




Motor Storage

One thing that is typically overlooked is how spare motors are stored. Over time, moisture, dirt, dust, and even general vibration from other sources can have a negative impact on the electrical and mechanical condition on the stored motors. Stored motors should be periodically wiped down and cleaned to ensure proper functionality when the motor is installed. The shaft of the motor should be periodically rotated to keep the grease inside the bearings from drying out or separating. It is recommended to rotate the shaft once a month but at a minimum the motor shaft should be rotated quarterly.

High humidity in a storage facility can also negatively impact the insulation system of the motor. Condensation can condense directly on the windings which will start to degrade the insulation material leading to premature motor failure once installed in the machine. If the storage area does reach the dew point, heaters or dehumidifiers should be installed to prevent condensation.

Motor tags are an important component of storage. Motor tags should have general motor data, date of receipt in storage, and the storage maintenance requirements for the motor such as monthly or quarterly shaft turn, insulation & resistance readings. Other maintenance and measurement variables can be added to the tag depending on what criteria and test instrumentation the storage facility employs.

Company	_____	Motor Type	_____
Location	_____	Manufacturer	_____
Equipment ID	_____	Serial Number	_____
Connection	_____		
Test Interval	_____		
	Phase 3-2	Phase 2-1	Phase 1-3
Resistance	_____	_____	_____
Impedance	_____	_____	_____
Inductance	_____	_____	_____
Fi	_____	_____	_____
I/F	_____	_____	_____
Dissipation Factor	_____		
Capacitance	_____		
Insulation	_____		
TVS	_____		
Test Date	_____		



Before installation of the stored motor, ALL-TEST Pro recommends performing a Motor Circuit Analysis™ (MCA™) test to ensure winding degradation has not occurred while the motor has sat in the storage facility. This test can also be utilized as a baseline test that can be compared to and trended to in the future while the motor is in storage or after the spare motor has been installed.

		32	21	13	
Resistance (Ω)	OK	26.1	25.3	26.1	2.24
Impedance (Ω)		68.5	65.9	70.8	3.65
Inductance (mH)		101	96.9	105	3.95
Phase Angle (°)	OK	48.5	47.8	49.1	0.628
I / F (%)	OK	-37.5	-37.5	-38.2	0.492
Stator					
Rotor					
Insulation (MΩ)	OK	>999	MΩ	TVS	205
Contamination(%)	OK	4.22%		Ref Value	
Capacitance (nF)		20.6	nF		
Frequency (Hz)		100	Reference		

Direct Test At Motor Manual Values

Any change in the TVS signifies a change in the motor windings, ground, rotor, cabling, etc. The initial test should indicate all three phases of the motor are symmetrical and do not indicate any contamination nor ground faults. A TVS™ test value can be compared to future tests on the same motor and any deviation between the values signifies a change in the motor system due to a developing motor fault.