

ELECTRICAL LABORATORY- TEST REPORT
Safety of Machinery -Electrical Equipment of The Machines
Part 1: General Requirements

Test Report N^o.....
 Date of issue..... 19-10-2015
 Sample date in..... 11-09-2015
 Date of performance..... 11-09-2015 to 11-09-2015
 Applicant.....
 Customer.....

Sample description..... Control panel For 12x8 Monoblock Pick & Place Machine
 Sample Condition..... Ok
 Customer reference..... N/A



Trade mark / Manufacturer
 Model / Type / Reference..... PRFS-12/8
 Ratings..... 415 VAC, 3 Phase, 50/60 Hz, 9Amp
 Test method(s)..... BS EN 60204-1:2006+A1:2009

Overall verdict **Pass**
 Fail

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BS EN 60204-1			
Clauses	Requirement – Test	Results – Remarks	Verdict
5.	INCOMING SUPPLY CONDUCTOR TERMINATIONS AND DEVICES FOR DISCONNECTING AND SWITCHING OFF		
5.1	Incoming supply conductor terminations		
	The electrical equipment of the machine shall have only one incoming supply connection	Single Incoming Supply	P
	Unless a plug is supplied it is recommended that the supply conductors are terminated at the supply disconnecting devices		N/A
	Neutral conductor “N” should be indicated in the technical documentation and label “N” is provided at neutral conductor	Neutral conductor identified as ‘N’	P
	There shall be no connection between neutral conductor and protective bonding circuit or combined PEN-terminals.	The neutral & protective bonding circuit has separate wires	P
	All terminals of incoming supply shall be clearly marked	(Clear indication for supply voltage provided)	P
5.2	Terminal for connection to external protective Earthing system		
	Terminal for connection of external protective conductor provided and marked with “PE” or with graphical symbol  or by use of bicolor combination GREEN/YELLOW	Bolt provided for PE terminal & graphical symbol  applied	P
	Cross section of incoming PE conductor shall be according to table 1	In Compliance	P
5.3	Supply disconnecting device		
5.3.1	A supply disconnecting device shall be provided for each incoming supply to the machine.	Main Isolator selector Switch provided	P
5.3.2	The supply disconnecting device shall be one of the following:		
	a) A switch-disconnector with or without fuses		N/A
	b) A disconnector with or without fuses, which has an auxiliary contact that in all cases causes switching device to break the load circuit.		N/A
	c) circuit breaker suitable for isolation		N/A

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BS EN 60204-1			
Clauses	Requirement – Test	Results – Remarks	Verdict

5.4	Disconnecting devices to prevent unexpected start-up		
	Means shall be provided to prevent unexpected start up		P
	Suitable placed	In compliance	P
	Readily identifiable	In compliance	P
	<i>Devices used for isolation function can be used for this purpose such as Disconnectors ,withdraw able fuse links</i>		P
	<i>Devices that do not provide the isolation function may also be used where e.g contactor switch</i>		
	<ul style="list-style-type: none"> • There is no hazard from electric shock 		P
	<ul style="list-style-type: none"> • The switching off means remains effective throughout the work 		P
	<ul style="list-style-type: none"> • The work is of minor nature 		N/A
5.5	Devices for disconnecting electrical Equipments		
	Devices shall be provided for disconnecting (isolating) electrical equipment	MCBs provided	P
	Such devices shall be suitably placed	MCB, suitably placed in the electrical panel	P
	Readily identifiable		P
	Provided with adequate means to prevent unauthorized, inadvertent and /or mistaken closing except as allowed in 5.6		P
5.6	Protection against unauthorized, inadvertent and/or mistaken connection		
	The disconnecting devices that are located outside an enclosure shall be provided with locking means		P
	Other means of protection against reconnection (e.g. warning labels) may be used for non-lockable disconnecting devices (e.g. withdraw able fuse-links) may be provided		N/A
	When a plug/socket combination is so positioned that it can be kept under immediate supervision, <i>means for securing need not be provided.</i>		N/A

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	additional safety procedures		
17.8	Maintenance manual		N/A
	Technical documentation shall contain a maintenance manual, detailing proper procedures for adjustment, servicing or preventive inspection and repair		N/A
	Recommendations regarding maintenance or service records are part of it.		N/A
	Methods for the verification of proper operation provided.		N/A
17.9	Parts list		N/A
	The parts list shall comprises as a minimum information for ordering of spares or replacement parts		N/A
	The parts list shall show for each item		N/A
	<ul style="list-style-type: none"> Reference designation used in documentation and type designation 		N/A
	<ul style="list-style-type: none"> supplier and alternative sources where applicable 		N/A
	<ul style="list-style-type: none"> general characteristics where appropriate 		N/A
18	VERIFICATION		
18.1	Verification, that electrical equipment is in compliance with the technical documentation		P
18.2	Verification of conditions for protection by automatic disconnection of supply		
	Verification of conditions for protection by automatic disconnection of supply shall be verified by tests		
	<ul style="list-style-type: none"> To be done by the manufacturer of the machine 		P
	<ul style="list-style-type: none"> To be done on site when the machine is installed 		N/A
	The disconnecting time should be as per Table A.1 of annex A		N/A
	<ul style="list-style-type: none"> Ground bond test with 10A and 24V and resistance should be less then 0.1Ω 	 <p>Measured Resistance is 63.8mΩ</p>	P

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18.3	Insulation Resistance test		
	Insulation resistance measured with 500V DC between power circuit conductors and PE circuit is to be 1 MΩ. Test made on individual sections of complete electrical installation	 <p>Measured resistance value is 2800 MΩ</p>	P
18.4	Voltage test		
	Electrical equipment should withstands a test voltage applied twice the rated equipment or 1000V whichever is higher for 1 sec.	 <p>No voltage break down and no flashover occur</p>	P
18.5	Protection against residual voltage		
	Tests for protection against residual voltages are performed to ensure compliance with Cl. 6.2.4		N/A
18.6	Functional tests		
	The functions of electrical equipment shall be tested		P

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Test Results:

Sr. No	TEST CONDUCTED	TEST CONDITIONS	TEST REQUIREMENTS	RESULTS
01	HIGH VOLTAGE TEST	Test voltage: 1KV/50 Hz Test Duration: 1second Test Part: Between conductors of all circuits & protective bonding circuit.	Shall withstand without breakdown	P
02	INSULATION RESISTANCE TEST	Test Voltage: 500V D.C Test part: Between power circuit conductors & protective bonding	Shall not be Less than 1 MOhm	P (Rmeas → 2800 MΩ)
03	EARTH CONTACT RESISTANCE TEST	Test Current: 10A/24V Test Part: Between protective earth terminals and body that is part of the protective bonding circuit.	Calculated Earth Contact Resistance from current & drop in voltage shall not exceed 0.1 ohm	P (Rmeas → 63.8 mΩ)
		Test Current: 10A/24V Test Part: Between protective earth terminals and door that is part of the protective bonding circuit.		P (Rmeas → 21.9 mΩ)

REMARKS:

1. All the tests conducted as per the standard specification.
2. The test results pertain to the sample submitted for testing.
3. Abbreviations used:
Info - Information, Mfr. - Manufacturer, NM - Not Mentioned, IP- Ingress Protection, Cl. - Clause,
Temp. - Temperature, Ckt. - Circuit, amb. - Ambient, Sr. No. - Serial number, N/A-Not applicable, P-Pass