	150	1700 6000	60.07	50	74 57	36
BAD 112 MB2/4	4.5 3.3	2880 1400	9.2 6.9	0.88 0.86	2.4 2.8	7.0 6.5	280	470	900 3800	125.7	80	75 61	45
BAD 132 SB2/4	5.0 4.5	2940 1450	10.9 9.3	0.81 0.84	2.8 2.6	8.0 7.5	580	680	400 1000	277.0	150	75 62	78
BAD 132 MA2/4	6.0 5.0	2940 1450	11.7 10.0	0.88 0.85	2.6 2.5	8.0 7.5	580	680	400 900	352.0	150	75 62	87
BAD 132 MB2/4	7.5 6.0	2940 1450	16.0 12.2	0.82 0.83	2.4 2.5	8.0 7.5	580	680	400 900	352.0	150	75 62	87
BAD 160 MA2/4	9.5 8.0	2870 1420	20.0 16.6	0.89 0.85	2.8 2.6	7.5 6.0	1390	860	300 800	607.0	190	77 63	154
BAD 160 MB2/4	11.0 9.0	2870 1420	23.3 18.7	0.88 0.85	2.8 2.6	6.8 6.0	1390	860	300 800	683.0	190	77 63	154
BAD 160 LA2/4	13.0 11.0	2890 1420	26.1 21.2	0.91 0.87	2.8 2.6	7.0 6.3	1390	860	250 750	858.0	190	77 63	171
BAD 180 LA2/4	17.0 14.0	2900 1440	33.0 26.8	0.89 0.86	2.9 2.7	8.0 6.5	950	1100	100 500	1740.0	300	78 64	243
BAD 180 LB2/4	20.5 17.0	2900 1430	41.5 33.3	0.89 0.86	2.9 2.7	8.0 6.5	950	1100	100 500	1740.0	300	78 64	243
BAD 200 LB2/4	24.0 20.0	2910 1435	49.0 41.0	0.86 0.82	2.5 2.4	8.0 6.5	950	1100	70 250	1980.0	300	79 66	274

Technical Data Two Speed Motor – Single Winding

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kgm ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
4 / 8 poles										1500 / 750 r.p.m.			
BAD 71 A4/8	0.13 0.07	1385 700	0.35 0.45	0.82 0.60	1.6 1.8	3.0 2.0	90	110	12000 30000	10.08	14	45 43	10.5
BAD 71 B4/8	0.18 0.09	1370 685	0.50 0.60	0.83 0.59	1.8 2.0	3.2 2.0	90	110	11000 30000	11.54	14	45 43	11.0
BAD 71 C4/8	0.22 0.12	1370 685	0.60 0.75	0.83 0.59	1.6 1.8	3.0 2.0	90	110	10000 28000	12.35	14	45 43	12.0
BAD 80 A4/8	0.25 0.18	1405 675	0.70 0.90	0.86 0.65	2.2 2.0	4.1 2.4	140	150	9000 22000	23.40	18	47 45	14.5
BAD 80 B4/8	0.37 0.25	1405 675	0.85 1.15	0.86 0.65	2.2 2.0	4.1 2.4	140	150	9000 22000	27.21	18	47 45	15.5
BAD 90 SA4/8	0.75 0.37	1350 695	1.70 1.80	0.85 0.53	1.8 2.3	3.9 2.7	300	150	10000 15000	35.93	38	55 46	20
BAD 90 LB4/8	1.1 0.6	1390 695	2.7 3.0	0.82 0.53	2.0 2.5	4.5 2.7	300	150	8500 13000	52.62	38	55 46	24
BAD 100 LB4/8	1.6 0.9	1395 700	3.6 3.5	0.87 0.58	2.0 2.2	5.0 3.5	300	150	4100 8500	99.19	50	57 49	35
BAD 112 MB4/8	2.2 1.2	1400 720	4.8 4.6	0.86 0.57	2.5 3.1	5.5 4.1	280	470	3800 8000	168.3	80	61 52	45
BAD 132 SB4/8	3.0 2.0	1440 720	6.6 5.8	0.85 0.64	2.2 2.5	6.0 5.0	580	680	1000 2000	325.0	150	62 55	73
BAD 132 MA4/8	4.0 2.7	1440 720	8.8 7.8	0.85 0.64	2.2 2.5	6.0 5.0	580	680	1000 2000	413.0	150	62 55	80
BAD 132 MB4/8	6.0 4.0	1440 720	13.0 11.6	0.85 0.64	2.2 2.5	6.0 5.0	580	680	1000 2000	611.0	150	62 55	118
BAD 160 MB4/8	6.5 4.5	1470 730	15.1 13.3	0.80 0.62	2.6 2.4	8.0 6.5	1390	860	800 1450	1030.0	190	63 58	156
BAD 160 LA4/8	9.5 6.0	1470 730	21.5 17.6	0.82 0.62	2.6 2.4	8.0 6.5	1390	860	750 1400	1360.0	190	63 58	174
BAD 180 LA4/8	11.0 8.0	1470 730	22.0 19.2	0.85 0.70	2.8 2.4	7.5 7.0	950	1100	450 750	2460.0	300	64 59	243
BAD 180 LB4/8	14.0 9.0	1465 730	27.1 22.3	0.87 0.68	2.7 2.5	7.5 7.0	950	1100	400 700	2460.0	300	64 59	243
BAD 200 LA4/8	18.0 11.0	1430 710	36.3 27.2	0.88 0.71	2.8 2.6	7.5 8.0	950	1100	70 250	2880.0	300	66 60	293
BAD 200 LB4/8	21.0 13.0	1425 710	41.6 31.7	0.88 0.70	2.6 2.4	7.0 6.5	950	1100	70 250	2880.0	300	66 60	293

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n \text{ (Nm)} = \frac{9,55 \times P_n \text{ (W)}}{\text{RPM}}$

Technical Data Two Speed Motor – Two Windings

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kg ^m ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
2 / 6 poles											3000 / 1000 r.p.m.		
BADA 71 B2/6	0.25	2880	0.85	0.74	2.6	4.3	90	110	3600	8.10	14	59	6.5
	0.08	940	0.60	0.64	2.2	2.0			15000			45	
BADA 71 C2/6	0.35	2880	1.05	0.75	2.6	5.0	90	110	3000	9.43	14	59	7.5
	0.10	940	0.60	0.59	2.2	2.3			12000			45	
BADA 80 A2/6	0.37	2885	1.35	0.67	2.6	5.0	140	150	2000	14.97	18	65	9.0
	0.12	945	0.80	0.57	1.9	2.5			15000			47	
BADA 80 B2/6	0.55	2885	1.75	0.67	2.6	5.0	140	150	2000	17.19	18	65	10.0
	0.18	945	1.05	0.57	1.9	2.5			15000			47	
BADA 90 SA2/6	0.9	2875	2.10	0.86	2.5	5.0	300	150	1800	26.15	38	72	11.5
	0.3	950	1.15	0.65	2.2	2.5			15000			54	
BADA 90 LA2/6	1.2	2875	2.80	0.86	2.5	5.0	300	150	1800	30.53	38	72	14.0
	0.4	950	1.55	0.65	2.2	2.5			1350			54	
BADA 90 LB2/6	1.4	2890	3.2	0.86	2.7	5.0	300	150	1800	34.57	38	72	15.5
	0.5	940	1.8	0.55	2.5	3.0			12000			54	
BADA 100 LA2/6	1.6	2810	3.7	0.85	2.6	5.4	300	150	1800	51.14	50	74	19
	0.6	900	1.9	0.68	2.3	3.4			15000			56	
BADA 100 LB2/6	2.2	2800	4.8	0.90	2.6	5.4	300	150	1000	60.07	50	74	23
	0.8	910	2.5	0.67	2.3	3.4			15000			56	
BADA 112 MB2/6	3.0	2870	6.4	0.86	3.0	7.0	280	470	1100	125.7	80	75	32
	1.0	950	3.2	0.61	3.2	4.5			8600			58	
BADA 132 SB2/6	4.0	2880	8.9	0.85	3.0	7.0	580	680	350	277.0	150	75	78
	1.3	940	3.7	0.69	2.8	4.5			1700			58	
BADA 132 MA2/6	5.5	2870	11.5	0.88	3.0	7.5	280	680	350	352.0	150	75	87
	1.8	940	5.1	0.69	2.8	4.5			1400			58	
BADA 132 MB2/6	7.0	2870	14.9	0.88	3.0	7.5	280	680	350	432.0	150	75	98
	2.2	940	6.3	0.69	2.8	4.5			1100			58	
BADA 160 MB2/6	8.0	2890	15.9	0.92	3.0	8.0	1390	860	250	683.0	190	77	154
	2.5	950	6.9	0.74	2.0	4.3			1000			59	
BADA 160 LA2/6	11.0	2890	21.4	0.92	3.0	8.0	1390	860	250	858.0	190	77	171
	3.6	950	9.3	0.74	2.0	4.3			900			59	
BADA 180 LB2/6	16.0	2910	30.3	0.93	3.0	8.0	950	1100	100	1740.0	300	78	243
	6.5	960	16.0	0.72	2.4	5.0			250			60	

Technical Data Two Speed Motor – Two Windings

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kgm ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
2 / 8 poles											3000 / 750 r.p.m.		
BADA 71 B2/8	0.25 0.06	2900 700	0.85 0.55	0.69 0.54	2.8 1.8	4.0 1.5	90	110	3600 25000	9.10	14	59 43	11.0
BADA 71 C2/8	0.35 0.07	2900 700	1.05 75.00	0.70 0.52	2.5 2.2	4.3 1.6	90	110	3000 22000	9.43	14	65 43	12.0
BADA 80 A2/8	0.37 0.09	2885 690	1.35 0.70	0.67 0.54	2.3 1.8	5.0 1.7	140	150	2000 20000	14.97	18	65 45	14.5
BADA 80 B2/8	0.55 0.12	2885 690	1.75 0.90	0.67 0.54	2.3 2.0	5.0 1.7	140	150	2000 20000	17.19	18	72 45	15.5
BADA 90 SB2/8	0.75 0.18	2800 610	1.90 1.05	0.77 0.65	3.0 2.1	5.1 1.9	300	150	1800 18000	26.15	38	72 46	22.5
BADA 90 LA2/8	1.10 0.25	2800 640	2.70 1.45	0.81 0.58	3.0 2.1	5.1 1.9	300	150	1800 17000	30.53	38	72 46	23.0
BADA 90 LB2/8	1.3 0.3	2820 640	3.10 1.75	0.81 0.58	3.2 2.4	5.7 2.0	300	150	1800 16000	34.57	38	72 46	24.0
BADA 100 LA2/8	1.6 0.4	2810 660	3.7 2.0	0.85 0.58	2.7 2.0	5.3 2.2	300	150	1800 16000	51.14	50	74 49	32
BADA 100 LB2/8	2.2 0.5	2800 660	4.8 2.5	0.90 0.59	2.8 2.3	5.7 2.3	300	150	1000 10500	60.07	50	74 49	36
BADA 112 MB2/8	3.0 0.8	2860 690	6.3 3.5	0.87 0.63	3.3 2.6	7.5 3.2	280	470	1100 9000	125.7	80	75 52	45
BADA 132 SB2/8	4.0 1.1	2880 680	8.9 4.0	0.85 0.60	3.0 1.9	7.0 3.3	580	680	430 1800	277.0	150	75 55	78
BADA 132 MA2/8	5.5 1.5	2870 680	11.5 5.6	0.88 0.59	3.0 2.0	7.5 3.0	580	680	400 1800	352.0	150	75 55	87
BADA 132 MB2/8	7.0 1.8	2870 680	14.9 7.3	0.88 0.59	3.0 2.0	7.5 3.0	580	680	400 1800	432.0	150	75 55	98
BADA 160 MB2/8	8.0 2.2	2880 705	16.7 7.6	0.91 0.65	3.0 1.9	8.0 3.3	1390	860	300 1500	683.0	190	77 58	154
BADA 160 LA2/8	11.0 3.0	2880 710	21.5 10.2	0.92 0.65	3.0 1.9	8.0 3.3	1390	860	300 1500	858.0	190	77 58	171
BADA 180 LB2/8	16.0 4.0	2915 715	30.0 11.5	0.93 0.66	3.0 1.9	8.0 3.3	950	1100	100 300	1740.0	300	79 59	243
BADA 200 LB2/8	18.5 4.5	2915 715	35.0 13.5	0.93 0.66	3.0 1.9	8.0 3.3	950	1100	100 300	2030.0	300	79 59	255

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n \text{ (Nm)} = \frac{9,55 \times P_n \text{ (W)}}{\text{RPM}}$

Technical Data Two Speed Motor – Two Windings

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kgm ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
4 / 6 poles												1500 / 1000 r.p.m.	
BADA 71 C4/6	0.18	1415	0.60	0.76	1.9	3.0	90	110	7500	12.35	14	45	12.0
	0.11	930	0.50	0.66	2.0	2.3			15000			45	
BADA 80 A4/6	0.25	1430	0.85	0.79	2.2	4.3	140	150	7000	23.40	18	47	14.5
	0.18	940	0.80	0.71	1.8	3.0			15000			47	
BADA 80 B4/6	0.37	1430	1.05	0.79	2.2	4.3	140	150	7000	27.21	18	47	15.5
	0.25	940	0.95	0.71	1.8	3.0			15000			47	
BADA 90 SA4/6	0.55	1420	1.60	0.78	1.9	3.8	300	150	6000	35.93	38	55	20.0
	0.37	950	1.45	0.62	2.1	3.3			12000			54	
BADA 90 LB4/6	0.75	1420	2.20	0.78	2.0	3.8	300	150	5500	46.08	38	55	23.0
	0.55	950	1.9	0.62	2.1	3.3			10000			54	
BADA 100 LA4/6	1.1	1445	3.0	0.76	2.0	5.3	300	150	2000	86.40	50	57	33.0
	0.8	955	2.4	0.71	2.1	4.4			50000			56	
BADA 100 LB4/6	1.5	1440	3.9	0.75	2.0	5.2	300	150	1800	99.19	50	57	35.0
	1.1	950	3.3	0.68	2.1	4.4			8000			56	
BADA 112 MB4/6	2.0	1385	4.4	0.88	2.6	5.3	280	470	2600	168.3	80	61	45
	1.3	930	3.5	0.75	2.1	4.4			5500			58	
BADA 132 SB4/6	2.2	1440	5.1	0.78	2.9	7.0	580	680	600	346.0	150	62	78
	1.5	950	4.4	0.69	2.6	5.5			1000			58	
BADA 132 MA4/6	3.0	1440	6.4	0.81	2.7	7.0	580	680	600	401.0	150	62	83
	2.2	950	6.0	0.71	2.4	5.0			1000			58	
BADA 132 MB4/6	3.7	1440	8.2	0.78	2.9	7.0	580	680	500	508.0	150	62	94
	2.5	950	7.0	0.69	2.6	5.5			900			58	
BADA 160 MB4/6	5.5	1390	11.1	0.93	2.5	5.8	1390	860	400	943.0	190	63	156
	3.7	940	8.9	0.81	2.3	5.2			700			59	
BADA 160 LB4/6	7.5	1390	15.2	0.93	2.5	6.0	1390	860	400	1240.0	190	63	174
	5.0	940	12.2	0.81	2.3	5.2			700			59	
BADA 180 LB4/6	13.0	1440	24.6	0.91	2.95	7.0	950	1100	350	2070.0	300	64	243
	8.8	950	18.9	0.82	2.00	6.0			850			60	

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n \text{ (Nm)} = \frac{9,55 \times P_n \text{ (W)}}{\text{RPM}}$

Technical Data Two Speed Motor – Two Windings

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kgm ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
4 / 12 poles		S3 40%							1500 / 500 r.p.m.				
BADA 80 A4/12	0.25 0.05	1425 435	0.85 0.60	0.77 0.63	1.8 1.9	3.7 1.6	140	110	7000 24000	23.40	18	47 43	14.5
BADA 80 B4/12	0.37 0.07	1425 435	1.05 0.75	0.77 0.63	1.8 1.9	3.7 1.6	140	110	7000 24000	27.21	18	47 43	15.5
BADA 90 SA4/12	0.40 0.13	1360 380	1.25 1.05	0.73 0.59	2.5 2.0	3.5 1.6	300	150	5500 30000	35.93	38	55 44	20.0
BADA 90 LA4/12	0.55 0.18	1400 400	1.65 1.20	0.76 0.64	2.5 1.8	3.5 1.6	300	150	5500 30000	46.08	38	55 44	23.0
BADA 90 LB4/12	0.75 0.22	1370 400	2.05 1.60	0.76 0.65	2.5 2.0	3.5 1.6	300	150	5000 28000	52.62	38	55 44	24.0
BADA 100 LA4/12	0.90 0.25	1440 450	2.3 2.1	0.76 0.50	2.2 1.8	5.3 1.7	300	150	4400 15000	87.40	50	57 47	33.0
BADA 100 LB4/12	1.10 0.35	1440 450	2.8 2.6	0.76 0.50	2.2 1.8	5.3 1.7	300	150	2100 13000	99.19	50	57 47	35.0
BADA 112 MB4/12	1.50 0.45	1420 440	3.4 2.4	0.84 0.55	2.2 2.0	6.0 2.2	280	470	2600 15000	168.3	80	61 50	45.0
BADA 132 SA4/12	2.50 0.80	1440 440	5.4 3.8	0.81 0.53	2.7 1.6	7.0 2.4	580	680	800 2200	346.0	150	62 58	78.0
BADA 132 MA4/12	3.0 1.0	1440 440	6.4 4.5	0.81 0.53	2.7 1.6	7.0 2.4	580	680	800 2200	401.0	150	62 58	83
BADA132 MB4/12	4.0 1.3	1440 440	8.5 5.9	0.81 0.55	2.7 1.6	7.0 2.4	580	680	800 2200	508.0	150	62 58	94
BADA 160 MB4/12	4.8 1.6	1425 455	10.0 7.2	0.89 0.57	2.8 2.0	7.5 3.0	1390	860	600 1700	943.0	190	63 61	156
BADA 160LB4/12	7.3 2.4	1410 445	15.2 10.1	0.90 0.61	2.8 2.0	7.0 3.0	1390	860	600 1700	1240.0	190	63 61	174

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n \text{ (Nm)} = \frac{9,55 \times P_n \text{ (W)}}{\text{RPM}}$

Technical Data Two Speed Motor – Two Windings

Motor type	Power (kW)	RPM	In (A) 400 V	Power factor Cos φ	Ts/Tn	Is/In	AC brake In (mA)	DC brake In (mA)	Z ₀ (starts/hour)	Moment of inertia Jx 10 ⁻⁴ Kg ^m ²	Max Brake torque (Nm)	A-Sound pressure dB(A)	Weight (Kg)
2 / 12 poles		S3 40%										3000 / 500 r.p.m.	
BADA 80 B2/12	0.45 0.07	2840 435	1.35 0.70	0.76 0.63	1.9 1.9	4.9 1.4	140	150	1700 24000	27.21	18	65 43	15.5
BADA 90 SB2/12	0.75 0.11	2800 400	2.10 1.05	0.82 0.61	3.0 2.0	5.2 1.4	300	150	1800 20000	26.15	38	72 44	22.5
BADA 90 LA2/12	1.10 0.15	2800 400	2.80 1.35	0.82 0.63	3.2 2.1	5.4 1.4	300	150	1800 20000	30.53	38	72 44	23
BADA 100 LB2/12	1.85 0.25	2850 410	4.1 2.2	0.87 0.52	3.0 2.2	6.3 1.5	300	150	1100 11000	60.07	50	73 47	36
BADA 112 MB2/12	3.00 0.45	2855 430	6.5 3.2	0.86 0.49	3.0 2.1	6.7 1.8	280	470	1200 10000	125.7	80	73 50	45
BADA 132 SB2/12	4.00 0.65	2880 450	8.9 4.8	0.85 0.56	3.0 1.8	7.0 1.6	580	680	350 2200	277.7	150	73 55	78
BADA 132 MA2/12	5.50 0.90	2870 450	11.5 6.7	0.88 0.56	3.0 1.8	7.5 1.6	580	680	350 2200	352.0	150	73 55	87
BADA 132 MB2/12	7.00 1.10	2870 450	14.9 8.2	0.88 0.56	3.0 1.8	7.5 1.6	580	680	350 2200	432.0	150	73 55	98
BADA 160 MB2/12	8.00 1.30	2890 470	15.9 9.5	0.92 0.42	3.0 2.0	8.0 2.1	1390	860	250 1200	683.0	190	74 58	154
BADA 160 LA2/12	11.00 1.80	2890 470	21.4 12.8	0.92 0.42	3.0 2.0	8.0 2.1	1390	860	250 1200	858.0	190	74 58	171
BADA 180 LB2/12	16.00 2.60	2910 470	30.6 12.2	0.93 0.46	3.0 1.8	8.0 2.0	950	1100	200 1000	1740.0	300	78 59	243

Hoisting motors 4/16 poles

Motor Type	Power(kW)	RPM	In 400 V (A)	Ibrake (mA) AC
Service duty S4 (40% 4 pole – 25% 16 poles)		1500 / 375 r.p.m.		
BAPKDA 132 MA4/16	2.8 / 0.7	1450 / 350	7.3 / 5.1	580
BAPKDA 132 MB4/16	4.0 / 1.1	1450 / 350	10.8 / 7.6	580
BAPKDA 160 MA4/16	5.5 / 1.3	1420 / 335	11.6 / 8.0	1390
BAPKDA 160 MB4/16	7.3 / 1.8	1420 / 330	16.2 / 11.4	1390
BAPKDA 160 LB4/16	10.0 / 2.5	1420 / 330	22.2 / 15.9	1390
BAPKDA 180 LA4/16	13.2 / 3.0	1450 / 350	25.0 / 21.7	950
BAPKDA 200 LB4/16	16.0 / 4.0	1450 / 350	31.5 / 27.4	950
BAPKDA 225 S4/16	19.0 / 4.8	1470 / 360	38.2 / 28.0	1350
BAPKDA 225 M4/16	24.0 / 6.0	1470 / 360	47.3 / 34.7	1350

1. Motor characteristic values reported in the tables refer to continuous duty (S1), 50 Hz frequency, ambient temperature max. 40 °C, altitude up to 1000 m. above sea level operating condition.

2. DC brake is provided on request only on BA series motors. Brake current consumption values refer to a rated voltage of 3-phase 400V for AC

brakes and single-phase 230V for DC brakes.

3. The table shows the sound pressure noise level, measured at one metre range from the motor according to the Acurve (ISO 1680). The shown noise levels refer to motor no-load operating condition and should be regarded with a tolerance of ± 3dB.

4. Max brake torque and Z₀ values refer to AC brake. Go to pag. 23 for DC max brake torque values.

5. The rated torque T_n (Nm) for motors can be calculated as follow: $T_n (Nm) = \frac{9.55 \times P_n (W)}{RPM}$

brake linings wear

Brake linings wear is mainly affected by the environmental conditions in which the motor operates, by the frequency of starts, by the energy dissipated at each stop and by the torque provided by the brake. The lining temperature rises with the braking frequency and with the moment of inertia applied to the shaft. When the lining temperature rises, the lining wear increases and consequently the braking time is longer. BA series motors are designed to have continuous cooling of the braking surfaces so as to reduce brake disc wear to have a shorter braking time.

The life cycle of the brake linings can be roughly expressed by the number of brake interventions and can be approximately calculated as follows:

$$n = W_{tot} / W_b$$

where W_b (J) is the work done during each braking action and W_{tot} (J) is obtained from the table for each type of brake motor. However, it is necessary to check the brake disc wear periodically to replace the brake disc before it is completely worn. If you want to estimate the interval between two successive air gap adjustment in a specific application, note that the brake linings wear is greater than usual during the run-in (a few thousands stops).

On PV series brake motors W_{tot} shown in the table have to be multiplied by 0.5 and the moment of inertia have to be calculated considering the presence of the fly-wheel. The indicative number of AC brake stops N_{intAC} between two successive air gap adjustments on a BA motor is given by the following formula:

$$N_{intAC} = E_{rBA} / W_b$$

while the N_{intDC} for DC brake motors is given by : $N_{intDC} = N_{intAC} \cdot 0.65$

	71	80	90	100	112	132	160	180	200	225
W_{tot} (MJ)	537	705	952	1148	1438	2255	3290	4355	4355	5226
E_{rBA} (MJ)	56	80	95	105	130	200	290	385	385	462

The indicative number of DC brake stops N_{intBM} between two successive air gap adjustments on a BM motor is given by the following formula:

$$N_{intBM} = E_{rBM} / W_b$$

E_{rBM} values are shown at pag. 39 (BM section).

Starting and braking time

Starting current for an asynchronous motor is always much higher than the nominal current. When the starting time is excessively long, there are electromechanical disturbances and higher temperatures on winding, damaging the motor. For information on maximum starting time allowed for each type of motor, please contact MGM. An indicative value for starting time t_s (expressed in seconds) and the angle of rotation φ_s (expressed in radians) can be obtained as follows:

$$t_s = \frac{(J_{mot} + J_{app}) \cdot n}{9.55 (T - T_{load})} \quad \varphi_s = \frac{t_s \cdot n}{19.1}$$

Where J_{app} (Kgm^2) is the moment of inertia referred to the motor shaft, M_{load} (Nm) is the opposing torque to the motor, J_{mot} (Kgm^2) is the moment of inertia of the motor, n (RPM is the rated motor RPM), T is the average starting torque, $T=(0,8\div 0,9)T_s$ (see the technical data table for J_{mot} , n and T_s of the selected motor).

An indicative braking time t_f (s) can be calculated as follows: $t_f = \frac{J_{tot} \cdot n}{9.55 (T_b \pm T_{load})} + \frac{t_B}{1000}$

Brake electrical reaction time t_B (ms)

Motor Type	AC Brake	DC Brake (Standard)	DC Brake (Quick)
BA 71-80-90	7	80	20
BA 100-112	9	80	30
BA 132-160	12	85	30
BA 180-200	12	90	30
BA 225	14	100	35

Where: J_{tot} total moment of inertia at the motor shaft (Kgm^2)
 n motor RPM (min^{-1})
 T_b brake torque (Nm)
 T_{load} resisting load torque (Nm) with + sign if matches the brake torque, or - sign if opposite.
 t_B brake electrical reaction time (ms)

The reported t_B times are valid only if the motor is connected with the brake. In case the brake is supplied separately, the t_B time has to be cut by 30 – 50%. This calculation gives an approximative indication. Please contact MGM for further information.

BA series 71 – 225 dimensions

Dimension	BA 71	BA 80	BA 90 S	BA 90 L	BA 100 L	BA 112 M	BA 132 S	BA 132 M	BA 160 M	BA 160 L	BA 180 L	BA 200 L	BA 225 S	BA 225 M
A	112	125	140	140	160	190	216	216	254	254	279	318	356	356
B	90	100	100	125	140	140	140	178	210	254	279	305	286	311
C	45	50	56	56	63	70	89	89	108	108	121	133	149	149
D*	14	19	24	24	28	28	38	38	42	42	48	55	60	60
d	M5	M6	M8	M8	M10	M10	M12	M12	M16	M16	M16	M16	M16	M16
E*	30	40	50	50	60	60	80	80	110	110	110	110	140	140
Fa	9.5	11.5	11.5	11.5	14	14	14	14	18	18	18	18	18.5	18.5
Fb	M6	M6	M8	M8	M8	M8	M10	M10						
f	5	6	8	8	8	8	10	10	12	12	14	16	18	18
g	11	15.5	20	20	24	24	33	33	37	37	42.5	49	53	53
H	71	80	90	90	100	112	132	132	160	160	180	200	225	225
h	5	6	7	7	7	7	8	8	8	8	9	10	11	11
I	7	10	10	10	12	12	12	12	14.5	14.5	15	18.5	18	18
K	10.5	14	14	14	16	16	22	22	24	24	24	30	33	33
L	148	162	171	196	217	229								
L1	184	194	207	232	254	262	294	339	373	395	420	446	452	464.5
Ma	130	165	165	165	215	215	265	265	300	300	300	350	400	400
Mb	85	100	115	115	130	130	165	165						
Na	110	130	130	130	180	180	230	230	250	250	250	300	350	350
Nb	70	80	95	95	110	110	130	130						
Oa	3.5	3.5	3.5	3.5	4	4	4	4	5	5	5	5	5	5
Ob	2.5	3	3	3	3.5	3.5	3.5	3.5						
Pa	160	200	200	200	250	250	300	300	350	350	350	400	450	450
Pb	105	120	140	140	160	160	200	200						
Q	344	380	412	436	487	505	606	644	732	776	860	885	977	1002
QBAF/BAPV	368	403	436	460	511	531	634	672	765	809	907	932	1014	1035
R	80	80	98,5	98,5	98,5	98,5								
R1	135	135	170	170	170	170	199	199	268	268	268	268	268	268
S	10	12	12	12	14	14	15	15	15	15	15	15	16	16
V	8	9.5	10.5	10.5	12.5	13.5	16	16	21	21	24	24	30	30
W	105	113	127	127	138	158			165	165	188	188	215	215
W1	121	130	148	148	162	176	215	215	246	246	266	266	321.5	321.5
Y	145	160	180	180	196	218	265	265	324	324	357	357	430	430
Z	75	75	98.5	98.5	98.5	98.5								
Z1	86	86	112	112	112	112	151	151	167	167	167	167	167	167

* 225S-225M 2 poles D=55, E=110

Notes: QBAF is the Q dimension for BAF series

QBAPV is the Q dimension for BAPV series

Cable glands are M 20 on size 71 up to 80

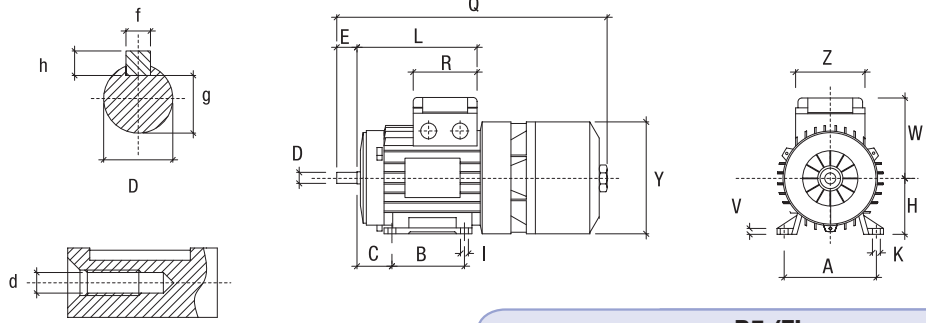
M 25 on size 90 up to 112

M 32 on size 132

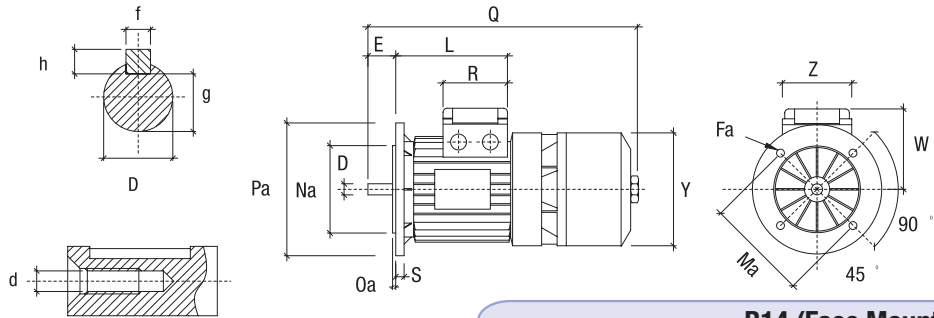
PG 29 on size 160 up to 200

M 50 on size 225

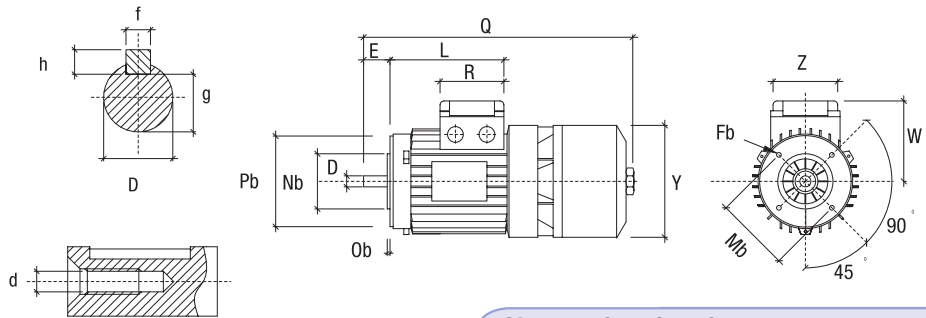
B3 (Foot Mounting)



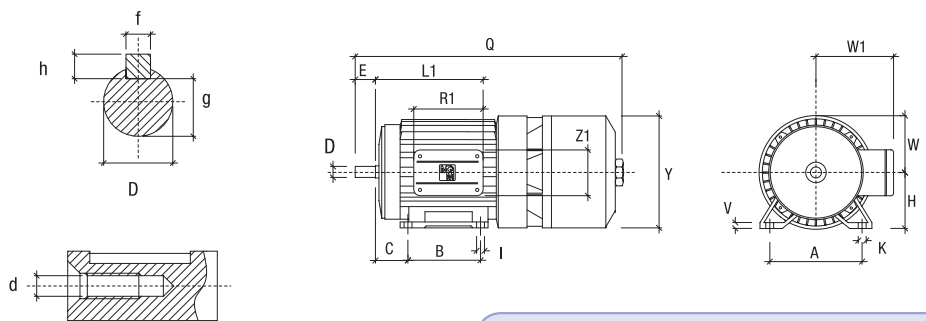
B5 (Flange mounting)



B14 (Face Mounting)



Size 160/180/200/225 B3 (Foot Mounting)



Double Terminal Board Box

