

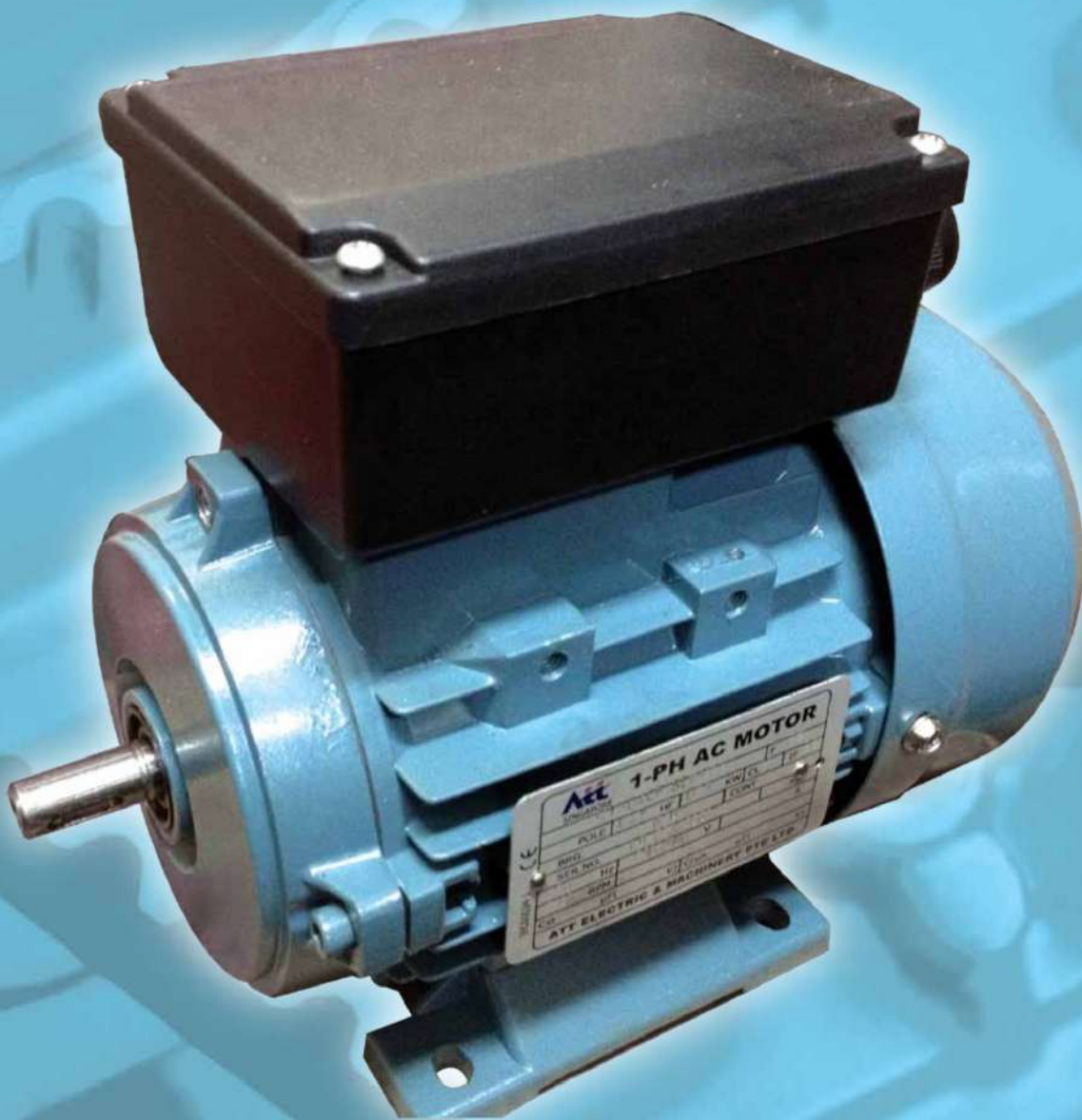


CE

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Providing You Revolutionary Solutions


DY & DL Series



Single Phase
Induction Motors


ABOUT US

Founded in 1981,  Electric & Machinery is a premier induction motor manufacturer started up by a group of veterans determined to provide solutions for every customer's motoring needs. Our expertise in manufacturing tailor-made motors for usage under special conditions is an assurance of customizability coupled with high performance. Under the ever-changing market environment, we are committed to constant innovation, offering you top quality products and first-class customer service.

 is a worldwide supplier of electrical motors, parts and services in the industrial equipment sector. Our clients include distributors, original equipment manufacturers and end users in more than 70 countries. Driven by your specific requirements, we guarantee original electrical and mechanical solutions at competitive prices, for numerous applications in various markets, such as industrial automation, construction, agricultural, electrical, engineering and consumer applications.

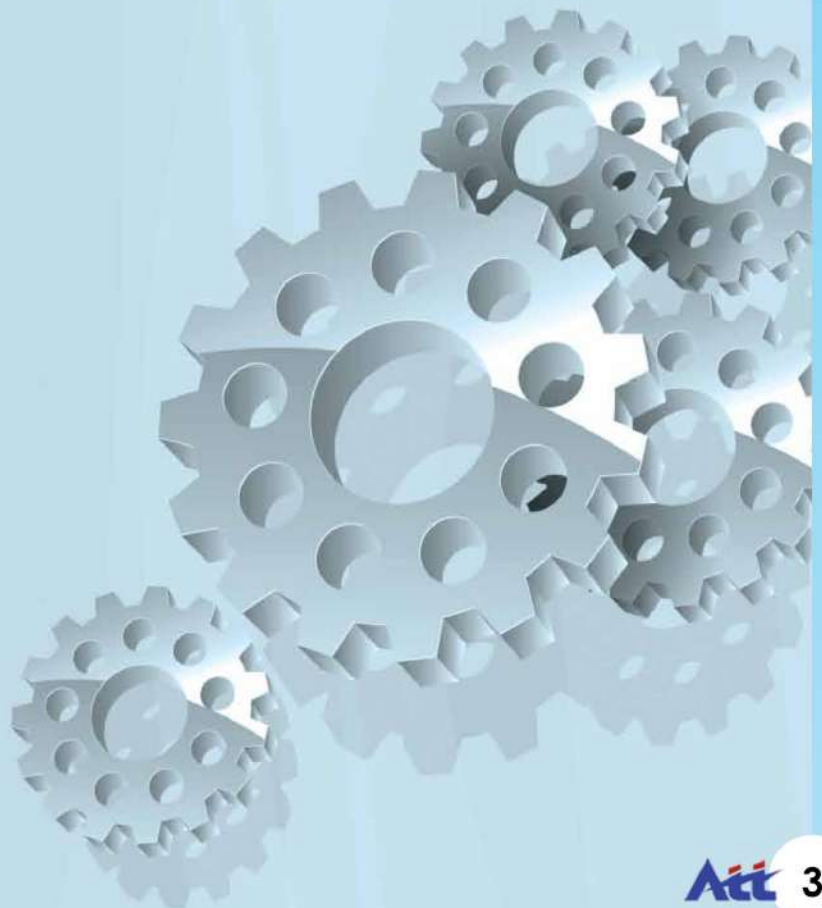
Headquartered in Singapore,  currently has full-fledged associates and distributors in Malaysia, Indonesia, China, Vietnam, Sri Lanka, Hong Kong, Myanmar, India and the Middle East. We are rapidly expanding and consolidating a strong foothold in the global market. With excellent technical and organisational expertise, we will definitely be available to fulfil your expectations promptly, regardless of your location.

OUR VISION

 aims to sharpen our competitive edge in the niche market and strengthen our leading position in the industry. We differentiate ourselves with outstanding products and excellent customer service, offering flexibility, efficiency and most importantly, top quality motors. Moreover, we are an environmentally-conscious company who seek excellence in our products, and at the same time, care for the society at large.

Our multinational team of individuals and personalities are united to achieve common success. Together, we create a conducive environment that enhances top performance, develops professionalism and enterprising spirit. With our all-rounded employees, we build extensive networks across borders, expanding our clientele base and develop strategic relationships with all our stakeholders. With excellent technical and organisational expertise, we will definitely be available for our customers to fulfil their expectations promptly.

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General Knowledge

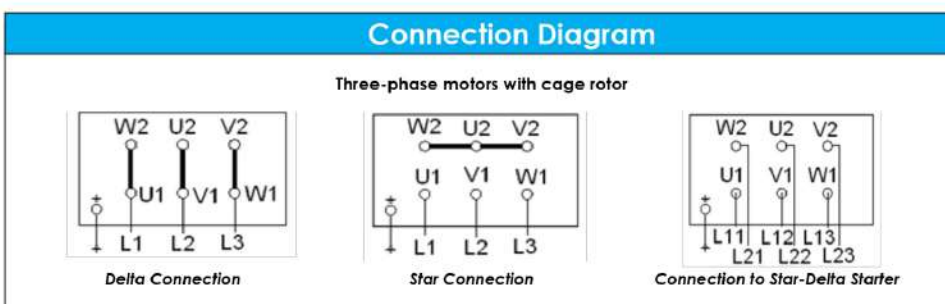
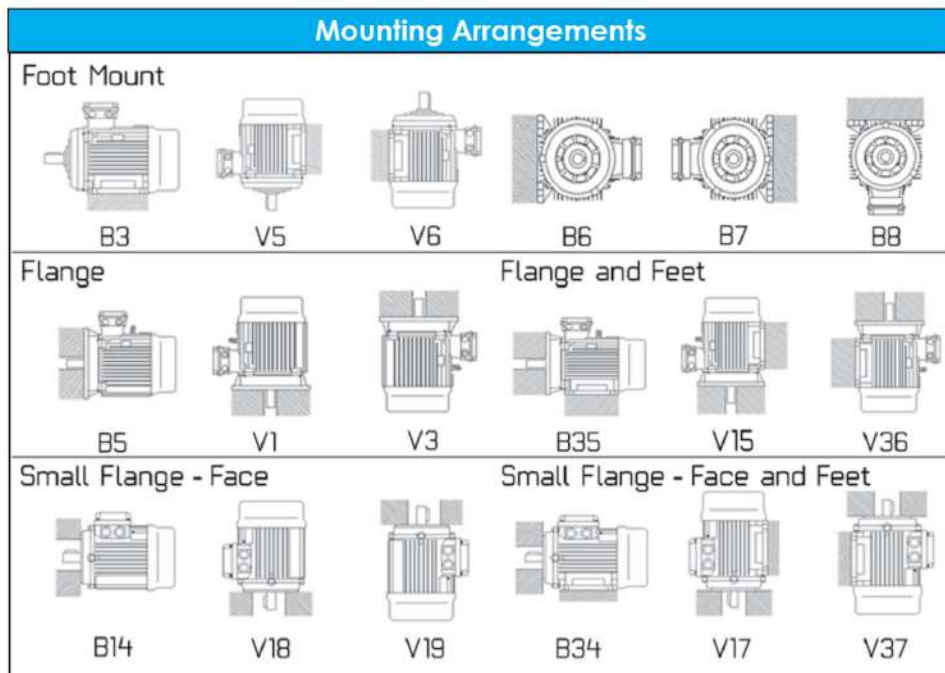
Single Phase Series Aluminium Motors are acknowledged as having the name for Quality and Reliability. They are suitable for driving small type machine tools, water pumps and etc. They are employed especially for family workshops where only single-phase current supply is available.

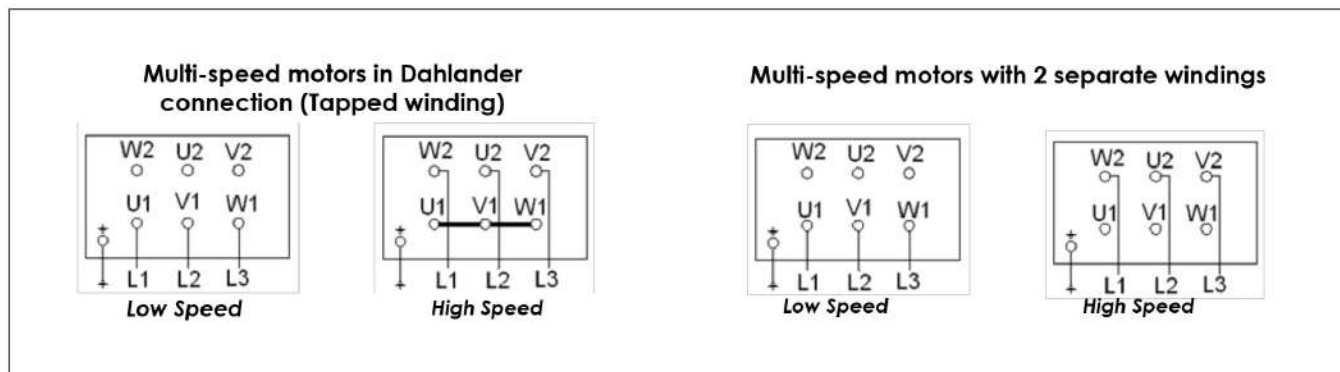
All Single phase motors are squirrel cage type. Each Single phase motor contains an auxiliary winding which is geometrically removed from the main winding by an angle of 90, the current flowing through this winding is phase-shifted by capacitor (capacitor run, capacitor start). DL series comes with electrical centrifugal switch as improvement of previous problems caused by single phase motor. Run capacitor energizes a second-phase winding of a single phase motor. Run capacitor need to permanently carry AC current flowing through the auxiliary winding of the motor. Start capacitors help the motor to start and/or boost available starting torque. A start capacitor stays in the circuit long enough to rapidly bring the motor to 3/4 of full speed.

Single Phase Motors incorporate the following standard:

- Superior Finish
- Low Noise
- Motors size accurate to IEC standards
- Totally Enclosed Fan Cooled
- Light Construction
- Top Mounted Terminal Box
- IP55 Protection, IC411 Cooling
- Choice of Foot or Flange Mounting
- Motor Frame Size from 56 to 112

Technical Specifications





Single Phase Motors are classified into 2 categories:

DY: Capacitor Run Series

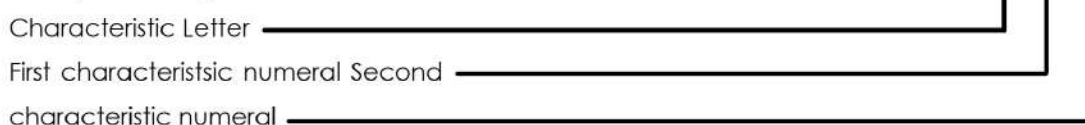
Capacitor run are designed for continuous duty, and they energized the entire time the motor is running. They are rated in a range of 1.5 to 100 microfarads (μF). They are used mainly for low starting torque application such as fans and pumps.

DL: Dual Capacitor Series

Dual Capacitors come in variety of sizes, depending on the capacitance (μF) and also the voltage. They come with centrifugal switch, which are suitable for high starting torque application such as air compressors.

All motors comply with the international standard IEC60034-5. This standard specifies the Degree of Protection of each electric equipment, commonly known as 'IP' code.

Example of designation:



First characteristic numeral	Degree of protection	
	Brief description	Definition
5	Dust-protected machine	Foreign objects are unable to enter the enclosure. Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the machine.
6	Dust-tight machine	Ingress of dust totally prevented.

Degrees of protection indicated by the second characteristic numeral

Second characteristic numeral	Degree of protection	
	Brief description	Definition
5	Machine protected against water jet	Water projected by a nozzle against the machine from any direction shall have no harmful effect.
6	Machine protected against heavy seas	Water from heavy seas or water projected in powerful jets shall not enter the machine in harmful quantities.

Degrees of protection indicated by the first characteristic numeral

Bearing size		
Frame	DE	NDE
63	6201ZZC3	6201ZZC3
71	6202ZZC3	6202ZZC3
80	6204ZZC3	6204ZZC3
90	6205ZZC3	6205ZZC3
100	6206ZZC3	6206ZZC3
112	6306ZZC3	6306ZZC3

DY Capcitor Run Series Data 50Hz

Synchronous Speed (2 Pole/3000rpm, 4 Pole/1500rpm, 6 Pole/1000rpm)

Rated Power		Pole	Frame Size	Rated Speed (RPM)	Full load current 230V (A)	Power Factor COSØ	Efficiency η %	IST/IFL (Time)	TST/TFL (Time)	TM/TFL (Time)	Capacitor Running (450V)	Weight kg
KW	HP											
0.12	0.16	4	63-1	1350	1.05	90	55	3.5	0.4	1.7	8μF	4
0.18	0.24	2	63-1	2750	1.42	92	60	4.5	0.4	1.7	8μF	4
		4	63-2	1350	1.55	90	56	4.5	0.4	1.7	10μF	4.5
		6	71-1	890	1.58	92	54	4.5	0.35	1.7	10μF	8.5
0.25	0.33	2	63-2	2750	1.88	92	63	4.5	0.4	1.7	10μF	4.5
		4	71-1	1370	1.94	92	61	4.5	0.35	1.7	12μF	6.2
		6	71-2	890	2.07	92	57	4.5	0.35	1.7	10μF	9.5
0.37	0.5	2	71-1	2780	2.61	92	67	4.5	0.35	1.7	12μF	5.6
		4	71-2	1370	2.82	92	62	4.5	0.35	1.7	16μF	6.9
		6	80-1	890	2.82	92	62	4.5	0.35	1.7	12μF	10.5
0.55	0.75	2	71-2	2780	3.71	92	70	4.5	0.35	1.7	16μF	6.2
		4	80-1	1380	4.06	92	64	4.5	0.35	1.7	20μF	9.5
		6	80-2	890	4.06	92	64	4.5	0.35	1.7	20μF	13.5
0.75	1	2	80-1	2780	4.92	92	72	4.5	0.33	1.7	25μF	9
		4	80-2	1380	5.21	92	68	4.5	0.32	1.7	25μF	10.5
		6	90S	910	5.21	92	68	4.5	0.35	1.7	25μF	14.5
1.1	1.1	2	80-2	2780	6.71	95	75	4.5	0.33	1.7	30μF	10
		4	90S	1390	7.09	95	71	4.5	0.32	1.7	35μF	13.5
		6	90L	910	6.75	92	70	5	0.35	1.7	35μF	15.5
1.5	2	2	90S	2800	9.03	95	76	5	0.3	1.7	45μF	13
		4	90L	1390	9.4	95	73	5	0.3	1.7	45μF	14.5
2.2	3	2	90L	2800	13.08	95	77	5	0.3	1.7	50μF	14.5
		4	100L1	1400	13.25	95	76	5	0.3	1.7	60μF	15.5

DY Capcitor Run Series Data 60Hz

Synchronous Speed (2 Pole/3000rpm, 4 Pole/1500rpm, 6 Pole/1000rpm)

Rated Power		Pole	Frame Size	Rated Speed (RPM)	Full load current 230V (A)	Power Factor COSØ	Efficiency η %	IST/IFL (Time)	TST/TFL (Time)	TM/TFL (Time)	Capacitor Running (450V)	Weight kg
KW	HP											
0.12	0.16	4	63-1	1620	1.05	90	55	3.5	0.4	1.7	8μF	4
0.18	0.24	2	63-1	3300	1.42	92	60	4.5	0.4	1.7	8μF	4
		4	63-2	1620	1.55	90	56	4.5	0.4	1.7	10μF	4.5
		6	71-1	1068	1.58	92	54	4.5	0.35	1.7	10μF	8.5
0.25	0.33	2	63-2	3300	1.88	92	63	4.5	0.4	1.7	10μF	4.5
		4	71-1	1644	1.94	92	61	4.5	0.35	1.7	12μF	6.2
		6	71-2	1068	2.07	92	57	4.5	0.35	1.7	10μF	9.5
0.37	0.5	2	71-1	3336	2.61	92	67	4.5	0.35	1.7	12μF	5.6
		4	71-2	1644	2.82	92	62	4.5	0.35	1.7	16μF	6.9
		6	80-1	1068	2.82	92	62	4.5	0.35	1.7	12μF	10.5
0.55	0.55	2	71-2	3336	3.71	92	70	4.5	0.35	1.7	16μF	6.2
		4	80-1	1656	4.06	92	64	4.5	0.35	1.7	20μF	9.5
		6	80-2	1068	4.06	92	64	4.5	0.35	1.7	20μF	13.5
0.75	1	2	80-1	3336	4.92	92	72	4.5	0.33	1.7	25μF	9
		4	80-2	1656	5.21	92	68	4.5	0.32	1.7	25μF	10.5
		6	90S	1092	5.21	92	68	4.5	0.35	1.7	25μF	14.5
1.1	1.5	2	80-2	3336	6.71	95	75	4.5	0.33	1.7	30μF	10
		4	90S	1668	7.09	95	71	4.5	0.32	1.7	35μF	13.5
		6	90L	1092	6.75	92	70	5	0.35	1.7	35μF	15.5
1.5	2	2	90S	3360	9.03	95	76	5	0.3	1.7	45μF	13
		4	90L	1668	9.4	95	73	5	0.3	1.7	45μF	14.5
2.2	3	2	90L	3360	13.08	95	77	5	0.3	1.7	50μF	14.5
		4	100L1	1680	13.25	95	76	5	0.3	1.7	60μF	15.5

Note: 1. IFL = Full load Current ; IST = Locked rotor current ; TFL = Full load torque ; TST = Locked rotor Torque ; TM = Maximum or Break down Torque
2. Tolerance according to IEC 60034-1.

3. The data above is based on 50Hz 230V design.
4. Data subjected to changes without prior notice.

DL Dual Capacitor Series Data 50Hz

Synchronous Speed (2 Pole/3000rpm, 4 Pole/1500rpm, 6 Pole/1000rpm)

Rated Power		Pole	Frame Size	Rated Speed (RPM)	Full load current 230V (A)	Power Factor COSØ	Efficiency η %	IST/IFL (Time)	TST/TFL (Time)	TM/TFL (Time)	Capacitor		Weight kg
KW	HP										Starting (300V)	Running (450V)	
0.12	0.18	4	63-1	1350	1.05	92	54	8	2.5	1.8	60µF	8µF	3.8
0.18	0.25	2	63-1	2750	1.49	92	57	8	2.3	1.8	75µF	12µF	3.9
		4	63-2	1350	1.49	92	57	10	2.5	1.8	60µF	10µF	4.3
		6	71-1	890	1.58	92	54	6	2.5	1.8	75µF	12µF	6.2
0.25	0.33	2	63-2	2750	1.94	92	61	10	2.3	1.8	75µF	16µF	4.4
		4	71-1	1370	1.91	92	62	12	2.5	1.8	75µF	12µF	5.7
		6	71-2	890	2.07	92	57	8	2.5	1.8	75µF	16µF	9.5
0.37	0.5	2	71-1	2780	2.61	92	67	16	2.3	1.8	100µF	20µF	5.7
		4	71-2	1370	2.69	92	65	16	2.5	1.8	75µF	16µF	6.3
		6	80-1	900	2.82	92	62	10	2.5	1.8	100µF	20µF	10.5
0.55	0.75	2	71-2	2780	3.71	92	70	21	2.5	1.8	100µF	16µF	6.3
		4	80-1	1380	3.82	92	68	21	2.5	1.8	100µF	20µF	9.5
		6	80-2	900	4.06	92	64	16	2.5	1.8	100µF	25µF	13.5
0.75	1	2	80-1	2800	4.92	92	72	30	2.5	1.8	100µF	20µF	9
		4	80-2	1380	4.99	92	71	30	2.5	1.8	100µF	25µF	10.5
		6	90S	910	5.21	92	68	20	2.5	1.8	200µF	30µF	14
1.1	1.5	2	80-2	2800	6.71	95	75	40	2.5	1.8	150µF	25µF	10
		4	90S	1390	6.9	95	73	40	2.5	1.8	200µF	30µF	13.5
		6	90L	910	6.75	92	70	30	2.5	1.8	200µF	40µF	18.5
1.5	2	2	90S	2800	9.03	95	76	55	2.5	1.8	200µF	40µF	13
		4	90L	1390	9.15	95	75	55	2.5	1.8	250µF	40µF	14.5
2.2	3	2	90L	2800	13.08	95	77	80	2.5	1.8	250µF	50µF	14.5
		4	100L1	1400	13.25	95	76	80	2.5	1.8	400µF	50µF	24
3	4	2	100L	2820	17.38	95	79	110	2.5	1.8	400µF	50µF	25
		4	100L2	1400	17.83	95	77	110	2.5	1.8	400µF	50µF	28.5
3.7	5	2	112M	2820	21.17	95	80	110	2.5	1.8	500µF	50µF	33.5
		4	112M	1420	21.43	95	79	150	2.5	1.8	500µF	50µF	34.5

DL Dual Capacitor Series Data 60Hz

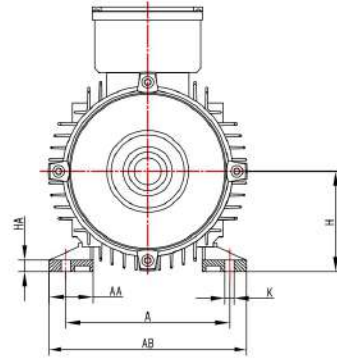
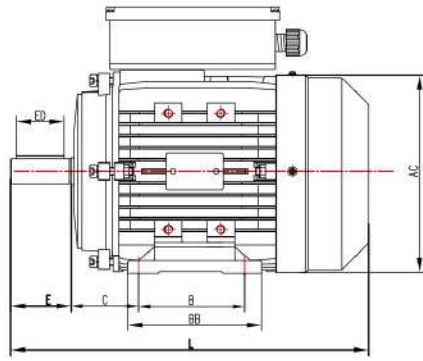
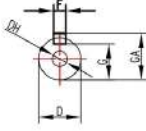
Synchronous Speed (2 Pole/3000rpm, 4 Pole/1500rpm, 6 Pole/1000rpm)

Rated Power		Pole	Frame Size	Rated Speed (RPM)	Full load current 230V (A)	Power Factor COSØ	Efficiency η %	IST/IFL (Time)	TST/TFL (Time)	TM/TFL (Time)	Capacitor		Weight kg
KW	HP										Starting (300V)	Running (450V)	
0.12	0.18	4	63-1	1620	1.05	92	54	8	2.5	1.8	60µF	8µF	3.8
0.18	0.25	2	63-1	3300	1.49	92	57	8	2.3	1.8	75µF	12µF	3.9
		4	63-2	1620	1.49	92	57	10	2.5	1.8	60µF	10µF	4.3
		6	71-1	1068	1.58	92	54	6	2.5	1.8	75µF	12µF	6.2
0.25	0.33	2	63-2	3300	1.94	92	61	10	2.3	1.8	75µF	16µF	4.4
		4	71-1	1644	1.91	92	62	12	2.5	1.8	75µF	12µF	5.7
		6	71-2	1068	2.07	92	57	8	2.5	1.8	75µF	16µF	9.5
0.37	0.5	2	71-1	3336	2.61	92	67	16	2.3	1.8	100µF	20µF	5.7
		4	71-2	1644	2.69	92	65	16	2.5	1.8	75µF	16µF	6.3
		6	80-1	1080	2.82	92	62	10	2.5	1.8	100µF	20µF	10.5
0.55	0.75	2	71-2	3336	3.71	92	70	21	2.5	1.8	100µF	16µF	6.3
		4	80-1	1656	3.82	92	68	21	2.5	1.8	100µF	20µF	9.5
		6	80-2	1080	4.06	92	64	16	2.5	1.8	100µF	25µF	13.5
0.75	1	2	80-1	3360	4.92	92	72	30	2.5	1.8	100µF	20µF	9
		4	80-2	1656	4.99	92	71	30	2.5	1.8	100µF	25µF	10.5
		6	90S	1092	5.21	92	68	20	2.5	1.8	200µF	30µF	14
1.1	1.5	2	80-2	3360	6.71	95	75	40	2.5	1.8	150µF	25µF	10
		4	90S	1668	6.9	95	73	40	2.5	1.8	200µF	30µF	13.5
		6	90L	1092	6.75	92	70	30	2.5	1.8	200µF	40µF	18.5
1.5	2	2	90S	3360	9.03	95	76	55	2.5	1.8	200µF	40µF	13
		4	90L	1668	9.15	95	75	55	2.5	1.8	250µF	40µF	14.5
2.2	3	2	90L	3360	13.08	95	77	80	2.5	1.8	250µF	50µF	14.5
		4	100L1	1680	13.25	95	76	80	2.5	1.8	400µF	50µF	24
3	4	2	100L	3384	17.38	95	79	110	2.5	1.8	400µF	50µF	25
		4	100L2	1680	17.83	95	77	110	2.5	1.8	400µF	50µF	28.5
3.7	5	2	112M	3384	21.17	95	80	110	2.5	1.8	500µF	50µF	33.5
		4	112M	1704	21.43	95	79	150	2.5	1.8	500µF	50µF	34.5

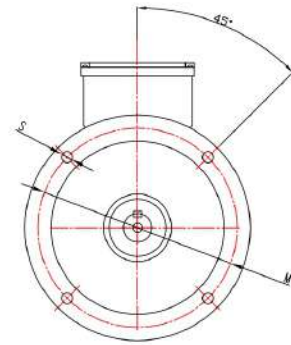
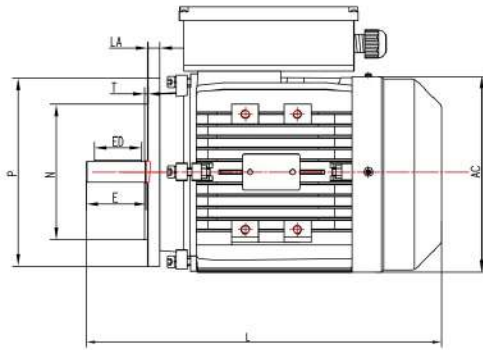
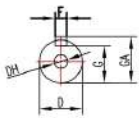
Note: 1. IFL = Full load Current ; IST = Locked rotor current ; TFL = Full load torque;
 TST = Locked rotor Torque ; TM = Maximum or Break down Torque
 2. Tolerance according to IEC 60034-1.

3. The data above is based on 50Hz 230V design.
 4. Data subjected to changes without prior notice.

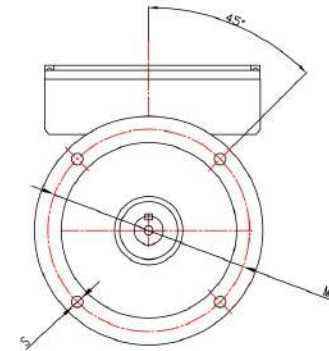
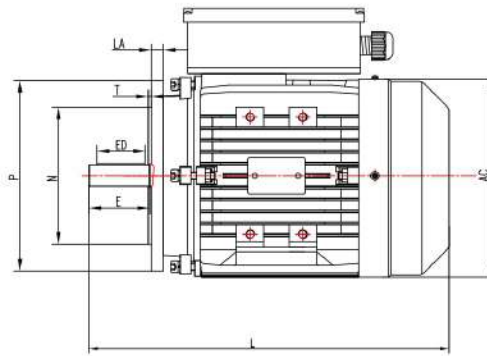
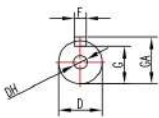
DYB3



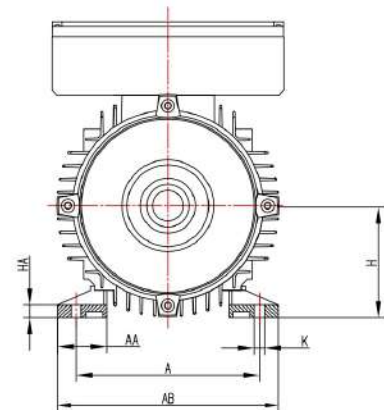
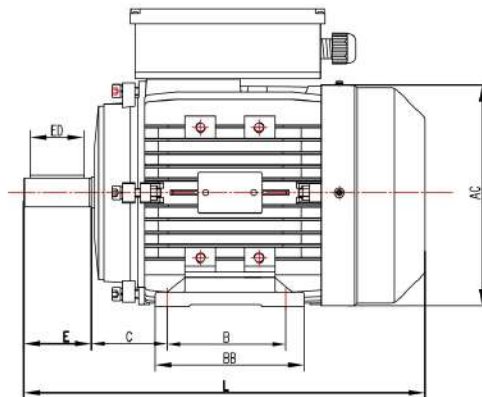
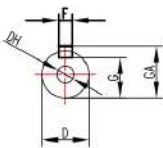
DYB5



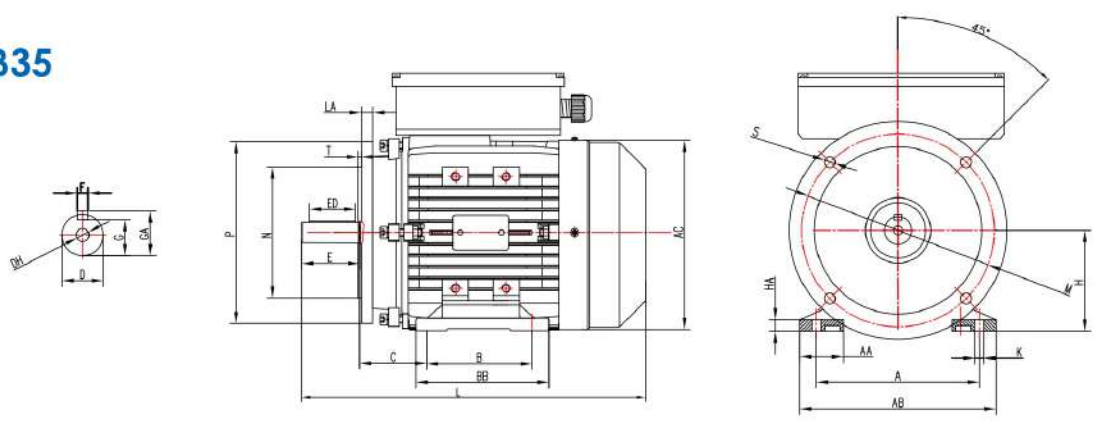
DLB5



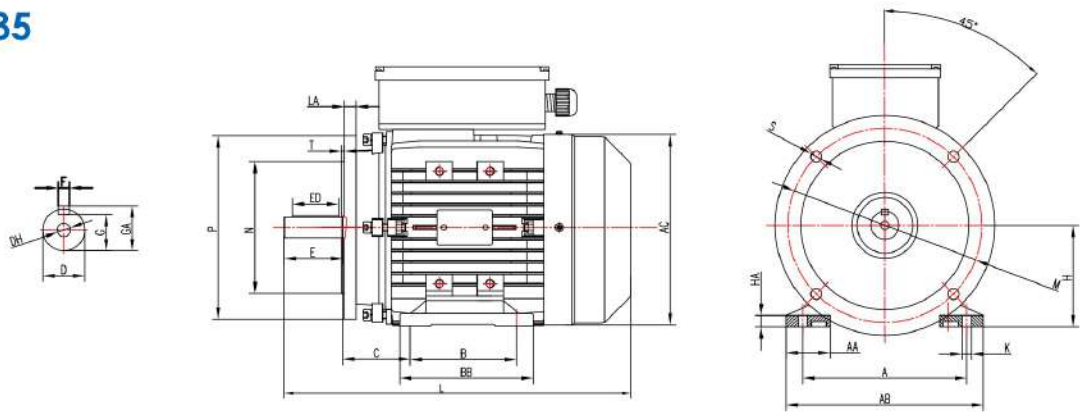
DLB3



DLB35



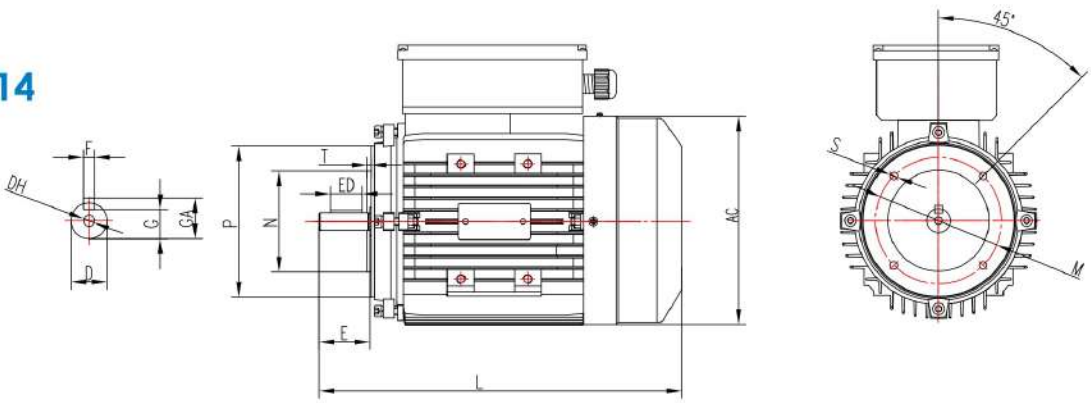
DYB35



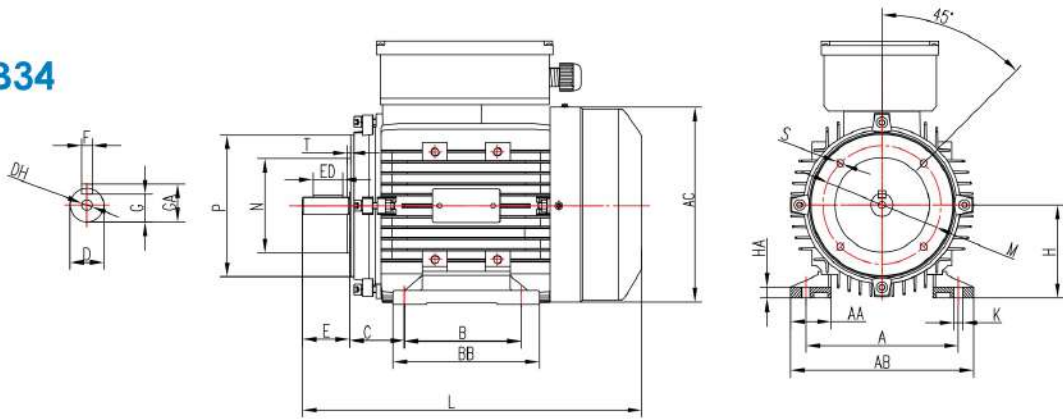
Frame Size	Overall Dimensions													
	A	B	C	D	E	F	G	H	K	M	N	P	S	T
71	112	90	45	14	30	5	11	71	7	130	110	160	10	3.5
80	125	100	50	19	40	6	15.5	80	10	165	130	200	12	3.5
90S	140	100	56	24	50	8	20	90	10	165	130	200	12	3.5
90L	140	125	56	24	50	8	20	90	10	165	130	200	12	3.5
100L	160	140	63	28	60	8	24	100	12	215	180	250	15	4
112M	190	140	70	28	60	8	24	112	12	215	180	250	15	4

Frame Size	Overall Dimensions											Bearing		
	AA	AB	AC	AD	BB	DH	ED	HA	HD	L	LA	LB	DE	NDE
71	28	135	145	119	105	M5x12	20	9	190	255	8	220	6202ZZC3	6202ZZC3
80	35	155	165	138	130	M6x16	25	9	218	295	10	260	6204ZZC3	6204ZZC3
90S	35	175	180	145	130	M8x19	40	11	235	331	12	270	6205ZZC3	6205ZZC3
90L	35	175	180	145	155	M8x19	40	11	235	361	12	295	6205ZZC3	6205ZZC3
100L	50	200	200	155	176	M10x22	45	13	255	392	15	330	6206ZZC3	6206ZZC3
112M	55	230	220	171	180	M10x22	45	13	283	408	15	345	6306ZZC3	6306ZZC3

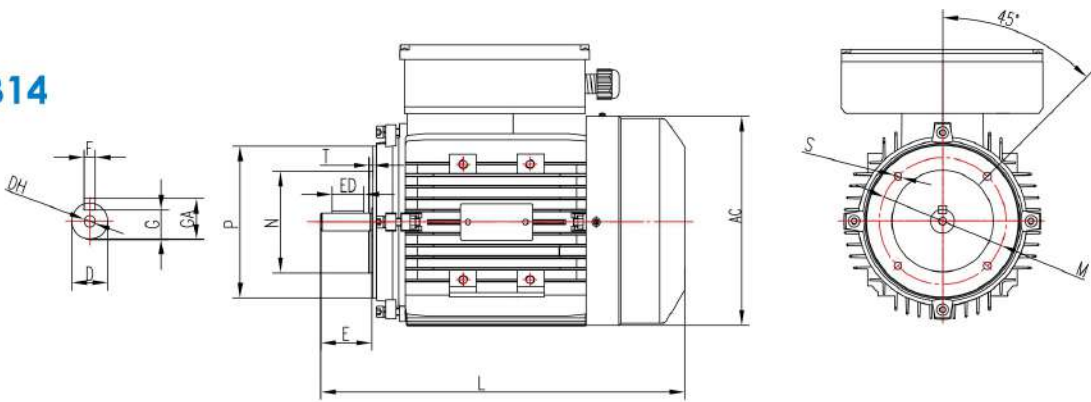
DYB14



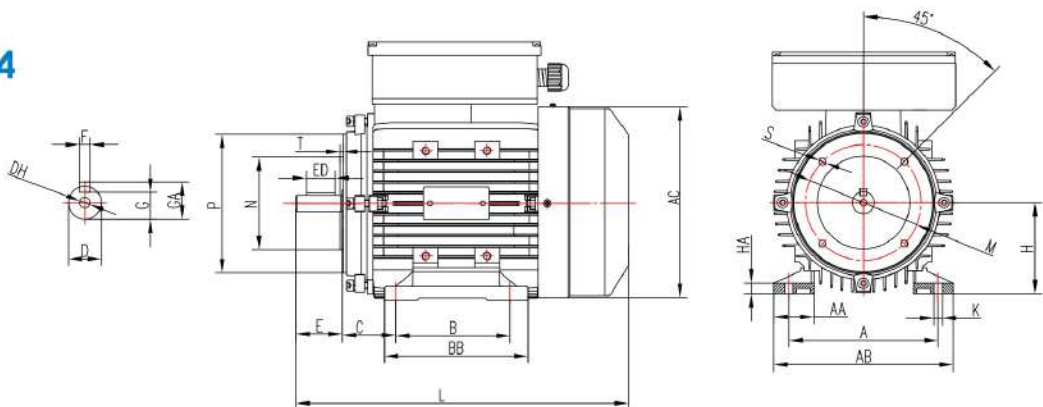
DYB34



DLB14



DLB34



Frame Size	Overall Dimensions													
	A	B	C	D	E	F	G	H	K	M	N	P	S	T
71	112	90	45	14	30	5	11	71	7	85	70	105	M6	2.5
80	125	100	50	19	40	6	15.5	80	10	100	80	120	M6	3
90S	140	100	56	24	50	8	20	90	10	115	95	140	M8	3
90L	140	125	56	24	50	8	20	90	10	115	95	140	M8	3
100L	160	140	63	28	60	8	24	100	12	130	110	160	M8	3.5
112M	190	140	70	28	60	8	24	112	12	130	110	160	M8	3.5

Frame Size	Overall Dimensions										Bearing	
	AA	AB	AC	AD	BB	DH	ED	HA	HD	L	DE	NDE
71	28	135	145	119	105	M5x12	20	9	190	255	6202ZZC3	6202ZZC3
80	35	155	165	138	130	M6x16	25	9	218	295	6204ZZC3	6204ZZC3
90S	35	175	180	145	130	M8x19	40	11	235	331	6205ZZC3	6205ZZC3
90L	35	175	180	145	155	M8x19	40	11	235	361	6205ZZC3	6205ZZC3
100L	50	200	200	155	176	M10x22	45	13	255	392	6206ZZC3	6206ZZC3
112M	55	230	220	171	180	M10x22	45	13	283	408	6306ZZC3	6306ZZC3



ATT Service Offer

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- Three Phase asynchronous self-braking motors
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- Geared motors
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- High temperature resistant motors

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