

5. Inspection and maintenance

Periodically perform check and maintenance to assure safe and reliable operation.

Practical considerations for maintenance

- To secure safety during maintenance operation, turning off/on of power supply must be done by the personnel who is responsible for the current maintenance work.
- Do not touch the motor while it is still running or immediately after it stops. (Motor is hot.)
- Before starting the megger testing of the motor (to measure the insulation resistance), completely disconnect it from associated devices and components. Otherwise, the megger tester will damage the devices under test.

Daily check

- Perform the daily check to prevent potential problems.
- Perform appropriate corrective actions upon finding any failure or defective.

Item to be checked	Checking method	Description
Change in voltage	Voltmeter	Rated voltage $\pm 2-3\%$. Although the specification assures normal operation within $\pm 10\%$ deviation, the motor performance and life are not secured.
Load current	Ammeter	As indicated on the nameplate
Ambient temperature	Thermometer	$-10^{\circ}\text{C} - +40^{\circ}\text{C}$
Temperature rise	Thermometer	90°C or below on frame surface (ambient temperature 40°C)
Noise	Auditory perception	No increase in abnormal sound or noise level
Vibration	Vibrometer/feeling	No abnormal vibration
Deposition of powder dust	Visual	Flow or cooling air is not disturbed by dust and powder.
Oil leakage	Visual	No oil or grease from joint to gear head or from output shaft
Insulation resistance	Insulating-resistance tester	Connect the 500V megger across motor lead and earth terminal. The reading should be $50\text{ M}\Omega$ or more.
Grease leakage	Visual	Check exterior and peripheral of motor and gear head for coat of grease or oil. If the leakage will affect the application, use cover as necessary.
Foundation bolt	Torque wrench	Check bolts for loosening and retighten as necessary.

Standard life expectancy

- For typical life expectancy, refer to p. 15 and p. 29 (section 2. Installation).

Guideline for replacement

- No reference established since components and parts should be replaced based on operating condition and method. However, defective or malfunctioning parts should be replaced or repaired.

 DON'T	Consult us when it is necessary to overhaul the assembly.	Incorrect disassembly will cause malfunction.
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6. Troubleshooting

Symptom	Possible cause	Corrective action
Motor does not run.	Wrong wiring	Correct the wiring.
	Applied voltage is out of specification.	Apply correct voltage.
	Not specified capacitor or the capacitor is not correctly connected.	Check the capacitor against the nameplate. Connect the specified capacitor according to the wiring diagram.
Motor runs in reverse direction.	Load is too large.	Reduce the load, or use higher output motor.
	Wrong wiring	Correct the wiring.
	Wiring does not match the reduction ratio of the gear head.	Correct the wiring to match the rotating direction of the output shaft.
Motor temperature is too high.	The capacitor is not connected as specified in the wiring diagram.	Correctly connect the capacitor.
	Viewing the motor from wrong side.	When checking the direction of the shaft, view the motor from its output shaft side.
Motor temperature is too high.	The voltage of the supply is out of spec.	Apply the specified voltage.
	The capacitance of the capacitor is out of spec.	Use a capacitor of the specified capacitance.
	Frame surface temperature of the motor depends on the ambient temperature, loading and start/stop cycles. If the temperature is over 90°C , the motor may become defective.	If the temperature on the frame surface exceeds 90°C , use a higher output motor. Otherwise, reduce the load.

7. Specification

General specification

Item	Specification		
Time rating	Induction motor	Reversible motor	3-phase motor
	Continuous	30 minutes	Continuous
Basic specification	Supply voltage permissible variable range	$\pm 10\%$ (nameplate rating)*	
	Power supply frequency	50/60 Hz (nameplate rating)	
	Ambient conditions	See section 2. Installation (p. 9).	
Cooling method	Natural air-cooling (variable speed 90 W: forced cooling)		
Heat resistance class	130 (B)		

* $\pm 10\%$ does not mean level of continuously applicable voltage.