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KARANDIKAR LABORATORIES PVT. LTD. BOISAR

Format: F#07 b.1 Rev 10

TYPE TEST REPORT

IS/IEC 60529:2001 (RA 2019)

Degrees of Protection Provided by Enclosures (IP Code)

TC-6311

Report No. ..... : **KLPL/BTG/22/11-75**

ULR No. .....: TC631122000000543F

Discipline .....: Electrical Discipline

Group/Category .....: Environmental Test Facility

Sub-category ..... : Ingress protection test

Date of issue..... : **26.11.2022**

No. of pages ..... : 06 PAGES + Annexure

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

Designation: Testing Engineer

Approved by (+ signature)..... : Atul Marathe

Designation: Technical Manager

Item Received On ..... : 21.11.2022 in Good Condition

Test Completion Date ..... : 23.11.2022

Client

Name ..... : **M/s. Kaustubha Udyog**

: Survey No.36/1/11, Sinhagad Road, Vadgoan Khurd,
Near Lokmat Press, Pune-411041.

Test Specification

Standard ..... : **IS/IEC 60529:2001 (RA 2019)**

Specified IP-Code .....: **IP66**

Equipment Under Test

Type of Test Object .....: **Pressure Switch**

Model No. ..... : MZ Series

Sr. No..... : A22114523

Manufacturer .....: **M/s. Kaustubha Udyog**

Annexure :

Drawing No.....: A36 GA 076, Rev.No.00, Dated:14.11.2022, (01 Page)

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

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

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	04.02.2023	Y
	Rotameter	K&A 426	02.01.2023	Y
	DTC with sensor	K&A 047/1	05.01.2023	Y
	Timer	K&A 047/2	26.01.2023	Y
X6	Nozzle 12.5 mm Dia	K&A 382	08.04.2023	Y
	Rotameter	K&A 1103-17	15.03.2023	Y
	Stop Watch	K&A 1171-18	07.10.2023	Y

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IS/IEC 60529:2001 (RA 2019)					
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 IS/IEC 60529:2001 (RA 2019)	--	
0	No test required	-	-	--	N
1	The access probe, sphere of 50 mm Ø shall not fully penetrate and adequate clearance shall be kept.	50N ±10%	Cl.12.2	--	N
2	The jointed test finger may penetrate up to 80 mm length but adequate clearance shall be kept.	30N ±10%	Cl.12.2	--	N
3	The access probe, sphere of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept.	3N± 10%	Cl.12.2	--	N
4	The access probe of 1,0 mm Ø shall not penetrate and adequate clearance shall be kept.	1N± 10%	Cl.12.2	--	N
5	Test conditions for IP 5X: Same As Above	1N± 10%	Cl.12.2	--	N
6	Test conditions for IP 6X: Same As Above	1N± 10%	Cl.12.2	--	N

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IS/IEC 60529:2001 (RA 2019)					
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 ReferIS/IEC 60529:2001 (RA 2019)	--	
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 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, with under pressure	NA	Cl.13.4+13.5	--	N
6	Dust chamber, with under pressure	NA	Cl.13.4+13.6	For 8 hrs. as extraction rate is less than 40 Volumes per hour and max depression of 20mbar.	**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 Powder found inside the UUT.	**P**

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IS/IEC 60529:2001 (RA 2019)				
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 IS/IEC 60529:2001 (RA 2019)	--	
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	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 L/min, 2.5 – 3 m distance, 3 min duration.	P
7	Immersion tank, Temporary immersion in water in service position,	Cl.14.2.7	--	N
8	Immersion tank, Continuous immersion subject to agreement.	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.	P
-	Tests for protection against access to hazardous parts indicated by the additional letter.	Cl.15	--	N

SUMMARY OF INGRESS PROTECTION TESTS ACCORDING TO IS/IEC 60529:2001 (RA 2019)
Conclusion of the IP66 test: PASS.
The results of the tests were in compliance with the requirements in the standard IS/IEC 60529:2001 (RA 2019)
UUT=Unit Under Test

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Picture1: Pressure Switch

Picture2: No ingress of powder & water observed

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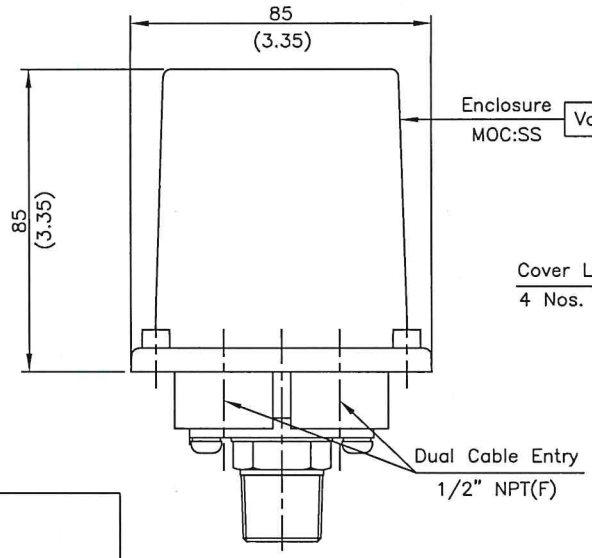
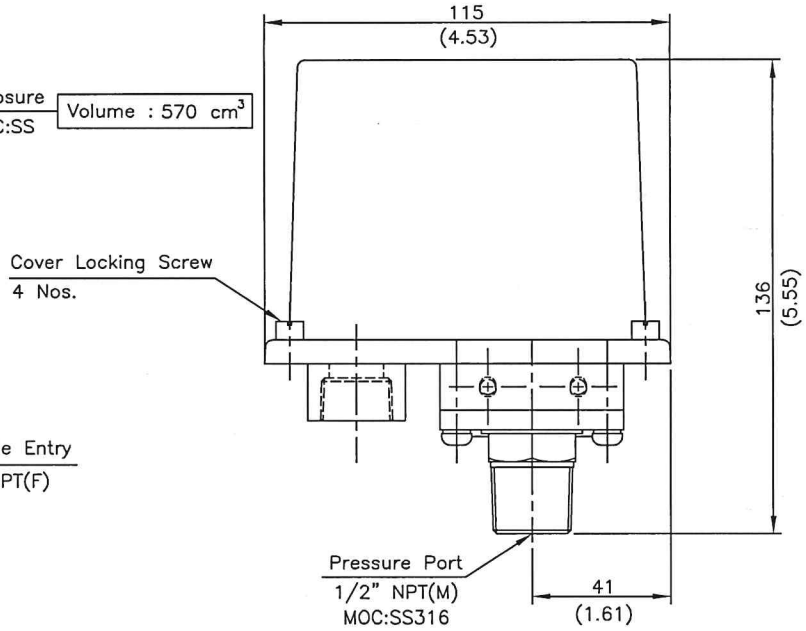
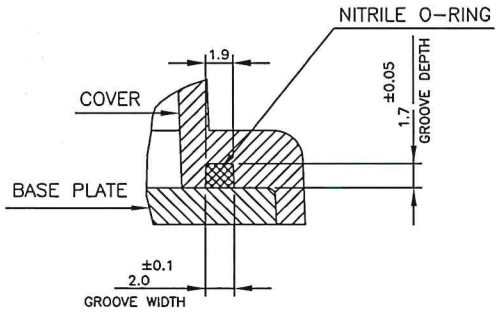
END OF REPORT







TYPICAL CROSS SECTION AT COVER
SCALE – 4:1

INGRESS PROTECTION TEST AS PER : IS/IEC 60529-1 FOR IP 66

NAME OF LAB : Karandikar Laboratories Private Limited
MODEL CODE : MZ SERIES
SERIAL NO. :

KARANDIKAR LABORATORIES PVT. LTD. BOISAR 401 501.

Report No- KLPL/BG/22/11-75

APPROX. DIMENSIONS IN mm (Inches)

ALL DIMENSIONS ARE IN MM, UNLESS SPECIFIED OTHERWISE.

			MATERIAL : –	APPRVD. BY	RAM	14/11/22
			TREATMENT :	CHECKED BY	UDK	14/11/22
			TITLE : GA DRAWING for IP66 TEST	DRAWN BY	KGM	14/11/22
					SIGN.	DATE
			MODEL: A36 MZ SERIES	SHEET No.: 1 OF 1		SCALE NTS
L.C.No.	CHANGES MADE	DATE	KAUSTUBHA UDYOG PUNE – 411030 INDIA	DRG.NO.: A36 GA 076		L.C.No. 00
THIRD ANGLE						

J:\Development\MZ GA DWG\A36 GA 076 – GA drawing for IP66 Ingress protection