



INSPECTION FORM VARIABLE FREQUENCY DRIVE, 600V, <37 kW

ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

VFD Data	Load:	VFD Location:	Cell #:		
	VFD:	Manufacturer:	Model:	Serial #:	
		Size:	Rated Voltage: V	Current Rating: A	Control Voltage: V
	Circuit Protection:	<input type="checkbox"/> Fused Disc.	Rating: A	Fuse Size: A	Fuse Mfg. Model:
		<input type="checkbox"/> Breaker	Rating: A	Inst. Setting: A	Manufacturer: Model:
	Line Reactor:	<input type="checkbox"/> Present <input type="checkbox"/> N/A	Rating:	Manufacturer: Model:	
	Load Reactor:	<input type="checkbox"/> Present <input type="checkbox"/> N/A	Rating:	Manufacturer: Model:	
	Bypass Contactor:	Type: <input type="checkbox"/> NEMA <input type="checkbox"/> IEC <input type="checkbox"/> N/A	Manufacturer: NEMA Size:	Model: IEC Rating: A <input type="checkbox"/> AC-3 <input type="checkbox"/> AC-4	
	Bypass Overload Protection:	<input type="checkbox"/> Thermal <input type="checkbox"/> Electronic <input type="checkbox"/> Not Applicable	Class: <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> Unknown	Setting / Rating: A Manufacturer: Model:	
	Control Power Transformer:	Size: VA	Sec. Voltage: V	Primary Fuse: A Secondary Fuse: A	
Current Transformer:	Ratio:	Type:			

Motor Data	ID:	Size: kW / HP	Voltage: V
	Full Load Amps: A	Service Factor: <input type="checkbox"/> 1.00 <input type="checkbox"/> 1.15	Inverter Duty <input type="checkbox"/> Yes <input type="checkbox"/> No Other:

Visual Inspection / Cleaning	Starter Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Support Insulators: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Electro/Mechanical Interlock: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Contactors Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Door Mechanical: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Contact Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Verify Bypass O/L element is correctly sized for the load: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Exercise Circuit Breaker/MCP/Disconnect <input type="checkbox"/> Yes
	Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Cleaned: <input type="checkbox"/> Yes Photograph Taken: <input type="checkbox"/> Yes
	Comments:	



**INSPECTION FORM
VARIABLE FREQUENCY DRIVE, 600V, <37 kW**

ID:

Contact / Pole Measurements	Test	A	B	C	Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Bypass Contactor Contact Resistance ($\mu\Omega$)				
	Breaker/Disconnect Resistance ($\mu\Omega$)				
	Main Fuse Resistance ($\mu\Omega$)				
Comments:					

Insulation Resistance Test	Test Preparation: Source: <input type="checkbox"/> Isolated Cable Dest. / Load: <input type="checkbox"/> Disconnected Contactor: <input type="checkbox"/> Open <input type="checkbox"/> Connected with Load Isolated					Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	WARNING: DISCONNECT ALL POWER CABLES FROM VFD MODULE AND ALL CONTROL POWER FUSES PRIOR TO TEST.						
	Test	Voltage	Insulation Resistance ($M\Omega$)			Ground all phases not under test!	Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
			A	B	C		
	Disconnect Line to GND	1000 VDC					
	Disconnect Load to GND	1000 VDC					
	Disconnect Line to Load	1000 VDC					
	Bypass Contactor Line To GND	1000 VDC					
Bypass Contactor Load To GND	1000 VDC						
Bypass Contactor Line to Load	1000 VDC						
Comments:							



INSPECTION FORM
VARIABLE FREQUENCY DRIVE, 600V, <37 kW

ID:

Operational Inspection	Test Preparation: Run motor at full load.							
	Ramp Up Time	Specified: sec		Actual: sec		Comments:		
	Measured Motor Current	ØA	A	ØB	A		ØC	A
	VFD Motor Current	ØA	A	ØB	A		ØC	A
	Remote (RTU/PLC/DCS) Displayed Motor Current:	A						
	Ramp Down Time	Specified: sec		Actual: sec				

Settings	Record Parameters and Settings on Separate Sheet.		Comments:
	Completed:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Final Analysis	Returned to Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.



INSPECTION FORM MOTOR STARTER, FVNR, 600V

Page 1 of 2

ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Starter Data	Load:		Starter Location:			Cell #:		
	Manufacturer:		Type:		Serial #:			
	Size:		Rated Voltage: V		Current Rating: A		Control Voltage: V	
	Circuit Protection:	<input type="checkbox"/> Fused Disc.	Rating: A		Fuse Size: A		Fuse Mfg. Model:	
		<input type="checkbox"/> Breaker <input type="checkbox"/> MCP	Rating: A		Inst. Setting: A		Manufacturer: Model:	
	Overload Protection:	<input type="checkbox"/> Thermal <input type="checkbox"/> Electronic <input type="checkbox"/> Intelligent		Class: <input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> Unknown		Setting / Rating: A		Manufacturer: Model:
								Manufacturer: Model:
	Control Power Transformer:		Size: VA		Sec. Voltage: V		Primary Fuse: A Secondary Fuse: A	
Current Transformers:		Phases: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C		<input type="checkbox"/> None		Ratio: Ground Fault CT: <input type="checkbox"/> Present <input type="checkbox"/> Not Present Ratio:		

Motor Data	ID:		Size: kW / HP		Voltage: V	
	Full Load Amps: A		Service Factor:		Other:	

Visual Inspection / Cleaning	Starter Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No		Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Support Insulators: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Connections <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Electro/Mechanical Interlock: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Contactor Condition: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Door Mechanical <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor		Contact Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Verify O/L element is correctly sized for the load: <input type="checkbox"/> Yes <input type="checkbox"/> No		Exercise Circuit Breaker/MCP/Disconnect <input type="checkbox"/> Yes	
	Cables Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No		Unit Cleaned: <input type="checkbox"/> Yes	Photograph Taken: <input type="checkbox"/> Yes
	Comments:			

Contact/Pole Measurements	Test	A	B	C	Test Summary	
	Contact Resistance ($\mu\Omega$)					<input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	Disconnect / Breaker / MCP Resistance ($\mu\Omega$)					
	Fuse Resistance ($\mu\Omega$)					
Comments:						



**INSPECTION FORM
MOTOR STARTER, FVNR, 600V**

ID:

Insulation Resistance Test	Test Preparation: Source: <input type="checkbox"/> Isolated Cable Dest. / Load: <input type="checkbox"/> Disconnected Contactor: <input type="checkbox"/> Open <input type="checkbox"/> Connected with Load Isolated					Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Test	Voltage	Insulation Resistance (MΩ)			Ground all phases not under test!	
			A	B	C		
	Contactor Line To GND	1000 VDC				Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed	
	Contactor Load To GND	1000 VDC					
Contactor Line to Load	1000 VDC						
Comments:							

Final Analysis	Returned to Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

	INSPECTION FORM AC MOTOR, LOW VOLTAGE	Page: 1 of 2 <hr/> ID:
---	--	---------------------------

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Motor Data	Size: kW / HP	Voltage: V	R.P.M:	
	Manufacturer:	Model:	Serial Number:	
	Frame Type:	FLA: A	Service Factor:	Other:
	Cooling: <input type="checkbox"/> Air <input type="checkbox"/> Fan	# Cooling Fans:	Winding Material:	

Visual Inspection / Cleaning	Motor Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Connections: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Air Baffles: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Paint: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Filter Media: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Cooling Fans: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Fan Controls: <input type="checkbox"/> N/A <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor
	Anchorage/Alignment: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Ground Connection: <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	
	Mechanical/Electrical Noise During Operation: <input type="checkbox"/> Yes <input type="checkbox"/> No	Lubrication Required: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Cleanliness (As Found): <input type="checkbox"/> Good <input type="checkbox"/> Acceptable <input type="checkbox"/> Poor	Unit Cleaned: <input type="checkbox"/> Yes Photograph Taken: <input type="checkbox"/> Yes

Winding Insulation Resistance	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°C)	Resistance (MΩ)			Dielectric Absorption Ratio	Polarization Index (a)
				30 Sec	1 min.	10 min. (a)		
		500	40				-	-
		500	40				-	-
		500	40				-	-
Notes:								
(a) Testing to 10 minutes and calculation of Polarization Index is only required for motors > 150 kW (200 HP)								
Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed								

Winding Resistance	Resistance (μΩ)			Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
	A - B	B - C	A - C	
Comments:				



INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 2 of 2

ID: _____

Bearing Insulation Resistance	<input type="checkbox"/> Not Applicable				
	Bearing	Test Voltage (Vdc)	Bearing Temperature (°C)	Resistance (MΩ)	
				1 min.	Corrected to 40°C
		500			
		500			
Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed					


RTD Resistance	<input type="checkbox"/> Not Applicable					
	Actual Winding Temperature: _____ °C			Actual Bearing Temperature _____ °C		
	RTD	Resistance (Ω)	Calculated Temperature (°C)	RTD	Resistance (Ω)	Calculated Temperature (°C)
Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive. Further Investigation Required. <input type="checkbox"/> Test Failed						

Note: Test connection resistance of bolted connections. Report on cable inspection sheet.

Final Analysis	Returned to Service:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	Repair / Replacement Required:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

	INSPECTION FORM POWER CABLE < 1000V		Page 1 of 1
			Cable ID:
Project	Facility:	Project Name:	
	Area :	Bid Opportunity:	

Cable Data	Source:		Dest. / Load:	
	Manufacturer:		Type:	Conductor: <input type="checkbox"/> Copper <input type="checkbox"/> Aluminum
	No. of Conductors:	Size: <input type="checkbox"/> AWG <input type="checkbox"/> MCM	Length: m	<input type="checkbox"/> Measured <input type="checkbox"/> Previous Data <input type="checkbox"/> Jacket Markings <input type="checkbox"/> TDR
	Rated Voltage: V	Operating Voltage: V	Date Installed:	
	Installation: <input type="checkbox"/> Cable Tray <input type="checkbox"/> EMT <input type="checkbox"/> Alum. Conduit <input type="checkbox"/> Direct Buried <input type="checkbox"/> Strapped <input type="checkbox"/> Steel Conduit <input type="checkbox"/> PVC Conduit <input type="checkbox"/> Underground Duct	Other:		

Visual Inspection	Physical Damage on Exposed Ends: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cable Identification Tag Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Visual Signs of Overheating: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cable Supported Appropriately: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Bend Radius Acceptable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:

Insulation Resistance Test	Test Preparation: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Source Isolated	Source: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Cable Dest. / Load: <input type="checkbox"/> Disconnected <input type="checkbox"/> Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Cable Temperature: °C		Temperature Correction Factor for 20°C:	Ground all conductors not under test for each reading.	
	Test Voltage	Insulation Resistance (MΩ)			Test Summary <input type="checkbox"/> Test Passed <input type="checkbox"/> Test Inconclusive Further Investigation Required. <input type="checkbox"/> Test Failed
			A-GND	B-GND	
	V	Reading			
	Corrected to 20°C				
Utilize 1000VDC Test Voltage for 600V rated cables, 500VDC for cables rated <= 300V.					
Comments:					

Connection Resistance	Note: Torque check required for all cables. Connection Resistance Test required for cables 4/0 AWG or larger.					
	Termination	Connection Resistance (μΩ) - As Left				Torque Check
		A	B	C	N	
	Source					<input type="checkbox"/> OK
	Dest. / Load					<input type="checkbox"/> OK
Comments:						

Final Analysis	Cable Returned to Service: <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
	Monitoring / Further Inspection Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Repair / Replacement Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				