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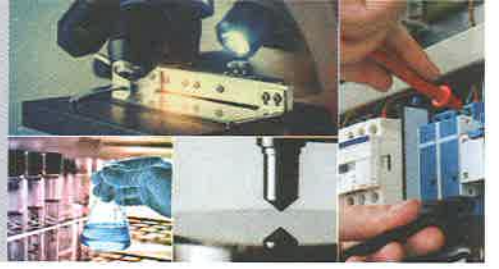

TEST REPORT

Customer:		
M/s. Duncan Engineering Limited F-33, Ranjangaon MIDC, Karegaon, Tal.Shirur, Pune-412209	Report No.:	**E-4573-M**
	Report Date:	29-06-2023
	Job. No.:	ELM-22-23-16075
	Sample Received Date:	14-06-2023
	Date of Completion:	24-06-2023
	ULR No.:	TC574323000013089F

Customer Ref. No. & Date: PPDCU00332 13-06-2023
Samples not drawn by ELCA
Product Specification: --
Sample Description:

Product Details	Bore Size	Item Code	Drawing No.
Inch Pneumatic Cylinder	4"	C0401000000000030000	INCH1124, Rev. 0, Date 22/02/2023
Condition of Test Component at Receipt: Good			

DEGRESS OF PROTECTION TEST (IP67)

Discipline	Electrical	**Group**	ENVIRONMENTAL TEST FACILITY
Test Method:	IEC 60529:2013		
Tested At	ELCA Laboratories Mahape	**Tested on:**	24-06-2023

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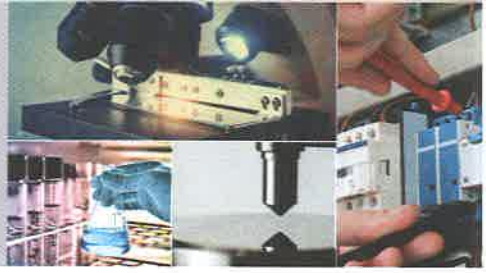

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1.0 GENERAL TEST DESCRIPTION

This Report presents the result of the Ingress Protection Test performed on Inch Pneumatic Cylinder submitted by M/s Duncan Engineering Limited. Sample is identified as E-4573-M.

All tests were carried out as per customer's requirements derived from the following standards.

APPLIED STANDARD: -

IEC 60529:2013 **Degrees of Protection provided by enclosures (IP Code)**

a) Tests for protection of person against access to hazardous parts
(First Numeral: 6 Category 1)
as per Table No. 6 and Clause No. 12.2

b) Tests for protection against solid foreign object
(First Numeral: 6 Category 1)
as per Table No. 7 and Clause No. 13.4

c) Tests for protection against Water
(Second Numeral: 7)
as per Table No. 8 and clause No. 14.2.7

Acceptance conditions:

a) Tests for protection of person against access to hazardous parts
as per Clause No. 12.3

b) Tests for protection against solid foreign object
as per Clause No. 13.6.2

c) Tests for protection against Water
as per Clause No. 14.3

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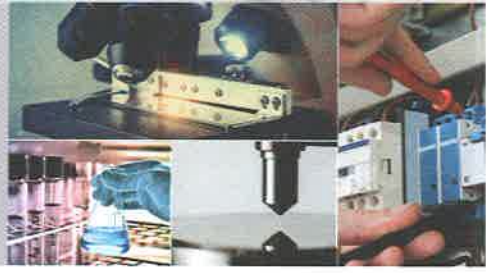

TEST REPORT

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2.0 TEST DATA

Test Laboratory	ELCA LABORATORIES: Plot No. Gen-62, TTC Industrial Area, MIDC, Mahape, Navi Mumbai – 400710.
Test Date	a) Test for protection of person against access to hazardous parts on 23rd June 2023. b) Test for protection against solid foreign object on 23rd June 2023. c) Test for protection against Water on 24th June 2023.
Tested By	Pravin Kamble
ELCA ID No.	E-4573-M

3.0 ENVIRONMENT CONDITIONS

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges as follows.

Ambient Temperature	15°C - 35°C
Relative Humidity air	25% - 75%
Air pressure	86 kPa to 106 kPa (860 mbar to 1 060 mbar)

4.0 EQUIPMENT USED

TEST	Equipment Used	ELCA ID	Calibration Due on
Ingress Protection Test (IP6X)	Rigid Steel Rod of 1.0 mm dia. Object Probe	IPD/04	02-06-2024
	Digital Push Pull Force Gauge	IPD/08	27-12-2023
	Dust Chamber	ENV/006	27-02-2024
	U Tube Vacuum Gauge Manometer	ENV/008	30-09-2023
	Air Flow Meter	IPW/014	12-12-2023
Ingress Protection Test (IPX7)	Steel Scale	EL-29	14-10-2023
	Water Tank	--	--

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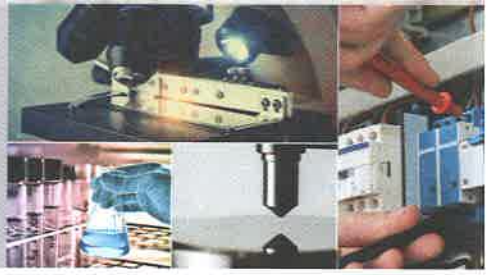

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5.0 TEST CONDITIONS

Degrees of protection against Access as per Table 6

The sample was tested for protection against Access

Equipment Used	Rigid Steel Rod of 1.0 mm dia. Object Probe & Digital Push pull Force Gauge
Equipment ID	IPD/04 & IPD/08
IP code	First Characteristic numeral: 6

Degree of protection against foreign object as per Table 7

Exposure Period	8 hours at 20 mbar
Start time	05:30 PM on 23-06-2023
End time	01:30 AM on 24-06-2023
Equipment used	ENV/006
IP code	First Characteristic numeral: 6 Category: 1

The sample was placed in the Dust Chamber at room temperature. The test conditions are as follows: -

Type of dust used	Talcum powder
Size of dust	Passed through square meshed sieve of wire diameter 50µm and nominal width of a gap between wires 75 µm
Weight of dust used	3 kg. (2kg. per cubic meter of test chamber)
Chamber volume	1.5 cubic meter

Degrees of protection against water as per Table 8

The sample was tested for water test as per following conditions:

Equipment used	Water Tank
Location of the samples	Lowest point of sample is located at 1 meter below the surface of the water
Start time	10:00 AM dated 24-06-2023
End time	10:30 AM dated 24-06-2023
Duration of test	30 min
IP code	Second Characteristic numeral: 7

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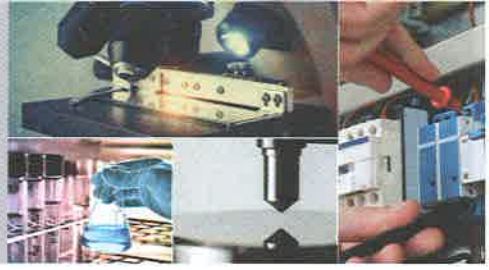

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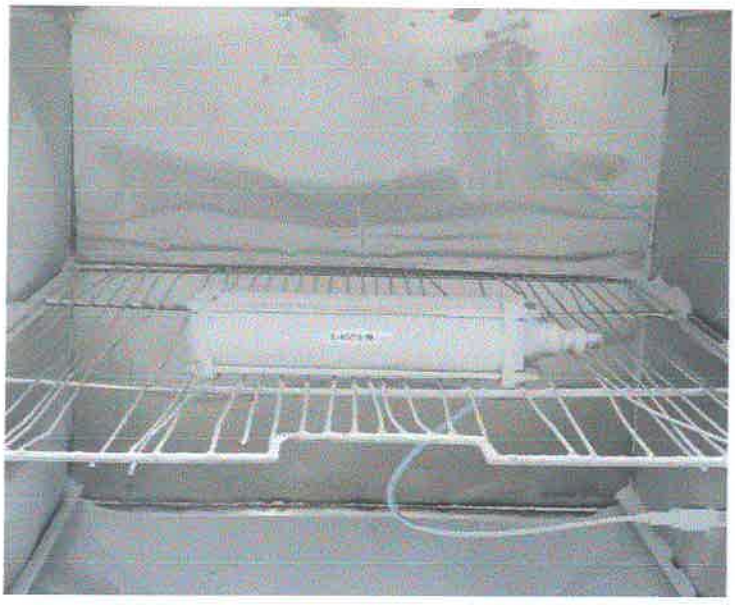
The sample after protection against solid foreign object (dust test) inside the chamber was seen as follows:



The sample during protection against water test was seen as follows:

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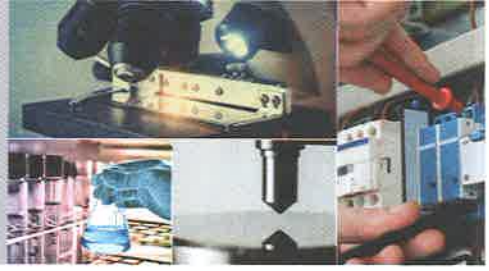

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The sample after protection against water and dust test was seen as follows:

The IP test procedure is based on IEC 60529(Degrees of Protection provided by enclosures IP Code).
After the completion of each test sample was visually inspected.

6.0 TEST RESULT: -

Name of test	Observations after test
Tests for protection of person against access to hazardous parts (Probe Test)	Full diameter of probe did not pass through any opening.
Tests for protection against solid foreign object (Dust Test)	No dust was observed inside the sample.
Tests for protection against Water	No water was observed inside the sample.
Parameter	Result
Remark	Sample satisfies with the requirements of IP67 test as per IEC 60529:2013.

******END OF REPORT******

Checked By
Harshali Chaudhari

Reviewed & Authorised by
Authorised Signatory
(N.Kalyan/Kartik K. Iyer)
(Proprietor/Chief Executive Officer)