



working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Format: F#07 b.1 Rev 10

TYPE TEST REPORT

IEC 60529

Degrees of Protection Provided by Enclosures (IP Code)

Report No. : KLPL/BTG/23/06-112

ULR No. : TC411023000000087F

Discipline : Electrical Discipline

Group/Category : Environmental Test Facility

Sub-category : Ingress protection test

Date of issue : 13.07.2023

No. of pages : 06 PAGES

Compiled by (+ signature)..... : Rohit Patil

Designation: Testing Engineer

Approved by (+ signature)..... : Javed Shaikh

Designation: Dy.Laboratory Manager



Item Received On : 29.06.2023 in Good Condition

Test Completion Date : 01.07.2023

Client

Name : M/S. Pushkaraj Enterprises, Pushkaraj House
: Kulashree Colony No.3, Opp.Cummins College Road,
Karvenagar, Pune-411022.

Test Specification

Standard : IEC 60529:1989/AMD2:2013/COR1:2019

Specified IP-Code : IP66

Equipment Under Test

Type of Test Object : Proximity Probe

Model : Mx 8030 Probe

Serial No. : Required

Manufacturer : M/S. Metrix Instrument Co.
: 8824 Fallbrook Dr Houston TX 77064.

Annexure :-

Drawing No. : ---

NOTE : 1) This refers only to the particular item(s) submitted for testing.

2) If necessary, this report shall be reproduced ONLY in full.



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com



working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Report No.: KLPL/BTG/23/06-112

Date: 13.07.2023

Possible test case verdicts:

Test case does not apply to the test object : N (Not Applicable)

Test object does meet the requirement..... : P (Pass)

Test item does not meet the requirement : F (Fail)

Test case has not been checked : _____

General remarks:

"(See remark #)" refers to a remark appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This test report shall not be reproduced except in full without the written approval of the testing Laboratory.

IP6X test conducted at Laboratory (Boisar).

IPX6 test conducted at Laboratory (Boisar).

Note: - MAJOR EQUIPMENTS USED

Tests	Required Instruments	Id. No.	Cal Due Date	Used Y/N
5X / 6X	Vacuum Meter	K&A 1108/1-17	31.01.2024	N
	Rotameter	K&A 426	05.01.2024	N
	DTC with sensor	K&A 047/1	06.08.2023	Y
	Timer	K&A 047/2	08.08.2023	Y
X6	Nozzle 12.5 mm Dia	K&A 382	12.04.2024	Y
	Rotameter	K&A 1103-17	31.01.2024	Y
	Stop Watch	K&A 1171-18	07.10.2023	Y
	Safety Analyzer	K&A 789-14	21.12.2023	Y



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com



working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Report No.: KLPL/BTG/23/06-112

Date: 13.07.2023

IEC 60529			
Clause	Requirement - Test	Result- Remark	Verdict
10	Marking.	--	N
11	General requirement for tests.		
11.1	Tests should be carried out under the standard atmospheric conditions described in IEC 60068-1	Followed	P
11.2	Test samples shall be in a clean and new condition.	Sample found clean	P
	The relevant product standard shall specify details such as: The number of samples to be tested;	One	P
	-conditions for mounting, assembling and positioning of the samples;	Vertical	P
	-the pre-conditioning, if any, which is to be used;	--	N
	-whether to be tested energized or not;	--	N
	-whether to be tested with its parts in motion or not;	Non-Operational	P
11.5	Empty enclosures		
	If the enclosure is tested without equipment inside, the manufacturer shall ensure that after the electrical equipment is enclosed the enclosure meets the declared degree of Protection of the final product.	--	N

12	Tests for protection against access to hazardous parts indicated by the first characteristic numeral.				
First, characteristic Numeral.	Test means (Access probes)	Test force	Test Conditions Refer IEC 60529	--	N
0	No test required	-	-	--	N
1	The access probe, sphere of 50 mm \emptyset shall not fully penetrate and adequate clearance shall be kept.	50N $\pm 10\%$	Cl.12.2	--	N
2	The jointed test finger may penetrate up to 80 mm length but adequate clearance shall be kept.	30N $\pm 10\%$	Cl.12.2	--	N
3	The access probe, sphere of 2.5 mm \emptyset shall not penetrate and adequate clearance shall be kept.	3N $\pm 10\%$	Cl.12.2	--	N
4	The access probe of 1.0 mm \emptyset shall not penetrate and adequate clearance shall be kept.	1N $\pm 10\%$	Cl.12.2	--	N
5	Test conditions for IP 5X: Same As Above	1N $\pm 10\%$	Cl.12.2	--	N
6	Test conditions for IP 6X: Same As Above	1N $\pm 10\%$	Cl.12.2	--	N



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com



working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Report No.: KLPL/BTG/23/06-112

Date: 13.07.2023

IEC 60529					
Clause	Requirement – Test			Result-Remark	Verdict
13	Tests for protection against solid foreign objects indicated by the First characteristic numeral.				
First, characteristic Numeral.	Test means (object probes and dust chamber)	Test force	Test Conditions Refer IEC 60529	--	N
0	No test required	-	-	--	N
1	Rigid sphere without handle or guard 50 mm diameter.	50N ±10%	Cl.13.2	--	N
2	Rigid sphere without handle or guard 12.5 mm diameter.	30N ±10%	Cl.13.2	--	N
3	Rigid steel rod 2.5mm diameter with edges free from burrs	3N± 10%	Cl.13.2	--	N
4	Rigid steel wire 1, mm diameter with edges free from burrs.	1N± 10%	Cl.13.2	--	N
5	Dust chamber, Enclosure with under pressure	NA	Cl.1.4+13.5	--	N
6	Dust chamber, The enclosure is maintained below the Surrounding atmospheric pressure by a vacuum pump.	NA	Cl.13.4+13.6	For 8 Hrs, No Vacuum, Category 2	P
13.6.2	Acceptance conditions for the first characteristic numeral 6X. The protection is satisfactory if no hazardous deposit of dust is observable inside the UUT at the end of test.			No ingress of water observed inside the UUT. After dust test, HV test was done between all live terminals are shorted together & body of UUT, applied voltage 0.5kV for 1 min. Observation: -The sample withstood the test voltage.	P



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com



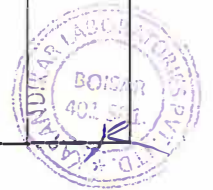
working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Report No.: KLPL/BTG/23/06-112

Date: 13.07.2023

IEC 60529				
Clause	Requirement – Test		Result-Remark	Verdict
14	Tests for protection against water indicated by the second characteristic numeral.			
Second, characteristic Numeral.	Test means	Test Conditions Refer IEC 60529	--	N
0	No test required	Cl.14.2.0	--	N
1	Drip box, Enclosure on turntable	Cl.14.2.1	--	N
2	Drip box, Enclosure in 4 fixed positions of 15 ° tilt	Cl.14.2.2	--	N
3	oscillating tube or spray nozzle, 60° from vertical	Cl.14.2.3	--	N
4	oscillating tube or spray nozzle, 180° from vertical	Cl.14.2.4	--	N
5	6.3-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 12.5 l/min ±5%	Cl.14.2.5	--	N
6	12.5-mm nozzle, tested with a spraying nozzle, distance 2.5 m to 3 m, water flow rate 100 l/min	Cl.14.2.6	12.5 mm nozzle, Flow rate 100 lit/min, 2.5 – 3 m distance, 3 min duration.	P
7	Immersion tank, Temporary immersion	Cl.14.2.7	--	N
8	Immersion tank, Continuous immersion subject to agreement. Water temperature does not differ from that of equipment by more than 5K.	Cl.14.2.8	--	N
-	Acceptance conditions for IPX6: The protection is satisfactory if no water has accumulated near the insulation, cable end or entered cables or interferes with the correct operation of the equipment.	Cl.14.3	No ingress of water observed inside the UUT. After water test, HV test was done between all live terminals are shorted together & body of UUT, applied voltage 0.5kV for 1 min Observation:- The sample withstood the test voltage.	P



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com



working for a safer tomorrow

KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Report No.: - KLPL/BTG/23/06-112

Date: 13.07.2023

SUMMARY OF INGRESS PROTECTION TESTS ACCORDING TO IEC 60529:1989/AMD2:2013/COR1:2019

Conclusion of the IP66 test: PASS.

The results of the tests were in compliance with the requirements in the standard IEC 60529:1989/AMD2:2013/COR1:2019

UUT=Unit Under Test



Picture 1: Proximity Probe

END OF REPORT



Head Office: B-101, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (E) Mumbai-400072 INDIA Ph: (022) 28471395

Laboratory: Gat#142, Betegaon, Boisar Chilhar Road, Opp. Union Park, Boisar (E) Tal-Palghar, Dist-Palghar. 401501 INDIA

Phone (02525) 284881/931

Email: sales@karandikarlab.com

Website: www.karandikarlab.com