

IM series three-phase ac spindle servo frequency conversion motor

Use and Maintenance Instructions

Xianfeng Motor

Motor pioneer

Wuxi Xianfeng Electric Manufacturing Co., Ltd.

1. General

IM series three-phase ac spindle servo frequency conversion motor has an optimized design in Motor magnetic circuit and structure. It has small electromagnetic vibration, low noises, high-precision rotation and wide speed regulation range of constant torque and constant power. The motor has an aluminum casing and a forced ventilation fan, and it has the advantages of compact structure, high power density, small rotor inertia, quick reacting speed and so on. The motor adopt F grade insulation and high-precision dynamic balance process, and it has a high-precision encoder element which was matched with relevant servo driving device to compose the spindle servo driving system. The low speed torque has small pulsation, and the high speed operation is stable.

2. Model Explanations

IM 18 35 - 10

IM: IM series Ac servo permanent magnet motor

18: The flange outer diameter of the motor installation (marked digital $\times 10$, mm)

35: The motor rated torque (N · m)

10: The motor rated speed (marked digital $\times 100$, rpm)

3. Reception check

- You should check this IM series motor when you receive and open it.
- Check if there were damages during the transportation, rotate the motor spindle by hand and it should be freely rotated (because a oil seal was assembled on the motor shaft extension end, it is normal that there will be a little retardation when you rotate it).
- Besides the motor and this operating instructions, check whether other accessories you ordered are complete.
- Check whether the motor nameplate is in accordance with the products you ordered.

4. Handling and storage

- This product must be handled with care to prevent collision.
- Do not hit the motor spindle, avoid to damage the bearing and encoder.
- Do not forced pulling the motor outgoing lines, so as to avoid the motor operation fault.
- The motor storage temperature is -15°C to 40°C , the relevant humidity should be no more than 85%.
- When the motor junction box cover was open, do not drizzle any liquids in it.

5. Operating Environment

- . The motor should be installed indoors with good ventilation and with out direct sun light.
- . No corrosive and combustibile gas.
- . The ambient temperature is 0 °C to 40°C.
- . The relevant humidity is 20% to 80% (no condensation)
- . Altitude above sea level shall not exceed 1000M.

6. Safety and Matters Need Attention

. Check the motor with tramegger before use, the motor three phase Leading wire to motor casing insulation resistance should be no less than 5MΩ.

. The motor spindle center should be in accordance with the mechanical equipment center when being assembled, or else it may cause vibrations and noises, even cause the motor damages when it is serious.

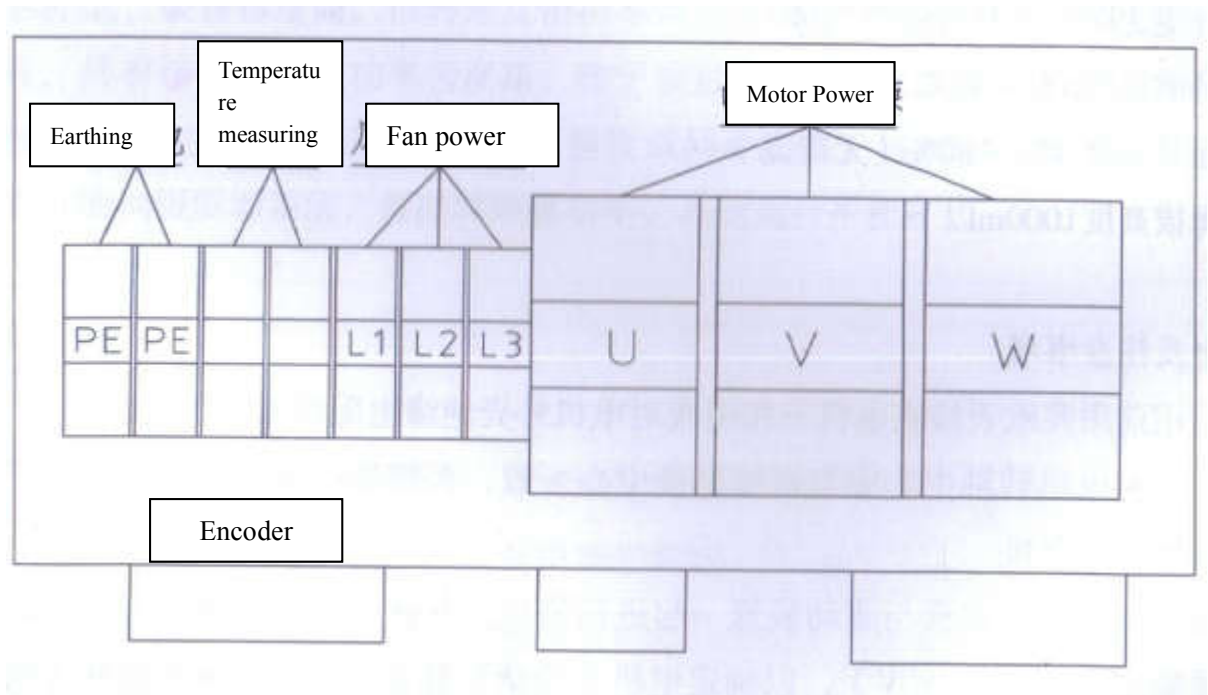
. The motor should be tested with no load together with the driving device before operating, and connect the fan power (the motor and fan power rated voltage is three phase 380V) to confirm whether the motor and driving device is good. The fan rotating direction should be in accordance with the arrow mark on the end.

7. Use and Maintenance

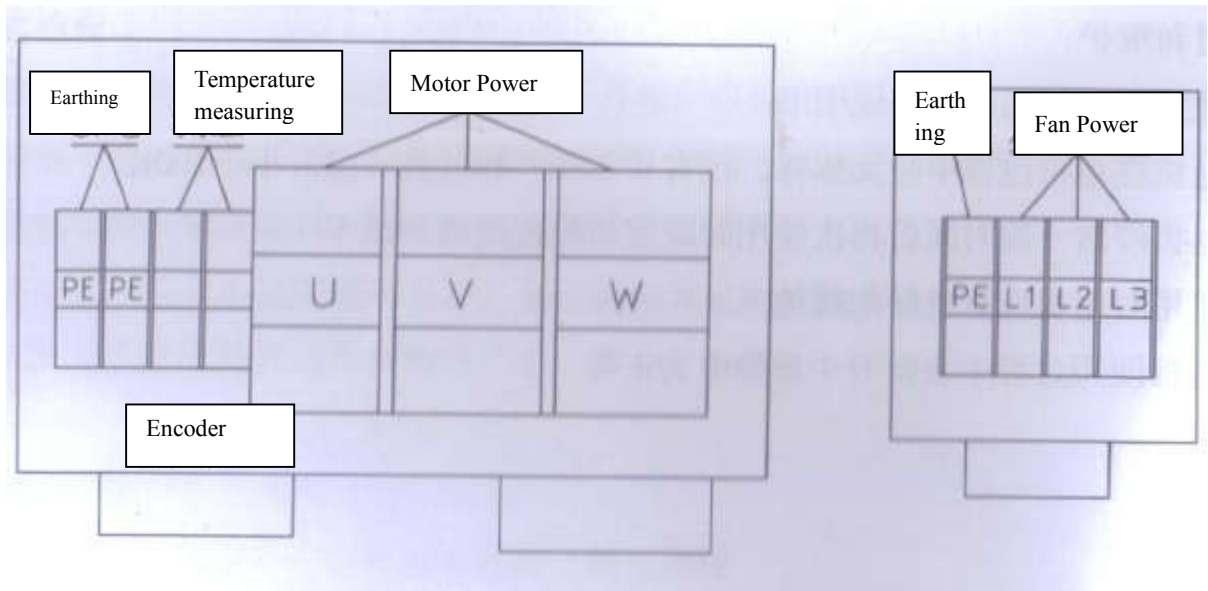
- . Read this instruction carefully before use.
- . There should be no burnt flavor, abnormal noises and overheat (temperature rise less than 100K) during the motor operating.
- . When the motor was put into use after being stalled in a period of time, you should re-check the insulation and test run before you reuse it.
- . The motor should have good earthing during the use.
- . It is normal that there were statics on the motor surface during operating.

8. Connecting Terminal Configuration

The following is the motor wiring diagram of IM180 series



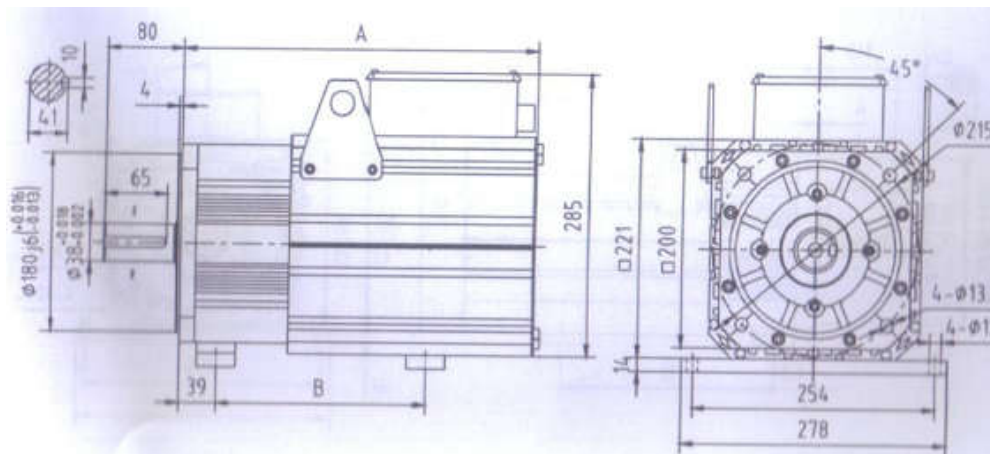
The following is the motor wiring diagram of IM250 series



Parameter list of IM180 series three phase ac asynchronous servo motor (spindle)

Motor Model	Torque N·m	Power kW	Current A	Speed r/min	fundamental frequency Hz	rotation al inertia $g \cdot m^2$	Weight kg	Dimension	
								A	B
电机型号	转矩 N·m	功率 kW	电流 A	转速 r/min	基频 Hz	转动 惯量 $g \cdot m^2$	重量 kg	外形尺寸	
								A	B
IM1814-10	14	1.5	4.9	1000	33	0.014	41	370	170
IM1814-15		2.2	5.9	1500	50				
IM1814-20		3.0	7.7	2000	67				
IM1819-10	19	2.0	6.4	1000	33	0.014	41	370	170
IM1819-15		3.0	7.6	1500	50				
IM1819-20		4.0	11	2000	67				
IM1824-10	24	2.5	7.3	1000	33	0.020	50	415	215
IM1824-15		3.7	9.5	1500	50				
IM1824-20		5.0	11.9	2000	67				
IM1835-10	35	3.7	10.9	1000	33	0.025	58	450	250
IM1835-15		5.5	13.2	1500	50				
IM1835-20		7.5	19.3	2000	67				
IM1848-10	48	5.0	12.8	1000	33	0.032	70	510	310
IM1848-15		7.5	18.6	1500	50				
IM1848-20		10	23.9	2000	67				
IM1871-10	71	7.5	19.5	1000	33	0.040	78	550	350
IM1871-15		11	25	1500	50				
IM1871-20		15	35.7	2000	67				

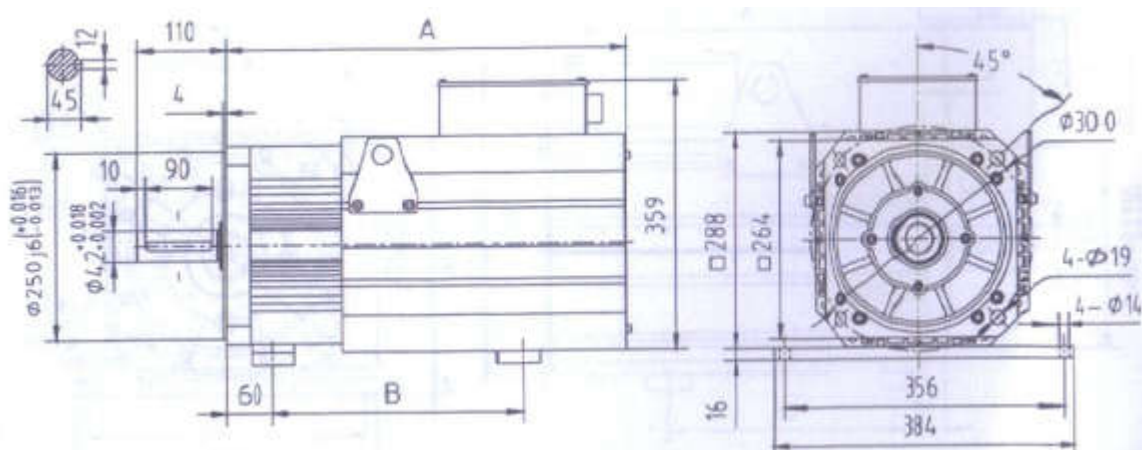
IM180 series motor dimensional drawing (the flange installation is standard configuration, the footing installation should be custom made) unit: mm



Parameter list of IM250 series three phase ac asynchronous servo motor (spindle)

Motor Model	Torque N·m	Power kW	Current A	Speed r/min	fundamental frequency Hz	rotational inertia $g \cdot m^2$	Weight kg	Dimension	
								A	B
电机型号	转矩 N·m	功率 kW	电流 A	转速 r/min	基频 Hz	转动 惯量 $g \cdot m^2$	重量 kg	外形尺寸	
								A	B
IM2535-10	35	3.7	7.8	1000	33	0.042	87	470	215
IM2535-15		5.5	11.1	1500	50				
IM2535-20		7.5	14.7	2000	67				
IM2548-10	48	5.0	10.9	1000	33	0.042	87	470	215
IM2548-15		7.5	15.3	1500	50				
IM2548-20		10	19.9	2000	67				
IM2571-10	71	7.5	14.9	1000	33	0.076	117	550	295
IM2571-15		11	21.4	1500	50				
IM2571-20		15	28.7	2000	67				
IM2595-10	95	10	20.8	1000	33	0.076	117	550	295
IM2595-15		15	29.5	1500	50				
IM2595-20		20	39.7	2000	67				
IM25117-10	117	12.5	24.8	1000	33	0.109	148	635	380
IM25117-15		18.5	35.4	1500	50				
IM25117-20		25	46.5	2000	67				
IM25140-10	140	15	29.9	1000	33	0.109	148	635	380
IM25140-15		22	42.8	1500	50				
IM25140-20		30	56.9	2000	67				

IM250 series motor dimensional drawing (the flange installation is standard configuration, the footing installation should be custom made) unit: mm



Appendix

Motor rotating is not stable	<ul style="list-style-type: none">• Check whether the three phase power line is well connected• Whether the voltage deviation is within the range of $\pm 10\%$• Check whether the encoder line is well connected and whether there is break line
Abnormal noises in the motor	<ul style="list-style-type: none">• Check whether the motor axis center is in accordance with the mechanical equipment center• Check whether all the mechanical parts are tightly connected• Check whether there are foreign matters which may interfere with the mechanical rotating parts• Check whether the bearing has abnormal noises or if it is overheat (temperature less than 95°C).
Motor overheat	<ul style="list-style-type: none">• Check whether the ambient temperature is too high and whether it is well-ventilated.• Check whether the fan rotation is good and whether you can feel obvious air flowing when you put your hand on the motor front shoulder (do not touch the motor to avoid scald).• Check whether the loads are higher than the rated value.• Check whether there were too much dusts and foulings

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