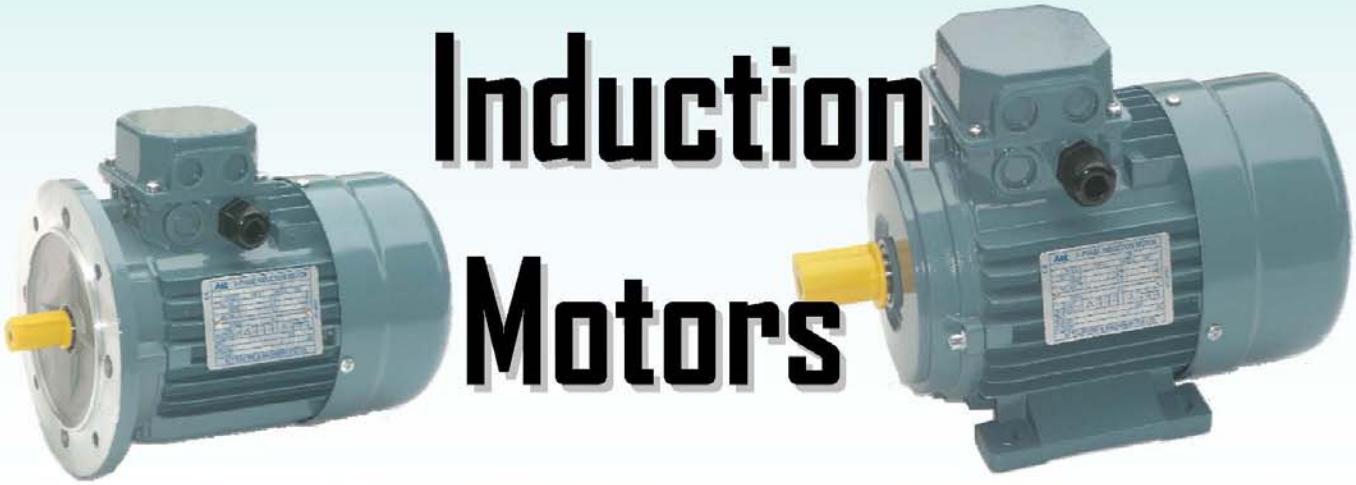
MS Series

Three-Phase TEFC Aluminium Induction Motors



- ☑ High efficiency
- ☑ energy-saving
- ☑ IPSS protection
- ☑ IEC dimension
- ☑ Low noise

CE ISO9001 ISO10012

GENERAL INTRODUCTION

This catalogue detail the complete range of the MS series motors. Standard MS motors are three phase totally enclosed fan cooled (TEFC) Aluminium induction motor with IEC frame size from 63 to 132M. MS motors are supplied suitable for continuous S1 duty, which is means that MS motors can operate under constant load , lasting long enough to allow the machine to reach thermal equilibrium. Please contact with ATT when the motor is to operate under any other type of duty.

All MS motors are supplied with Class F insulation and checking permissible limits of temperature rise against that of class B to improve the insulation reliability. Others classes of insulation are available as request.

The MS series motors are general purpose motors that are highly efficient. Furthermore, it is also coupled with advantages such as a high starting torque and low temperature rise during operation.

These motors are built to comply the requirements for European “CE” marking and the International Electrotechnical Commission – IEC 60034 (included 60034-1, 60034-5, 60034-7, 60034-8, 60034-9, 60034-11, 60034-12 and 60034-14). Compliance with IEC60034 means that many standard from other countries based on IEC60034 can normally be complied with.

Alongside with the same specifications, we have also introduced the RMS series which are newly designed with removable feet. The mounting arrangement can be flexibly changed according to the user's requirements.

Ordering Information

- Application
- Motor type
- Voltage, frequency, output and number of poles
- Across-the-line or reduced-voltage starting
- Direct drive, or V-belt drive (Sheave diameter, width and weight, type of V-belts)
- With or without slide rails or soleplates
- Type, size and diameter of power lead
- Indoor or outdoor use
- Environmental conditions (Ambient temperature, explosive or corrosive gas, if applicable)
- Load inertia GD^2
- Load characteristics

Voltage / Frequency

Standard voltage and frequency for MS motor are 220-240V / 380-415V at 50Hz for 2.2kW and below, 380-415V / 660-720V at 50Hz for 3kW and above, and other voltages such as 220-380V, 440-480V at 60Hz.

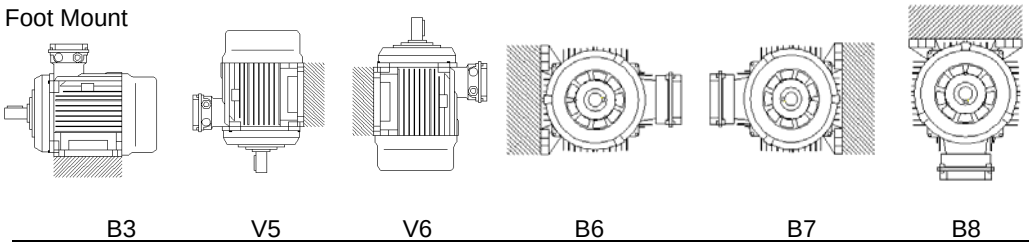
Voltage tolerance is ±5%, and frequency tolerance is 1%. Voltage beyond these limits will cause a high winding temperature rise.

Mountings

All motors are available in B3, B35 and V1 configuration. They can also be mount B5, but for 315 and 355 frame motors, it is recommend to be mount only B3, B35 or V1. B14 flange mounting is available up to 160 frame size motor. Please be mention that motors to be mounted with the shaft vertically must be provided with a suitable cover to ensure foreign bodies are prevented from entering motor. Table below listed the possibility mounting arrangement of ATT motors. For mounting arrangement outside the list please contact ATT.

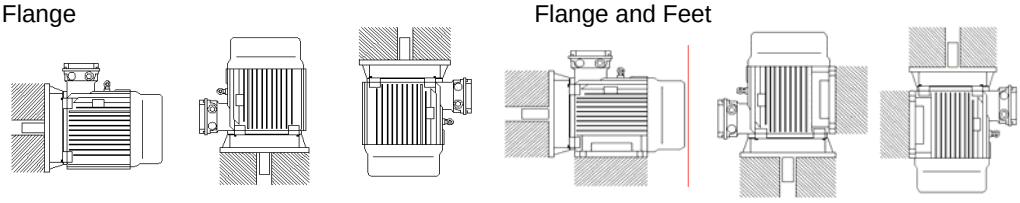
Table 3 – Mounting arrangement

Foot Mount



B3 V5 V6 B6 B7 B8

Flange

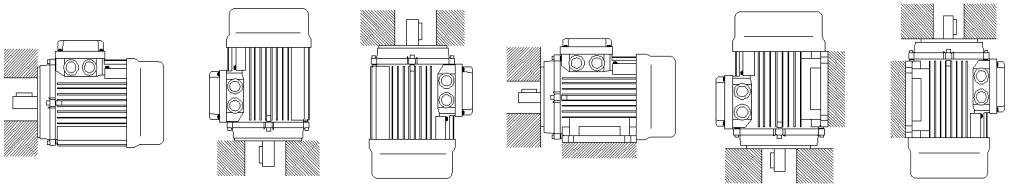


B5 V1 V3

Flange and Feet

B35 V15 V36

Small Flange – Face



B14 V18 V19

Small Flange -Face and Feet

B34 V17 V37

Vibration

ATT MS motors' rotor have been dynamically balanced and fall within the limit of maximum vibration magnitude set out in IEC 60034-14. Care must be taken to ensure that pulleys or couplings used with motors must also be appropriately balanced with haft feather key.

Limit of maximum vibration magnitude in displacement, velocity and acceleration(r.m.s.) for shaft height:

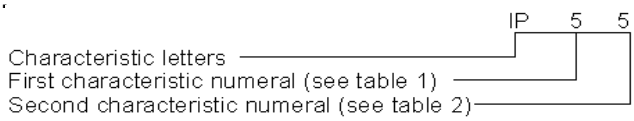
Vibration	Shaft height, mm	F#56-132		
Grade	Mounting	Disp. Mm	Vel. mm/s	Acc. m/s^2
A	Free suspension	25	1.6	2.5
	Rigid mounting	21	1.3	2
B	Free suspension	11	0.7	1.1

Protection

The standard of protection for all ATT motors are follow the international standard IEC60034-5. This standard specify the Degrees of Protection of electric equipment, commonly known as the “IP' code.

Please refer to the guide below to selected the most suitable protection:

Example of designation:



First characteristic numeral:

The first characteristic numeral indicates the degree of protection provided by the enclosure to persons and to the parts of the machine inside the enclosure.

Table 1 - Degrees of protection indicates by the first characteristic numeral

First characteristic numeral	Degree of protection	
	Brief description	Definition
5	Dust-protected machine	Contact with or approach to live of moving parts inside 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 prevent

Second characteristic numeral:

The second characteristic numeral indicates the degree of protection provided by the enclosure with respect to harmful effects due to ingress of water.

Table 2 – Degrees of protection indicates 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

Standard level of enclosure protection for all ATT motor is IP55 as a minimum. Higher levels of protection are available an request.

Insulation

Standard MS series motor are adopting class F insulation and checking permissible limits of temperature rise against that of class B to improve the insulation reliability.

Limit temperature for insulating material according IEC 60085

Insulation Calss	imit Temperature (°C)
B	130
F	155
H	180

Max. permissible temperature rise for insulating material

Insulation Class	Limit Temperature
B	80
F	105
H	125

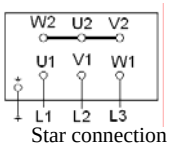
Connection

Standard terminal connection for 2.2kW and below is 220-240 volt delta / 380-415 volt star. These motor are normally connected in star connection, thus they are designed for 415 volt Direct On Line (D.O.L) starting. They are also suitable for operation with 240 volt three phase variable frequency drives, when connected in the delta connection.

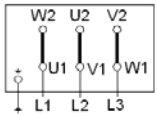
For motors 3.0kW and above, their standard terminal connection is 380-415 volt delta / 660-720 volt star. The motors are designed for 415 volt Direct On Line (D.O.L) starting. They are also suitable for operation with 415V three phase variable frequency drives. These motors are also can be operated for 720V Direct On line starting, when connected in the star configuration.

CONNECTION DIAGRAMS

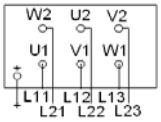
Three phase motors with cage rotor



Star connection

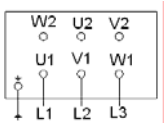


Delta connection

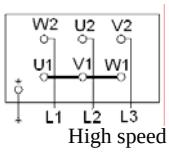


Connection to star-delta starter

Multi-speed motors in Dahlander connection (Tapped Winding)

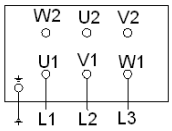


Low speed

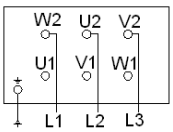


High speed

Multi-speed motors with 2 separate windings.



Low speed



High speed

Direction of Rotation

The motors can be operate in both direction of rotation. For clockwise rotation, viewed from the drive end, standard motor terminal marking coincide with the sequence of the phase line conductors. The direction of rotation canbe reversed by interchanging any two phase of conductors.

Terminal box location (viewed from drive end	Sequential connection of	Direction of rotation
Right	U1 V1 W1	Clockwise
	V1 U1 W1	Counter-clockwise
Left	V1 U1 W1	Clockwise
	U1 V1 W1	Counter-clockwise

Motors can be customized in accordance to customers' mechanical & electrical requirements:

1. IP56
2. Class H Insulation
3. Multi-speed
4. Special paint finish
5. Corrosion-proof
6. PTC thermistor for heater thermal protection
7. Anti-condensation heater
8. Special shaft extension
9. Inverter duty application
10. Grease relief for frames down to 100L

PERFORMANCE DATA

Motor types MS, Class F insulation, 380/415V - 50Hz (2Pole/3000rpm, 4Pole/1500rpm, 6Pole/1000rpm, 8Pole/750rpm)

Rated Power		Pole	Frame	Rated	Current			Power	Efficiency	Locked	Rated	Locked	Breakdown	Moment of	Weight
KW	HP		Size	Speed (RPM)	380V (A)	400V (A)	415V (A)	Factor COSø	η %	rotor Current I_s/I_n	Torque Nm	rotor Torque M_s/M_n	Torque M_k/M_n	Inertia J Kgm^2	Kg
0.06	0.08	4	56-1	1330	0.28	0.26	0.26	0.65	50.0	4.0	0.43	1.4	2.0	0.000064	3.2
0.09	0.12	2	56-1	2710	0.39	0.37	0.35	0.70	50.0	4.0	0.32	1.8	2.0	0.000053	3.2
		4	56-2	1330	0.37	0.35	0.33	0.73	50.0	4.0	0.65	1.8	2.0	0.000070	3.4
0.12	0.16	2	56-2	2710	0.47	0.45	0.43	0.70	55.0	4.0	0.42	1.8	2.0	0.000057	3.4
		4	63-1	1340	0.44	0.42	0.40	0.72	57.0	4.4	0.94	1.8	2.0	0.000117	4.0
0.18	0.24	2	63-1	2720	0.58	0.55	0.52	0.73	65.0	5.5	0.66	2.2	2.2	0.000100	3.9
		4	63-2	1340	0.64	0.62	0.58	0.73	58.0	4.4	1.41	1.8	2.0	0.000136	4.5
		6	71-1	860	0.74	0.70	0.67	0.66	56.0	4.0	2.00	1.9	2.0	0.000432	6.4
		8	80-1	645	0.88	0.84	0.81	0.61	51.0	2.9	2.66	1.8	2.0	0.001146	8.3
0.25	0.33	2	63-2	2720	0.76	0.72	0.69	0.76	66.0	5.5	0.90	2.2	2.2	0.000113	4.4
		4	71-1	1345	0.79	0.75	0.71	0.74	65.0	5.2	1.77	2.1	2.2	0.000423	6.1
		6	71-2	860	0.95	0.90	0.86	0.68	59.0	4.0	2.78	1.9	2.0	0.000468	6.5
		8	80-2	645	1.15	1.10	0.99	0.61	54.0	2.9	3.70	1.8	2.0	0.001263	9.0
0.37	0.5	2	71-1	2760	0.99	0.94	0.90	0.81	70.0	6.1	1.28	2.2	2.2	0.000348	6.2
		4	71-2	1340	1.10	1.06	0.99	0.75	67.0	5.2	2.64	2.1	2.2	0.000468	6.7
		6	80-1	885	1.29	1.23	1.20	0.70	62.0	4.7	3.99	2.0	2.1	0.001268	8.5
		8	90S	670	1.60	1.50	1.40	0.61	59.0	3.2	5.27	1.9	2.3	0.003160	12.0
0.55	0.75	2	71-2	2820	1.40	1.33	1.26	0.82	73.0	6.1	1.86	2.2	2.3	0.000400	6.3
		4	80-1	1390	1.57	1.49	1.42	0.75	71.0	5.3	3.78	2.2	2.5	0.001146	8.9
		6	80-2	885	1.78	1.70	1.50	0.72	65.0	4.7	5.93	2.0	2.1	0.001392	9.2
		8	90L	670	2.20	2.10	2.00	0.61	62.0	3.2	7.84	2.0	2.3	0.003794	15.0
0.75	1	2	80-1	2845	1.83	1.74	1.66	0.83	75.0	6.1	2.52	2.4	2.5	0.000916	8.3
		4	80-2	1380	2.03	1.93	1.84	0.76	73.0	5.3	5.19	2.3	2.5	0.001263	9.6
		6	90S	915	2.30	2.20	2.10	0.72	69.0	5.5	7.83	2.0	2.2	0.003160	12.0
		8	100LA	685	2.40	2.30	2.20	0.67	70.0	4.7	10.46	1.8	2.2	0.004311	19.0
1.1	1.5	2	80-2	2840	2.58	2.45	2.33	0.84	77.0	7.0	3.70	2.5	2.5	0.000990	9.0
		4	90S	1390	3.00	2.90	2.70	0.77	75.0	6.0	7.56	2.3	2.5	0.002761	12.5
		6	90L	915	3.20	3.04	2.90	0.73	72.0	5.5	11.48	2.0	2.2	0.003794	14.0
		8	100LB	690	3.40	3.20	3.00	0.69	72.0	5.0	15.22	1.8	2.2	0.005095	21.8
1.5	2	2	90S	2840	3.50	3.30	3.20	0.84	79.0	7.0	5.04	2.7	2.8	0.002462	12.5
		4	90L	1390	3.70	3.50	3.46	0.79	78.0	6.0	10.30	2.3	2.5	0.003283	15.0
		6	100L	920	3.90	3.70	3.50	0.75	76.0	5.5	15.57	2.1	2.2	0.004605	19.5
		8	112M	730	4.40	4.20	4.05	0.69	75.0	5.0	19.62	2.0	2.5	0.006949	29.0
2.2	3	2	90L	2840	4.90	4.70	4.50	0.85	81.0	7.0	7.40	2.5	2.8	0.002815	14.0
		4	100LA	1415	5.00	4.80	4.60	0.81	80.0	7.0	14.85	2.3	2.5	0.005419	19.2
		6	112M	935	5.57	5.30	5.10	0.76	79.0	6.5	22.47	2.2	2.2	0.006949	28.0
		8	132S	710	6.00	5.70	5.40	0.71	78.0	6.0	29.50	1.8	2.5	0.012912	39.0
3	4	2	100L	2870	6.30	6.00	5.80	0.87	83.0	7.5	10.00	2.2	2.5	0.002930	20.5
		4	100LB	1415	6.70	6.40	6.10	0.82	82.0	7.0	20.25	2.3	2.5	0.006704	23.0
		6	132S	960	7.40	7.00	6.70	0.76	81.0	6.5	29.84	2.2	2.8	0.012912	38.0
		8	132M	710	7.90	7.50	7.20	0.73	79.0	6.0	40.30	1.8	2.4	0.016082	45.0
3.7	5	2	112M	2880	7.59	7.21	6.95	0.88	84.2	7.5	12.27	2.2	2.3	0.003021	26.0
		4	112M	1430	8.18	7.77	7.49	0.82	83.8	7.0	24.71	2.3	2.3	0.009418	29.0
		6	132MA	960	9.05	8.60	8.29	0.76	81.7	6.5	36.80	2.3	2.8	0.016082	45.0
4	5.5	2	112M	2880	8.10	7.70	7.40	0.88	85.0	7.5	13.26	2.3	2.3	0.003021	26.0
		4	112M	1430	8.70	8.30	7.90	0.82	84.0	7.0	26.71	2.3	2.6	0.009418	29.0
		6	132MA	960	9.80	9.30	8.90	0.76	82.0	6.5	39.79	2.4	2.9	0.016082	45.0
5.5	7.5	2	132SA	2910	11.00	10.50	10.00	0.88	86.0	7.5	18.05	2.3	2.5	0.006496	40.0
		4	132S	1445	11.70	11.10	10.60	0.83	85.0	7.0	36.35	2.3	2.5	0.029500	43.5
		6	132MB	960	12.90	12.30	11.70	0.77	84.0	6.5	54.71	2.4	2.8	0.019174	54.0
7.5	10	2	132SB	2905	14.90	14.10	13.60	0.88	87.0	7.5	24.65	2.2	2.4	0.007838	44.0
		4	132M	1445	15.50	14.80	14.10	0.84	87.0	7.0	49.56	2.3	2.5	0.029600	53.5

PERFORMANCE DATA

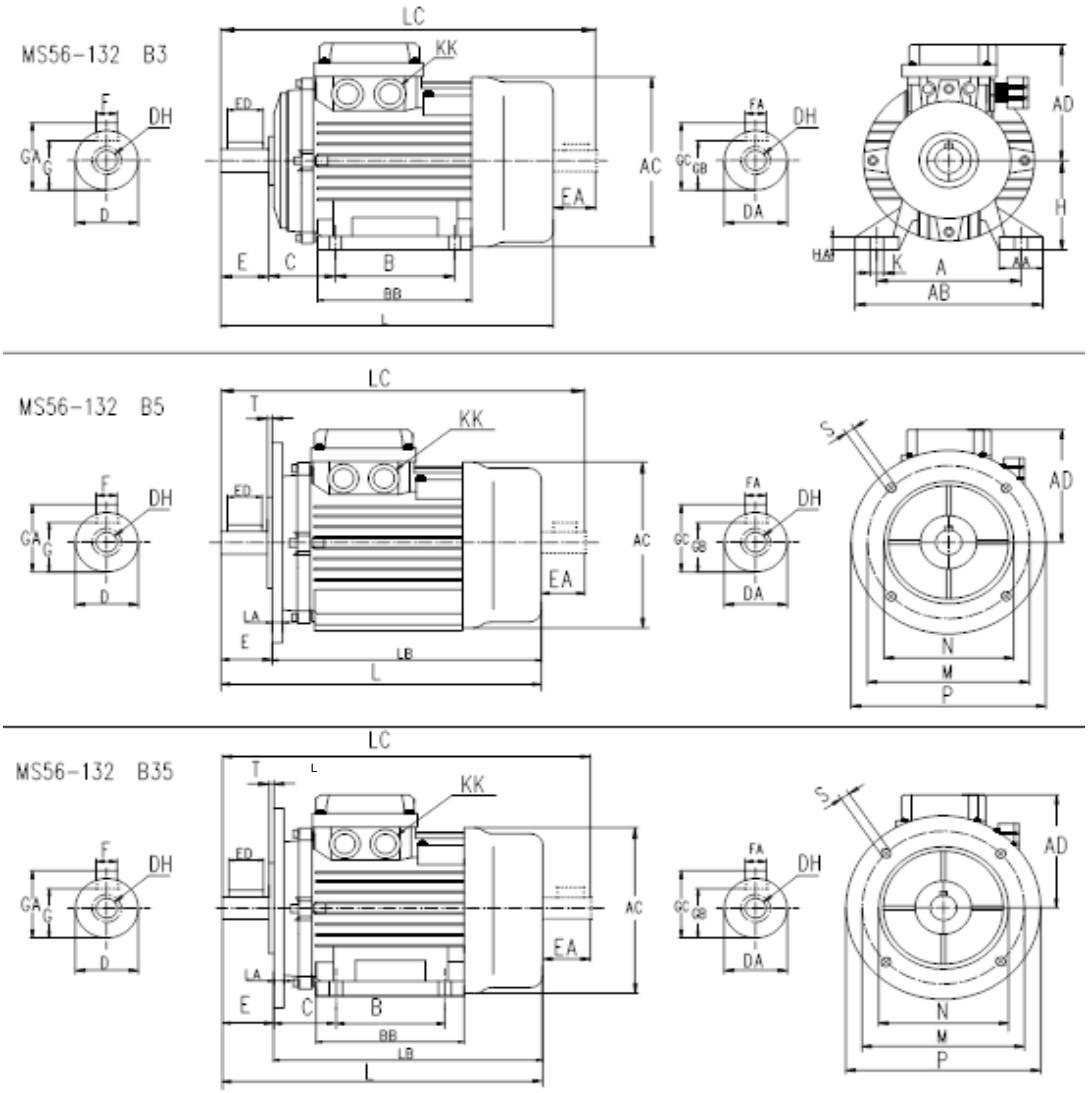
Motor types RMS, Class F insulation, 60Hz *(2Pole, 4Pole, 6Pole, 8Pole)*

Rated Power		Pole	Frame	Rated	Current					Power	Efficiency	Locked Rotor	Locked Rotor	Break Down	Rated	Moment of	Weight
KW	HP		Size	Speed (RPM)	220V (A)	380V (A)	440V (A)	460V (A)	480V (A)	Factor COSø	η %	Current I_S/I_n	Torque M_S/M_n	Torque M_K/M_n	Torque N.M	Inertia J Kgm^2	Kg
0.06	0.08	4	56-1	1600	0.48	0.28	0.24	0.23	0.22	0.65	50.0	4.0	1.4	2.0	0.48	0.000064	3.2
0.09	0.12	2	56-1	3250	0.67	0.39	0.34	0.32	0.31	0.70	50.0	4.0	1.8	2.0	0.33	0.000053	3.2
		4	56-2	1600	0.64	0.37	0.32	0.31	0.30	0.73	50.0	4.0	1.8	2.0	0.72	0.000070	3.4
0.12	0.16	2	56-2	3250	0.81	0.47	0.41	0.39	0.37	0.70	55.0	4.0	1.8	2.0	0.44	0.000057	3.4
		4	63-1	1610	0.76	0.44	0.38	0.36	0.35	0.72	57.0	4.4	1.8	2.0	0.94	0.000117	4.0
0.18	0.24	2	63-1	3260	1.00	0.58	0.50	0.48	0.46	0.73	65.0	5.5	2.2	2.2	0.66	0.000100	3.9
		4	63-2	1610	1.11	0.64	0.55	0.53	0.51	0.73	58.0	4.4	1.8	2.0	1.41	0.000136	4.5
		6	71-1	1030	1.28	0.74	0.64	0.61	0.59	0.66	56.0	4.0	1.9	2.0	2.0	0.000432	6.4
		8	80-1	774	1.52	0.88	0.76	0.73	0.70	0.61	51.0	2.9	1.8	2.0	2.66	0.001146	8.3
0.25	0.33	2	63-2	3260	1.31	0.76	0.66	0.63	0.60	0.76	66.0	5.5	2.2	2.2	0.90	0.000113	4.4
		4	71-1	1610	1.37	0.79	0.68	0.65	0.63	0.74	65.0	5.2	2.1	2.2	1.77	0.000423	6.1
		6	71-2	1030	1.64	0.95	0.82	0.79	0.75	0.68	59.0	4.0	1.9	2.0	2.78	0.000468	6.5
		8	80-2	770	1.99	1.15	0.99	0.95	0.91	0.61	54.0	2.9	1.8	2.0	3.7	0.001263	9.0
0.37	0.5	2	71-1	3310	1.71	0.99	0.86	0.82	0.78	0.81	70.0	6.1	2.2	2.2	1.28	0.000348	6.2
		4	71-2	1610	1.90	1.10	0.95	0.91	0.87	0.75	67.0	5.2	2.1	2.2	2.64	0.000468	6.7
		6	80-1	1060	2.23	1.29	1.11	1.07	1.02	0.70	62.0	4.7	2.0	2.1	3.99	0.001268	8.5
		8	90S	800	2.76	1.60	1.38	1.32	1.27	0.61	59.0	3.2	1.9	2.3	5.27	0.003160	12.0
0.55	0.75	2	71-2	3380	2.42	1.40	1.21	1.16	1.11	0.82	73.0	6.1	2.2	2.3	1.86	0.000400	6.3
		4	80-1	1670	2.71	1.57	1.36	1.30	1.24	0.75	71.0	5.3	2.2	2.5	3.78	0.001146	8.9
		6	80-2	1060	3.08	1.78	1.54	1.47	1.41	0.72	65.0	4.7	2.0	2.1	5.93	0.001392	9.2
		8	90L	800	3.8	2.20	1.9	1.82	1.74	0.61	62.0	3.2	2.0	2.3	7.84	0.003794	15.0
0.75	1	2	80-1	3410	3.16	1.83	1.58	1.51	1.45	0.83	75.0	6.1	2.4	2.5	2.52	0.000916	8.3
		4	80-2	1670	3.51	2.03	1.75	1.68	1.61	0.76	73.0	5.3	2.3	2.5	5.19	0.000126	9.6
		6	90S	1100	3.97	2.30	1.99	1.90	1.82	0.72	69.0	5.5	2.0	2.2	7.83	0.003160	12.0
		8	100LA	820	4.15	2.40	2.07	0.98	1.90	0.67	70.0	4.7	1.8	2.2	10.46	0.005095	19.0
1.1	1.5	2	80-2	3410	4.46	2.58	2.23	2.13	2.04	0.84	77.0	7.0	2.5	2.5	3.7	0.000990	9.0
		4	90S	1670	5.18	3.0	2.59	2.48	2.38	0.77	75.0	6.0	2.3	2.5	7.56	0.002761	12.5
		6	90L	1100	5.53	3.20	2.76	2.64	2.53	0.73	72.0	5.5	2.0	2.2	11.48	0.003794	14.0
		8	100LB	830	5.87	3.40	2.94	2.81	2.69	0.69	72.0	5.0	1.8	2.2	15.22	0.005095	21.8
1.5	2	2	90S	3410	6.05	3.50	3.02	2.89	2.77	0.84	79.0	7.0	2.7	2.8	5.04	0.002462	12.5
		4	90L	1670	6.39	3.70	3.20	3.06	2.93	0.79	78.0	6.0	2.3	2.5	10.3	0.003283	15.0
		6	100L	1100	6.74	3.90	3.37	3.22	3.09	0.75	76.0	5.5	2.1	2.2	15.57	0.004605	19.5
		8	112M	880	7.6	4.40	3.80	3.63	3.48	0.69	75	5.0	2.0	2.5	19.62	0.006949	29.0
2.2	3	2	90L	3410	8.46	4.90	4.23	4.05	3.88	0.85	81.0	7.0	2.5	2.8	7.40	0.002815	14.0
		4	100LA	1700	8.64	5.00	4.32	4.13	3.96	0.81	80.0	7.0	2.3	2.5	14.85	0.005419	19.2
		6	112M	1120	9.62	5.57	4.81	4.60	4.41	0.76	79.0	6.50	2.2	2.2	22.47	0.006949	28.0
		8	132S	850	10.36	6.00	5.18	4.96	4.75	0.71	78.0	6.0	1.8	2.5	29.5	0.012912	39.0
3	4	2	100L	3440	10.36	6.00	5.18	4.96	4.75	0.87	83.0	7.5	2.2	2.5	10.0	0.002930	20.5
		4	100LB	1700	11.57	6.70	5.79	5.54	5.30	0.82	82.0	7.0	2.3	2.5	20.25	0.006704	23.0
		6	132S	1150	12.78	7.40	6.39	6.11	5.86	0.76	81.0	6.5	2.2	2.8	29.84	0.012912	38.0
		8	132M	850	13.65	7.90	6.82	6.53	6.25	0.73	79.0	6.0	1.8	2.4	40.3	0.016082	45.0
3.7	5	2	112M	3460	12.94	7.49	6.47	6.18	5.93	0.88	85.0	7.5	2.3	2.3	13.26	0.003021	26.0
		4	112M	1720	13.91	8.05	6.95	6.65	6.37	0.82	84.0	7.0	2.3	2.5	26.71	0.009418	29.0
		6	132MA	1150	15.67	9.07	7.83	7.49	7.18	0.76	82.0	6.5	2.4	2.9	39.79	0.016082	45.0
4	5.5	2	112M	3460	13.99	8.10	7.00	6.69	6.41	0.88	85.0	7.5	2.3	2.3	13.26	0.003021	26.0
		4	112M	1720	15.03	8.70	7.51	7.19	6.89	0.82	84.0	7.0	2.3	2.5	26.71	0.009418	29.0
		6	132MA	1150	16.93	9.80	8.46	8.10	7.76	0.76	82.0	6.5	2.4	2.9	39.79	0.016082	45.0
5.5	7.5	2	132SA	3500	19.00	11.00	9.50	9.09	8.71	0.88	86.0	7.5	2.2	2.5	18.05	0.006496	40.0
		4	132S	1730	20.21	11.70	10.11	9.67	9.26	0.83	85.0	7.0	2.3	2.5	36.35	0.029500	43.5
		6	132MB	1150	22.28	12.90	11.14	10.66	10.21	0.77	84.0	6.5	2.4	2.8	54.71	0.019174	54.0
7.5	10	2	132SB	3500	25.74	14.90	12.87	12.31	11.80	0.88	87.0	7.5	2.2	2.4	24.65	0.007838	44.0
		4	132M	1750	26.77	15.50	13.39	12.80	12.27	0.84	87.0	7.0	2.3	2.5	49.56	0.029600	53.5

Data are subjected to revisions without any prior notice.

MS B3, B5, B35 Mounting and Overall Dimensions

F#56~90 without lifting bolt



Frame Size	Overall Dimensions																	
	A	AB	AC	AD	B	C	D	DH	E	F	G	H	K	KK	L	M	N	P
56	90	110	110	96	71	36	9	M4X12	20	3	7.2	56	12	2-M18X1.5	189	100	80	120
63	100	122	122	99	80	40	11	M4X12	23	4	8.5	63	13	2-M18X1.5	218	115	95	140
71	112	136	138	109	90	45	14	M5X12	30	5	11	71	13	2-M18X1.5	250	130	110	160
80	125	154	157	112	100	50	19	M6X16	40	6	15.5	80	13	2-M20X1.5	278	165	130	200
90S	140	174	175	120	100	56	24	M8X19	50	8	20	90	17	2-M20X1.5	335	165	130	200
90L	140	174	175	120	125	56	24	M8X19	50	8	20	90	17	2-M20X1.5	335	165	130	200
100L	160	194	196	139	140	63	28	M10X22	60	8	24	100	23	2-M20X1.5	377	215	180	250
112M	190	224	220	156	140	70	28	M10X22	60	8	24	112	22	2-M20X1.5	395	215	180	250
132S	216	256	260	185	140	89	38	M12X28	80	10	33	132	21	2-M25X1.5	472	265	230	300
132M	216	256	260	185	178	89	38	M12X28	80	10	33	132	21	2-M25X1.5	510	265	230	300

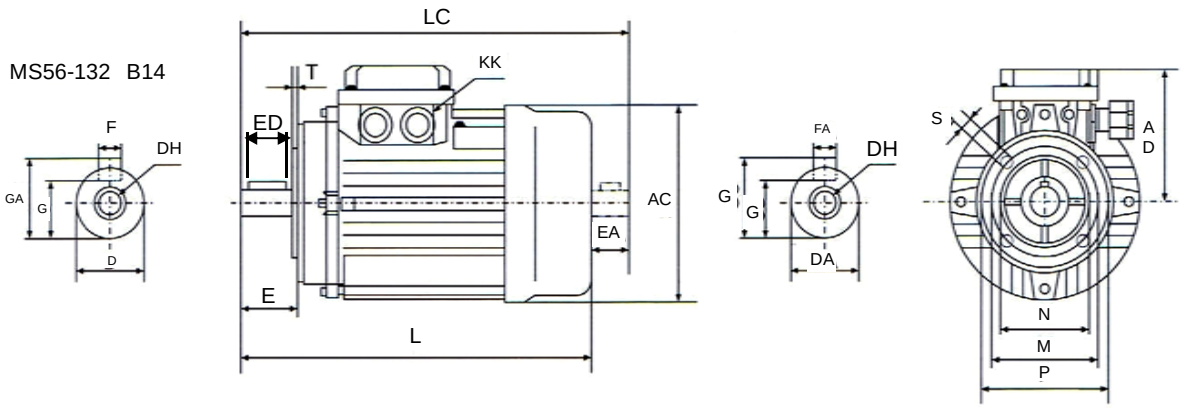
Frame Size	Overall Dimensions															Bearings	
	S	T	LC	DA	EA*	GC	GB	GA	FA	AA	BB	ED	HA	LA	LB	DE	NDE
56	7	3	217	9	20	10.2	7.2	10.2	3	22	91	14	10	9	173	6201ZZ-C3	6201ZZ-C3
63	9	3	238	11	23	12.5	8.5	12.5	4	25	100	15	10	10	192	6201ZZ-C3	6201ZZ-C3
71	9	3.5	274	14	30	16	11	16	5	27	108	20	11	10	221	6202ZZ-C3	6202ZZ-C3
80	12	3.5	330	14	30	16	11	21.5	5	30	126	30	11	10	246	6204ZZ-C3	6204ZZ-C3
90S	12	3.5	385	19	40	21.5	15.5	27	6	34	128	40	14	10	285	6205ZZ-C3	6205ZZ-C3
90L	12	3.5	385	19	40	21.5	15.5	27	6	34	155	40	14	10	285	6205ZZ-C3	6205ZZ-C3
100L	15	4	443	28	60	31	24	31	8	40	175	45	15	15	317	6206ZZ-C3	6206ZZ-C3
112M	15	4	465	28	60	31	24	31	8	40	175	45	15	15	332	6206ZZ-C3	6206ZZ-C3
132S	15	4	597	38	80	41	33	41	10	49	180	60	17	18	392	6208ZZ-C3	6208ZZ-C3
132M	15	4	597	38	80	41	33	41	10	49	180	60	17	18	430	6208ZZ-C3	6208ZZ-C3

Data are subjected to revisions without any prior notice.

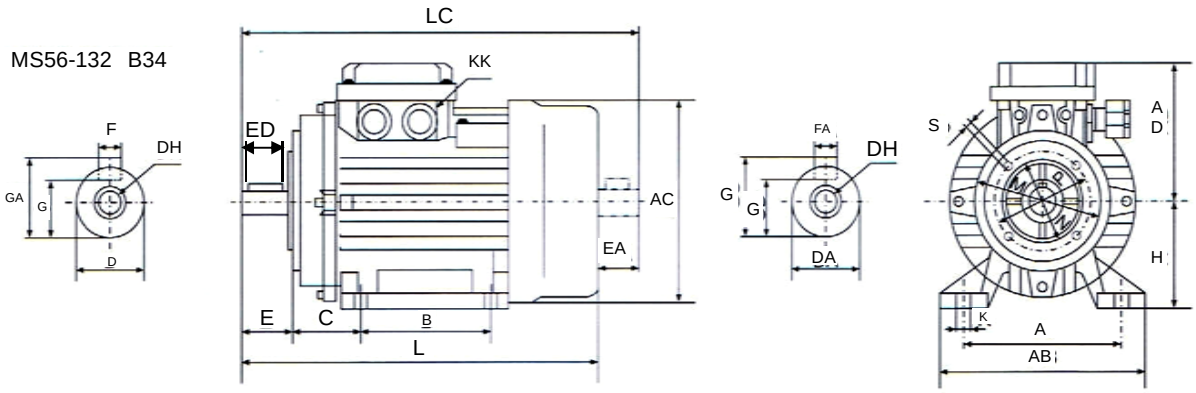
* Only applicable to double-ended shafts; customizable.

MS B14, B34 Mounting and Overall Dimensions

MS56-132 B14



MS56-132 B34



H56~90 without Lifting Bolt.

Frame Size	Overall Dimensions														
	A	AB	AC	AD	B	C	D	DH	E	F	G	H	K	KK	L
56	90	110	110	96	71	36	9	M4X12	20	3	7.2	56	12	2-M18X1.5	189
63	100	122	122	99	80	40	11	M4X12	23	4	8.5	63	13	2-M18X1.5	218
71	112	136	138	109	90	45	14	M5X12	30	5	11	71	13	2-M18X1.5	250
80	125	154	157	112	100	50	19	M6X16	40	6	15.5	80	13	2-M20X1.5	278
90S	140	174	175	120	100	56	24	M8X19	50	8	20	90	17	2-M20X1.5	335
90L	140	174	175	120	125	56	24	M8X19	50	8	20	90	17	2-M20X1.5	335
100L	160	194	196	139	140	63	28	M10X22	60	8	24	100	23	2-M20X1.5	377
112M	190	224	220	156	140	70	28	M10X22	60	8	24	112	22	2-M20X1.5	395
132S	216	256	260	185	140	89	38	M12X28	80	10	33	132	21	2-M25X1.5	472
132M	216	256	260	185	178	89	38	M12X28	80	10	33	132	21	2-M25X1.5	510

Frame Size	Overall Dimensions													Bearings	
	M	N	P	S	T	LC	DA	EA*	GC	GB	GA	FA	ED	DE	NDE
56	65	50	80	M5	3	217	9	20	10.2	7.2	10.2	3	14	6201ZZ-C3	6201ZZ-C3
63	75	60	90	M5	3	238	11	23	12.5	8.5	12.5	4	15	6201ZZ-C3	6201ZZ-C3
71	85	70	105	M6	3.5	274	14	30	16	11	16	5	20	6202ZZ-C3	6202ZZ-C3
80	100	80	120	M6	3.5	330	14	30	16	11	21.5	5	30	6204ZZ-C3	6204ZZ-C3
90S	115	95	140	M8	3.5	385	19	40	21.5	15.5	27	6	40	6205ZZ-C3	6205ZZ-C3
90L	115	95	140	M8	3.5	385	19	40	21.5	15.5	27	6	40	6205ZZ-C3	6205ZZ-C3
100L	130	110	160	M8	4	443	28	60	31	24	31	8	45	6206ZZ-C3	6206ZZ-C3
112M	130	110	160	M8	4	465	28	60	31	24	31	8	45	6206ZZ-C3	6206ZZ-C3
132S	165	130	200	M10	4	597	38	80	41	33	41	10	60	6208ZZ-C3	6208ZZ-C3
132M	165	130	200	M10	4	597	38	80	41	33	41	10	60	6208ZZ-C3	6208ZZ-C3

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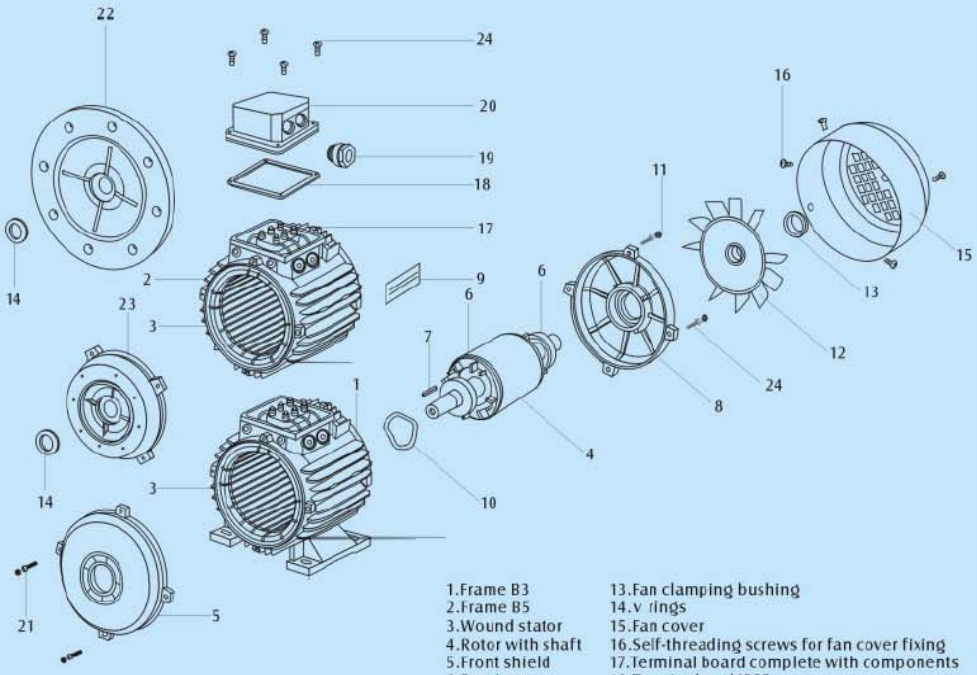
* Only applicable to double-ended shafts; customizable.

MOTOR SPARE PART LIST/DRAWING

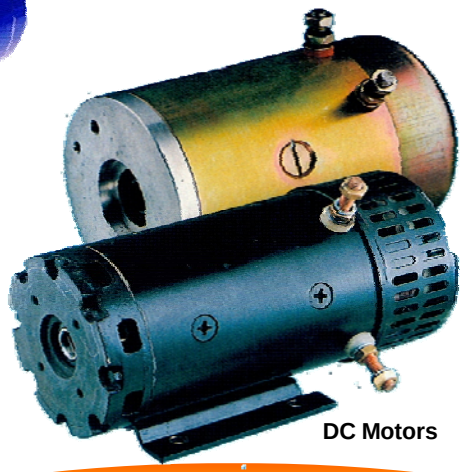


1.Frame B3
2.Frame B5
3.Wound stator
4.Rotor with shaft
5.Front shield
6.Bearings
7.Key
8.Back shield
9.Name plate
10.Spring washer
11.Rods and nuts
12.Cooling fan
13.Fan clamping bushing
14.v rings
15.Fan cover
16.Self-threading screws for fan cover fixing
17.Terminal board complete with components
18.Terminal seal IP55
19.Cable gland
20.Terminal box IP55 (cover)
21.Mounting studs screws
22.Flange B5
23.Flange B14
24.Screws for terminal box fixing IP55

机座号 Frame size	Driving End Bearings	Non driving End Bearings	Oil Seal	PG Thread
56	62012RS/C3	62012RS/C3	Φ12× Φ22×5	PG11
63	62012RS/C3	62012RS/C3	Φ12× Φ22×7	PG11
71	62022RS/C3	62022RS/C3	Φ15× Φ25×7	PG11
80	62042RS/C3	62042RS/C3	Φ20× Φ30×7	PG13.5
90	62052RS/C3	62052RS/C3	Φ25× Φ37×7	PG16
100	62062RS/C3	62062RS/C3	Φ30× Φ42×7	PG16
112	62062RS/C3	62062RS/C3	Φ30× Φ42×7	PG21
132	62082RS/C3	62082RS/C3	Φ40× Φ58×8	PG21

This catalogue is only a reference for users. The concrete data may be changed, please contact with us before ordering.

Three-phase TEFC Electromagnetic Braking Aluminium Motors



DC Motors

Single-phase Motor

Three-phase TEFC Cast Iron Motors

Novelty

High Efficiency

Energy Saving

Low Noise Level

SALES * SERVICE * REPAIR

Range Of Product:

- Three phase asynchronous squirrel-case & slip ring induction motors
- Single phase motors
- Three phase asynchronous self-braking motors
- DC motors
- External rotor motors
- Cooling tower motors
- High efficiency motors
- Explosion proof & increased safety motors
- Anchor winch motors
- High temperature resistant motors
- General motors

Standard Specifications and Features of MS Motors

Item	Standard Specifications
Type of Motor	Totally-enclosed fan-cooled squirrel cage induction motor
Design standards	IEC 60034-1
Voltage and frequency	Standard stock available are : 220-240/380-415V/50Hz for 2.2KW & below 380-415/660-720V/50Hz for 3KW & above other voltages such as 200V, 346V, 440V, 460V & 60Hz etc can be supplied upon request
Power conditions	±5 % of Rated voltage and ± 1% Frequency ± 1% Phase unbalance
Time duty	Continuous S1, MCR (S.F:1.0)
Cooling method	Self external fan, surface cooling (IC 411)
Method of starting	Full voltage direct on line starting or star-delta starting
Mounting	Horizontal foot mounting, flange mounting : B3(IM 1001); B5; B14; B34; B35
Insulation class and Temperature rise	Adopting class F insulation and checking permissible limits of temperature rise against that of class B to improve the insulation reliability
Rotor winding	Squirrel cage, aluminum conductor with end-ring and wafter blades integrally cast
Environmental conditions	Place : Non-hazardous, Shaded Ambient temperature : -20°C to 40°C Relative humidity : Less than 90% RH(non-condensation) Altitude : Up to 1,000 metres above sea level
Drive method	Belt service (Note: F#225 and above is for coupling drive)
Direction of rotation	Standard motors are suitable for operation in either direction of rotation Direction of rotation of motor can be reversed by interchanging any two of the power lines
Test procedure	IEC and full voltage measuring starting operation
Fan cover	Pressed steel
Shaft	Carbon steel, round shaft with key
Bearing	Grease pre-packed shielded ball bearing
Lubrication	Lithium-base grease (Shell Alvania R3)
Painting	Phenolic rust-proof base plus lacquer surface finish; Painting in blue colour
Nameplate	Aluminum
Grounding terminal	NE set inside the terminal box

Att Electric & Machinery Pte Ltd
6 Fifth Lok Yang Road, Singapore 629757
Tel : 65-6261 3579 Fax : 65-6261 1263
Email : att@attelec.com Web : www.attelec.com

Catalogue No : ATT-MS/10/2006