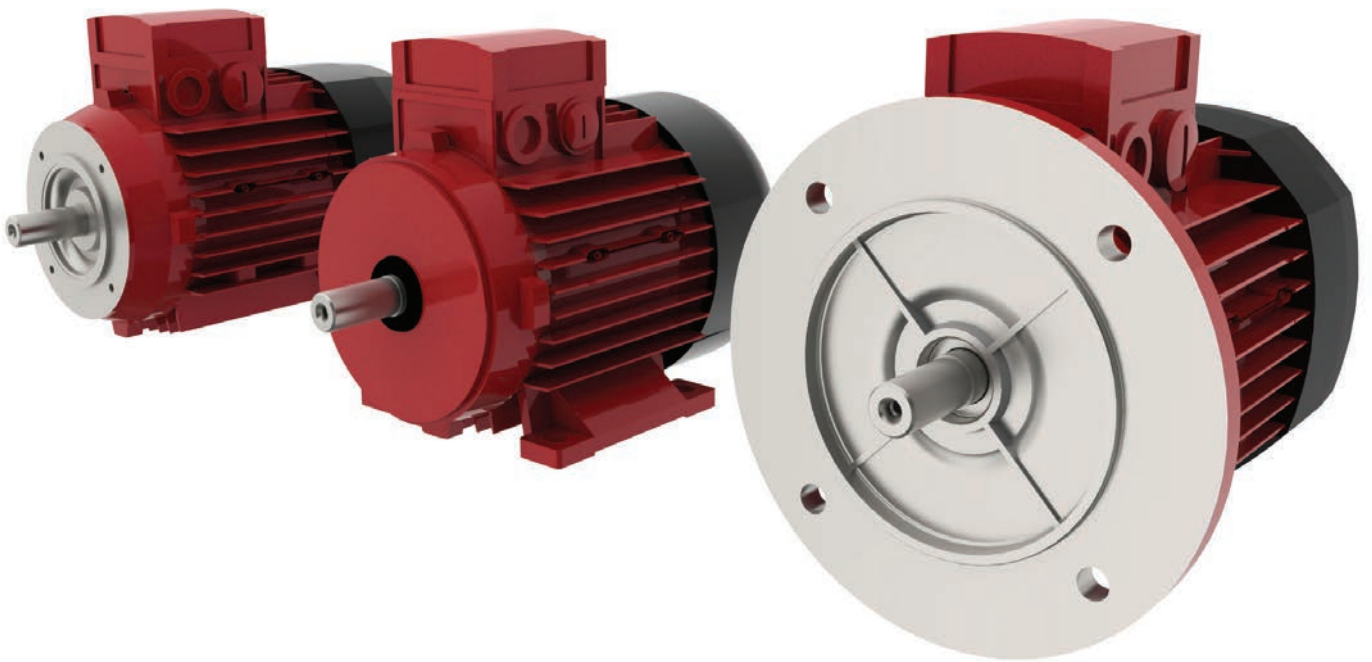


POWERJACKS

PRECISION ACTUATION



SYSTEM COMPONENTS
ELECTRIC MOTORS

POWERJACKS

POWER JACKS CAN SUPPLY
ELECTRIC MOTORS FOR ALL
APPLICATIONS WHETHER
AC OR DC MOTORS ARE
REQUIRED.



Capability



OUR EXPERTISE HAS BEEN BUILT ON A HISTORY OF MORE THAN 100 YEARS OF ENGINEERING, CRAFTSMANSHIP, VISIONARY DESIGN, QUALITY MANUFACTURE AND CUSTOMER CARE.



Power Jacks is a manufacturing/engineering company specialising in the design and manufacture of actuation, lifting and positioning solutions for applications in Industrial Automation, Energy, Defence, Medical, Transport, and the Civil Engineering sectors.

Headquartered near Aberdeen in the UK, the company is the UK's largest screw jack manufacturing facility, that uses the latest engineering technologies to deliver quality products (BS EN ISO 9001) that offer reliability, performance and economy.

Power Jacks deliver this high quality service in a safe (OHSAS 18001) and environmentally friendly (ISO 14001) working environment thanks to the highly trained, flexible and motivated teams that work throughout the business driving the company to higher levels of performance.

We know our customers demand our engineering expertise to help find a solution for their applications. We take pride in designing and delivering the best solution using standard or special designs that help improve your business.

Our Vision is to become the partner of choice for our products globally

Our Mission is to provide high quality lifting & positioning solutions.

Global Reach

Power Jacks has local representation in 26 countries and supplies its products to more than 80 countries worldwide.



A global reach with a local service as we work closely with our customers to ensure the best solution for all their Electro-Mechanical solution applications.

- Headquarters & Factory
- Local Power Jacks Sales Offices
- Local Representative

Power Jacks can supply electric motors for all applications whether AC or DC motors are required. Detailed in this section of the Design Guide are some of the most popular motors used in industrial applications.

Ac Induction Motors

Standard Specification

- 3 Phase, 50 Hz / 60Hz.
- Voltages:
 - IEC Frame 56 - 132
 - 230 / 400 V - Δ / Y - 50 Hz (standard)
 - 400 / 690 V - Δ / Y - 50 Hz (on request)
 - 460 V - Y - 60 Hz (standard)
 - IEC Frame 160 - 200
 - 400 / 690 V - Δ / Y - 50 Hz (standard)
 - 460 V - Δ - 60 Hz (standard)
- B3 Foot, B5 Flange and B14 Face Mounting. (or a combination).
- 2 Pole (3000 rpm)
- 4 Pole (1500 rpm)
- 6 Pole (1000 rpm)
- 8 Pole (750 rpm)
- IEC Frame Sizes 63 to 200.
- Enclosure IP55, TEFV.
- S1 Continuous rating.

Features

- Standard Efficiency of IE1. Other efficiency ratings of IE2, IE3 and IE4 are available on request.
- Low noise levels.
- High power factors.
- High torque with smooth acceleration and low current.
- Aluminium construction for light weight and corrosion resistance.

Optional

- Brake motors - AC or DC units.
- 2 and 8 Pole 3 phase AC motors.
- Single phase AC motors.
- DC motors - permanent magnet or servo.
- Cast Iron or Steel construction motors.
- High altitude and high temperature options.
- Integral AC inverter.
- Integral Incremental or Absolute encoder.
- Forced ventilation.
- Enclosures IP56 to IP68.
- Tropicalised motors.
- NEMA and Japanese standard units.
- Marine motors.
- Explosion proof motors, including ATEX motors.
- Anti-Condensation Heaters
- Thermistors
- H-Class Insulation
- Brake hand release
- Plug-in connectors
- Second output shaft.

Brake Motor

The brake units are a single disc type mounted on the non-drive end-shield of the motor and can be either DC or AC types. They are spring applied electrically released units, which provide fail to safe operating characteristics such that on interruption, or failure of power supply, the brake will engage and arrest the load.

With DC brakes, the brake coil is fed via a rectifier in the motor terminal box and is automatically switched with the AC motor supply. AC brakes are connected directly to the motor terminals. They can however be separately energised from their own AC supply, in the case of inverter drives and/or where very fast brake operation is required.

The enclosure ratings for brake motors are IP54 as standard and IP55 on request. More enclosure ratings are available on request e.g. IP56.

Symbols	Units of Measure	Description
$\cos\phi$	-	Power Factor
η	-	Efficiency
f_m	-	Power adjusting factor
l	-	Cyclic duration factor
I_N	(A)	Rated current
I_S	(A)	Locked rotor current
J_c	[Kgm ²]	Load moment of inertia
J_M	[Kgm ²]	Moment of inertia
K_c	-	Torque factor
K_d	-	Load factor
K_J	-	Inertia factor
M_A	(Nm)	Mean breakaway torque
M_B	(Nm)	Brake torque
M_N	(Nm)	Rated torque
M_L	(Nm)	Counter-torque during acceleration
M_S	(Nm)	Starting torque

Symbols	Units of Measure	Description
n	(min ⁻¹)	Rated Speed
P_B	(W)	Power drawn by the brake at 20°C
P_N	(kW)	Motor rated power
P_r	(kW)	Required power
t_1	(ms)	Brake response time with one-way rectifier
t_{1S}	(ms)	Brake response time with electronic-controlled rectifier
t_2	(ms)	Brake reaction time with a.c. disconnect
t_{2C}	(ms)	Brake reaction time with a.c. disconnect
t_a	°C	Ambient temperature
t_f	(min)	Work time constant load
t_r	(min)	Rest Time
W	(J)	Braking work between service interval
W_{MAX}	(J)	Maximum brake work for each braking
Z	(1/h)	Permissible starting frequency, loaded
Z_0	(1/h)	Max. permissible unloaded starting frequency (I=50%)


Motor Rating - 2 Pole Motors (3000 rpm)

3000 min ⁻¹ - S1															50Hz											
2P	d.c. brake														a.c. brake											
	P _n kW	n min ⁻¹	M _n Nm	IE1	η (100%) %	η (75%) %	η (50%) %	cotφ	I _n 400V A	I _s In	M _s Mn	M _a Mn	J _x 10 ⁻⁴ kgm ²	1M B5 Kg	FD			FA								
Type															Mb Nm	Z ₀ 1/h	J _x 10 ⁻⁴ kgm ²	1M B5 Kg	Type	Mb Nm	Z ₀ 1/h	J _x 10 ⁻⁴ kgm ²				
0.18	BN 63A	2	2730	0.63	N/A	56.9	51.9	0.77	0.56	3.0	2.1	2.0	2.0	3.5	FD-02	1.75	3900	4800	2.6	5.2	FA-02	1.75	4800	2.6	5.0	
0.25	BN 63B	2	2740	0.87	N/A	64.8	64.8	0.76	0.72	3.3	2.3	2.3	2.3	3.9	FD-02	1.75	3900	4800	3.0	5.6	FA-02	1.75	4800	3.0	5.4	
0.37	BN 63C	2	2800	1.26	N/A	69.1	66.8	0.78	0.99	3.9	2.6	2.6	3.3	5.1	FD-02	3.5	3600	4500	3.9	6.8	FA-02	3.5	4500	3.9	6.6	
0.37	BN 71A	2	2820	1.25	N/A	73.8	70.6	0.76	0.95	4.8	2.8	2.6	3.5	5.4	FD-03	3.5	3000	4100	4.6	8.1	FA-03	3.5	4200	4.6	7.8	
0.55	BN 71B	2	2820	1.86	N/A	75.8	74.8	0.76	1.37	5.0	2.9	2.8	4.1	6.2	FD-03	5	2900	4200	5.3	8.9	FA-03	5	4200	5.3	8.6	
0.75	BN 71C	2	2810	2.6	N/A	76.6	76.2	0.76	1.86	5.1	3.1	2.8	5.0	7.3	FD-03	5	1900	3300	6.1	10.0	FA-03	5	3600	6.1	9.7	
0.75	BN 80A	2	2810	2.6	✓	76.2	75.5	0.81	1.75	4.8	2.6	2.6	7.8	8.6	FD-04	5	1700	3200	9.4	12.5	FA-04	5	3200	9.4	12.4	
1.1	BN 80B	2	2800	3.8	✓	76.4	76.2	0.81	2.57	4.8	2.8	2.8	9.0	9.5	FD-04	10	1500	3000	13.4	13.4	FA-04	10	3000	10.6	13.3	
1.5	BN 90C	2	2800	5.1	✓	79.1	77.2	0.81	3.4	4.9	2.7	2.8	11.4	11.3	FD-04	15	1300	2600	15.2	15.2	FA-04	15	2600	13.0	15.1	
1.5	BN 90SA	2	2870	5.0	✓	82.0	81.5	0.80	3.4	5.9	2.7	2.6	12.5	12.3	FD-14	15	900	2200	14.1	16.5	FA-14	15	2200	14.1	16.4	
1.85	BN 90SB	2	2880	6.1	✓	82.5	82.0	0.80	4.0	6.2	2.9	2.6	16.7	14	FD-14	15	900	2200	18.3	18.2	FA-14	15	2200	18.3	18.1	
2.2	BN 90L	2	2880	7.3	✓	82.7	82.1	0.80	4.8	6.3	2.9	2.7	16.7	14	FD-05	26	900	2200	21	20	FA-05	26	2200	21	20.7	
3	BN 100L	2	2860	10.0	✓	81.5	81.3	0.79	6.7	5.6	2.6	2.6	31	20	FD-15	26	700	1600	35	26	FA-15	26	1600	35	27	
4	BN 100LB	2	2870	13.3	✓	83.1	83.0	0.80	6.7	5.8	2.7	2.5	39	23	FD-15	40	450	900	43	29	FA-15	40	1000	43	30	
4	BN 112M	2	2900	13.2	✓	85.5	84.5	0.82	8.2	6.9	3.0	2.9	57	28	FD-06S	40	-	950	66	39	FA-06S	40	950	66	40	
5.5	BN 132SA	2	2890	18.2	✓	84.7	84.5	0.84	11.2	5.9	2.6	2.2	101	35	FD-06	50	-	600	112	48	FA-06	50	600	112	49	
7.5	BN 132SB	2	2900	25	✓	86.5	86.3	0.85	14.7	6.4	2.6	2.2	145	42	FD-06	50	-	550	154	55	FA-06	50	550	154	56	
9.2	BN 132M	2	2930	30	✓	87.0	86.5	0.86	17.7	6.7	2.8	2.3	178	53	FD-56	75	-	430	189	66	FA-06	75	430	189	67	
11	BN 160MR	2	2920	36	✓	87.6	87.0	0.88	20.6	6.9	2.9	2.5	210	65												
15	BN 160MB	2	2930	49	✓	89.6	89.4	0.86	28.1	7.1	2.6	2.3	340	84												
18.5	BN 160L	2	2930	60	✓	90.4	90.1	0.86	34	7.6	2.7	2.3	420	97												
22	BN 180M	2	2930	72	✓	89.9	89.7	0.88	40	7.8	2.6	2.4	490	109												
30	BN 200LA	2	2930	98	✓	90.7	90.1	0.89	54	7.8	2.7	2.9	770	140												

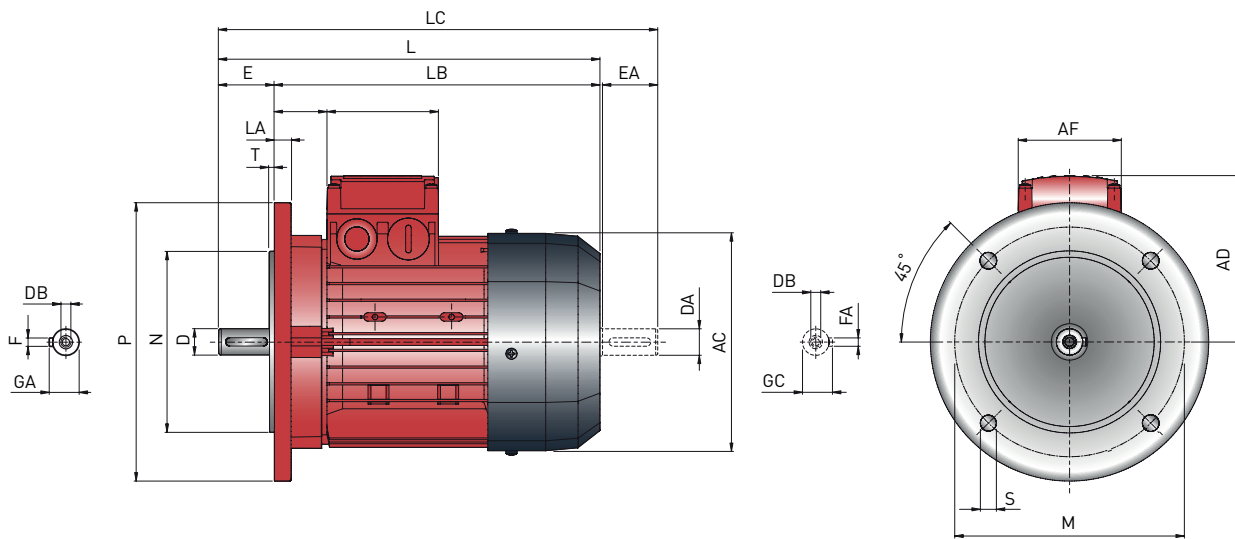
Motor Rating - 6 Pole Motors (1000 rpm)

6P		1000 min ⁻¹ - S1														50Hz									
		d.c. brake														a.c. brake									
		P _n kW	n min ⁻¹	M _n Nm	IE1	η (100%) %	η (75%) %	η (50%) %	cosφ	I _n 400V A	I _s I _n	M _s M _n	M _a M _n	J _x 10 ⁻⁴ kgm ²	1M B5 Kg	FD			FA						
Type	Mb Nm															Z ₀ 1/h	J _x 10 ⁻⁴ kgm ²	1M B5 Kg	Type	Mb Nm	Z ₀ 1/h	J _x 10 ⁻⁴ kgm ²	1M B5 Kg		
0.09	BN 63A	6	880	0.98	N/A	41.0	32.9	0.53	0.60	2.1	2.1	1.8	3.4	4.6	FD-02	3.5	9000	14000	4.0	6.3	FD-02	3.5	14000	4.0	6.1
0.12	BN 63B	6	870	1.32	N/A	45.0	41.8	0.53	0.64	2.1	1.9	1.7	3.7	4.9	FD-02	3.5	9000	14000	4.3	6.6	FD-02	3.5	14000	4.3	6.4
0.18	BN 71A	6	900	1.91	N/A	55.0	51.0	0.69	0.68	2.6	1.9	1.7	8.4	5.5	FD-03	5	8100	13500	9.5	8.2	FD-03	5.0	13500	9.5	7.9
0.25	BN 71B	6	900	2.70	N/A	62.0	58.5	0.71	0.82	2.6	1.9	1.7	10.9	6.7	FD-03	5	7800	13000	12	9.4	FD-03	5.0	13000	12	9.1
0.37	BN 71C	6	910	3.9	N/A	66.0	60.0	0.69	1.17	3.0	2.4	2.0	12.9	7.7	FD-53	7.5	5100	9500	14	10.4	FD-03	7.5	9500	14	10.1
0.37	BN 80A	6	910	3.9	N/A	68.0	67.4	0.68	1.15	3.2	2.2	2.0	21	9.9	FD-04	10	5200	8500	23	13.8	FD-04	10	8500	23	13.7
0.55	BN 80B	6	920	5.7	N/A	70.0	69.8	0.68	1.67	3.9	2.6	2.2	25	11.3	FD-04	15	4800	7200	27	15.2	FD-04	15	7200	27	15.1
0.75	BN 80C	6	920	7.8	✓	70.0	70.0	0.65	2.38	3.8	2.5	2.2	28	12.2	FD-04	15	3400	6400	30	16.1	FD-04	15	6400	30	16.0
0.75	BN 90S	6	920	7.8	✓	70.0	69.0	0.68	2.27	3.8	2.4	2.2	26	12.6	FD-14	15	3400	6500	28	16.8	FD-14	15	6500	28	16.7
1.1	BN 80B	6	920	11.4	✓	72.9	72.6	0.69		3.9	2.3	2.0	33	15	FD-05	26	2700	5000	37	21	FD-01	26	7800	37	22
1.5	BN 100LA	6	940	15.2	✓	75.2	74.2	0.72	4.0	4.1	2.1	2.0	82	22	FD-15	40	1900	4100	86	28	FD-15	40	4100	86	29
1.85	BN 100LB	6	930	19.0	✓	76.6	72.8	0.73	4.8	4.6	2.1	2.0	95	24	FD-15	40	1700	3600	99	30	FD-15	40	3600	99	31
2.2	BN 112M	6	940	22	✓	78.5	79.0	0.81	5.5	4.8	2.2	2.0	168	32	FD-06S	60	-	2100	177	42	FD-06S	60	2100	177	44
3	BN 132S	6	940	30	✓	79.7	77.0	0.76	7.1	5.1	1.9	1.8	216	36	FD-56	75	-	1400	226	49	FD-06	75	1400	226	50
4	BN 132MA	6	950	40	✓	81.4	81.5	0.77	9.2	5.5	2.0	1.8	295	45	FD-06	100	-	1200	305	58	FD-07	100	1200	318	63
5.5	BN 132MB	6	945	56	✓	83.1	80.9	0.78	12.2	6.1	2.1	1.9	383	56	FD-07	150	-	1050	406	72	FD-07	150	1050	406	74
11	BN 160M	6	955	75	✓	85.0	84.8	0.81	15.7	5.9	2.2	2.0	740	83	FD-08	170	-	900	815	112	FD-08	170	900	815	113
15	BN 160L	6	960	109	✓	86.4	86.5	0.81	22.7	6.6	2.5	2.3	970	103	FD-08	200	-	800	1045	133	FD-08	200	800	1045	133
18.5	BN 180L	6	970	148	✓	87.7	88.0	0.82	30	6.2	2.0	2.4	1550	130	FD-09	300	-	600	1750	170					
30	BN 200LA	6	960	184	✓	88.6	88.0	0.81	37	5.9	2.0	2.3	1700	145	FD-09	400	-	450	1900	185					

Motor Rating - 8 Pole Motors (750 rpm)

8P															750 min ⁻¹ - S1															50Hz														
P _n kW		n min ⁻¹	M _n Nm	η %	cosφp	I _n 400V A	I _s I _n	M _s M _n	M _a M _n	J _{n,x} 10 ⁻⁴ kgm ²	1M B5 Kg	d.c. brake						a.c. brake																										
												FD			FA			FD			FA																							
												Type	Mb Nm	Z ₀ 1/h	NB	SB	Type	Mb Nm	Z ₀ 1/h	J _{n,x} 10 ⁻⁴ kgm ²	1M B5 Kg	Type	Mb Nm	Z ₀ 1/h	J _{n,x} 10 ⁻⁴ kgm ²	1M B5 Kg																		
0.09	BN 71A	8	680	1.26	47	0.59	0.47	2.3	2.4	2.3	10.9	6.7	9000	16000	FD-03	3.5	9000	16000	12.0	9.4	FD-03	3.5	16000	12.0	9.1																			
0.12	BN 71B	8	680	1.69	51	0.59	0.58	2.1	2.3	2.2	12.9	7.7	9000	16000	FD-03	5.0	9000	16000	14.0	10.4	FD-03	5.0	16000	14.0	10.1																			
0.18	BN 80A	8	690	2.49	51	0.60	0.85	2.4	2.2	2.2	15	8.2	6500	11000	FD-04	5.0	6500	11000	16.6	12.1	FD-04	5.0	11000	16.6	12.0																			
0.25	BN 80B	8	680	3.51	54	0.63	1.06	2.4	2.0	1.9	20	9.9	6000	10000	FD-04	10.0	6000	10000	22	13.8	FD-04	10.0	10000	22	13.7																			
0.37	BN 90S	8	675	5.2	58	0.60	1.53	2.6	2.3	2.1	26	12.6	4800	7500	FD-14	15.0	4800	7500	28	16.8	FD-14	15.0	7500	28	16.7																			
0.55	BN 90L	8	670	7.8	62	0.60	2.13	2.6	2.2	2.0	33	15	4000	6400	FD-05	26	4000	6400	37	21	FD-05	26	6400	37	22																			
0.75	BN 100LA	8	700	10.2	68	0.63	2.53	3.4	1.9	1.7	82	22	2800	4800	FD-15	26	2800	4800	86	28	FD-15	26	4800	86	29																			
1.1	BN 100LB	8	700	15.0	68	0.64	3.65	3.2	1.7	1.7	95	24	2500	4000	FD-15	40	2500	4000	99	30	FD-15	40	4000	99	31																			
1.5	BN 112M	8	710	20.2	71	0.66	4.6	3.7	1.8	1.9	168	32	-	3000	FD-06S	60	-	3000	177	42	FD-06S	60	3000	177	44																			
2.2	BN 132S	8	710	29.6	75	0.66	6.4	3.8	1.8	2.0	295	45	-	2300	FD-06	75	-	2300	305	58	FD-06	75	2300	305	56																			
3	BN 132MA	8	710	40.4	76	0.69	8.3	3.9	1.6	1.8	370	53	-	1900	FD-06	100	-	1900	394	69	FD-07	100	1900	406	74																			

Motor Dimensions - Standard - B5 Flange Mount

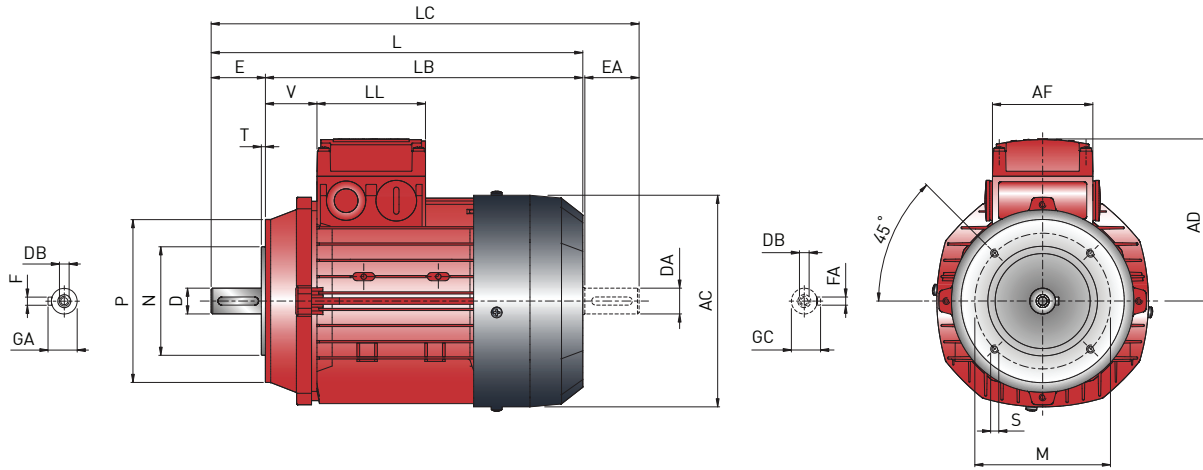


FRAME SIZE	SHAFT					FLANGE						MOTOR							
	D DA	E EA	DB	GA GC	F FA	M	N	P	S	T	LA	AC	L	LB	LC	AD	AF	LL	V
BN 56	9	20	M3	10.2	3	100	80	120	7	3	8	110	185	165	207	91	74	80	34
BN 63	11	23	M4	12.5	4	115	95	140	9.5		10	121	207	184	232	95			26
BN 71	14	30	M5	16	5	130	110	160			10	138	249	219	281	108			37
BN 80	19	40	M6	21.5	6	165	130	200	11.5	3.5	11.5	156	274	234	315	119	98	98	38
BN 90	24	50	M8	27	8							176	326	276	378	133			44
BN 100	28	60	M10	31	8	125	180	250	14	4	14	63	367	307	429	142	98	98	50
BN 112						15	219	385			325	448	157	52					
BN 132	38	80	M12	41	10	265	230	300	18.5	5	20	258	493	413	576	193	118	118	58
BN 160 MR	42 38 (1)	110 80 (1)	M16 M12 (1)	45 41 (1)	12 10 (1)	300	250	350			15		310	596	486				680
BN 160 M											15	310	596	486	680	245	187	187	51
BN 160 L									310	640		530	724	187	187	51			
BN 180 M	48 38 (1)	110 110 (1)	M16 M12 (1)	51.5 41 (1)	14 10 (1)	350	300	400	18.5	5	18	348	708	598	823	261	187	187	52
BN 180 L	48 42 (1)		M16 M16 (1)	51.5 45 (1)	14 12 (1)								708	598	823				52
BN 200 L	55 42 (1)		M20 M16 (1)	59 45 (1)	16 12 (1)						18	348	722	612	837	261	66		

Note

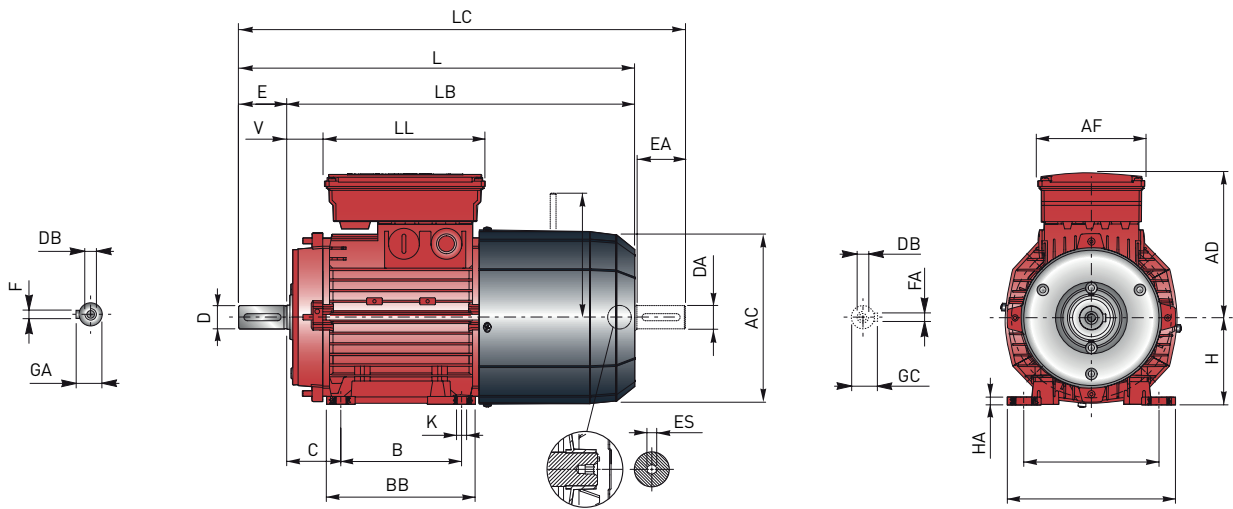
1. These values refer to the rear shaft end.

Motor Dimensions - Standard - B14 Face Mount



FRAME SIZE	SHAFT					FLANGE					MOTOR							
	D DA	E EA	DB	GA GC	F FA	M	N	P	S	T	AC	L	LB	LC	AD	AF	LL	V
BN 56	9	20	M3	10.2	3	65	50	80	M5	2.5	110	185	165	207	91	74	80	34
BN 63	11	23	M4	12.5	4	75	60	90			121	207	184	232	95			26
BN 71	14	30	M5	16	5	85	70	105	M6		138	249	219	281	108			37
BN 80	19	40	M6	21.5	6	100	105	120		3	156	274	234	315	119	38		
BN 90	24	50	M8	27	8	115	120	140	M8		3	176	326	276	378	133	98	98
BN 100	28	60	M10	31		130	110	160		3.5		195	367	307	429	142		
BN 112						219	385	325	448		157	52						
BN 132	38	80	M12	41	10	165	130	200	M10	4	258	493	413	576	193	118	118	58

Motor Dimensions - Brake Motor - DC Brake - B3 Foot Mount

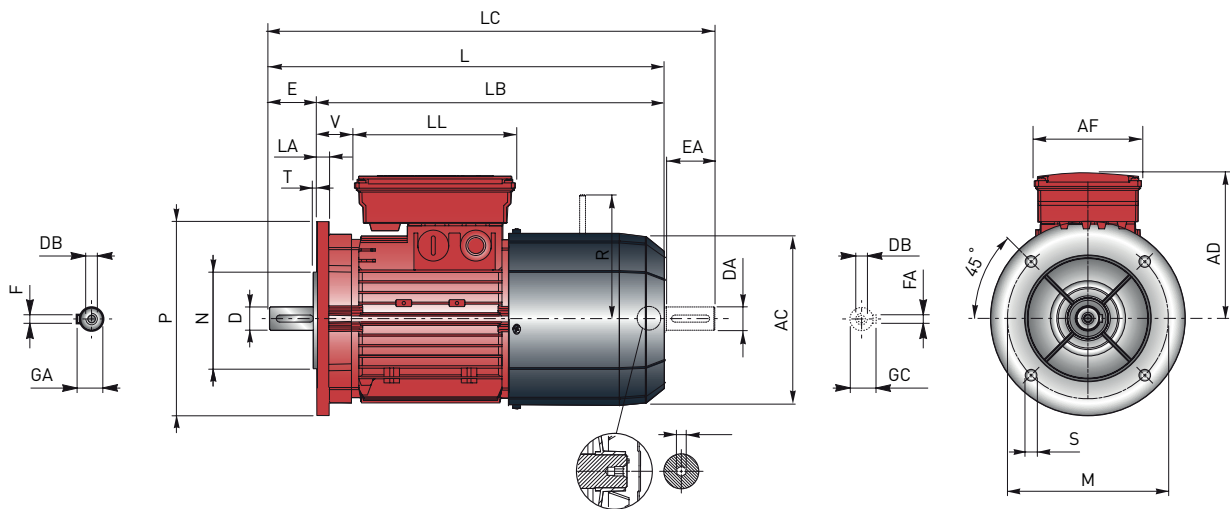


FRAME SIZE	SHAFT					HOUSING						MOTOR											
	D DA	E EA	DB	GA GC	F FA	B	A	HA	BB	AB	K	C	H	AC	L	LB	LC	AD	AF	LL	V	R	S
BN 63	11	23	M4	12	4	80	100	8	96	120	7	40	63	121	272	249	297	122	98	133	14	96	5
BN 71	14	30	M5	16	5	90	112	8	112	135		45	71	138	310	280	342	135			25	103	
BN 80	19	40	M6	21.5	6	100	125	8	124	153	10	50	80	156	346	306	388	146	110	165	41	129	6
BN 90S	24	50	M8	27	8		140	8	155	174		56	90	176	409	359	461	149			15	39	
BN 90L						125	10	175	224	70	112	219	484	424	547	173	62	73	199				
BN 100	28	60	M10	31	8	140	160	10	175	192	12	63	100	195	458	398	521	158	140	188	46	204 (2)	-
BN 112							190					224	70	112	219	484	424	547			173	62	
BN 132S	38	80	M12	41	10	178	216	12	218	254	14.5	89	132	260	603	523	686	210	187	187	46	204 (2)	-
BN 132M							254					319	108	160	310	736	626	820			245	51	
BN 160M	42	110	M16	45	12	210	254	25	319	14.5	108	160	310	736	626	820	245	187	187	51	266	-	
BN 160L	38 (1)	80 (1)	M12 (1)	41 (1)	10 (1)	254								304	780	670	884						
BN 180L	48	110	M16	51.5	14	279	279	26	329	359	14	121	180	348	886	756	981	261	187	52	305	-	
BN 200L	42 (1)		M16 (1)	45 (1)	12 (1)	305									318	355	398			18	133		200

Note

1. These values refer to the rear shaft end.
2. For FD07 high torque brake value R=226 (consult Power Jacks for more details).

Motor Dimensions - Brake Motor - DC Brake - B5 Flange Mount

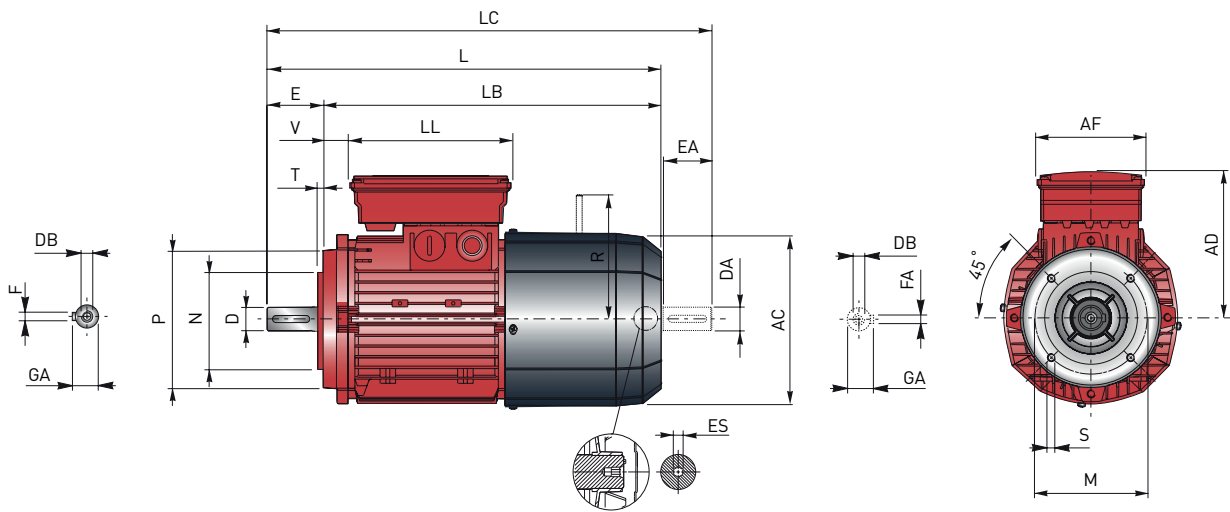


FRAME SIZE	SHAFT					FLANGE						MOTOR									
	D DA	E EA	DB	GA GC	F FA	M	N	P	S	T	LA	AC	L	LB	LC	AD	AF	LL	V	R	ES
BN 63	11	23	M4	12	4	115	95	140	9.5	3	10	121	272	249	297	122	98	133	14	96	5
BN 71	14	30	M5	16	5	130	110	160	9.5	3.5		138	310	280	342	135			25	103	
BN 80	19	40	M6	21.5	6	165	130	200	11.5		11.5	156	346	156	388	146	110	165	41	129	6
BN 90S	24	50	M8	27	8					176		409	176	461	149	160					
BN 90L						146	165	39													
BN 100	28	60	M10	31	215	215	215	14	4	14	195	458	195	521	158	165	62	160			
BN 112										15	219	484	219	547	173				165	73	199
BN 132	38	80	M12	41	10	265	230	300	18.5	4	20	258	603	523	686	210	140	188	46	204 (2)	
BN 160MR	42	110	M16	45	12	300	250	350			18.5		5	672	562				755	161	226
BN 160M	38 (1)	80 (1)	M12 (1)	M41 (1)	10 (1)																
BN 160L	42	110	M16	45	12	300	250	350	18.5	5	15	310	736	626	820	245	187	187	51	266	
BN 180M	48												80 (1)	M12 (1)	51.5				14	780	670
BN 180L	48	110	M16	51.5	14	350	300	400	18.5	5	18	348	866	756	981	261	187	187	52	305	
BN 200L	55												110 (1)	M20	59				16	878	768

Note

1. These values refer to the rear shaft end.
2. For FD07 high torque brake value R=226 (consult Power Jacks for more details).

Motor Dimensions - Brake Motor - DC Brake - B14 Face Mount



FRAME SIZE	SHAFT					FLANGE					MOTOR										
	D DA	E EA	DB	GA GC	F FA	M	N	P	S	T	AC	L	LB	LC	AD	AF	LL	V	R	ES	
BN 63	11	23	M4	12.5	4	75	60	90	M5	2.5	121	272	249	297	122	98	133	14	96	5	
BN 71	14	30	M5	16	5	85	70	105	M6		138	310	280	342	135			25	103		
BN 80	19	40	M6	21.5	6	100	105	120			156	346	306	388	146			41	129		
BN 90 S	24	50	M8	27	8	115	120	140	M8	3	176	409	359	461	149	110	165	39	129	6	
BN 90 L															146				160		
BN 100	28	60	M10	31		130	110	160		M8	3.5	195	458	398	521			158	62		199
BN 112												219	484	424	547			173	73		
BN 132	38	80	M12	41	10	165	130	200	M10	4	258	603	523	686	210	140	188	46	204 (1)		

Note

1. For FD07 high torque brake value R=226 (consult Power Jacks for more details).

POWERJACKS

PRECISION ACTUATION

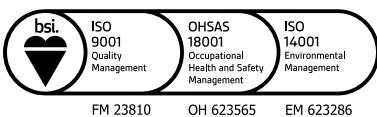
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