Certificate of Testing

N°: TRA028358CC01A

Rotork Midland Ltd
Patrick Gregory Road
Wednesfield
Wolverhampton
WV11 3DZ.

Issue Date: 7th September 2015
Our Ref: TRA-028358-00
Client's Order Number: 26988
Date(s) of Test: 25th - 26th August 2015

Attn.: Richard Thom

Specimen(s):

1 Off	Filter Regulator
Serial Number:	2FRMSV082A
TRaC Stores Number:	TRA-028358-S1
Receipt Date:	24th August 2015

Specification:

Tested in accordance with BS EN 60529:1992+A2:2013 and TRaC Global Limited quotation TRA-028358-00 dated 31st July 2015.

IP4X - Protected Against Access to Hazardous and Against Solid Foreign Objects

Probe:	$1.0^{+0.05}_{-0}$ mm diameter x 100mm wire
Force:	1N ± 10%

IP6X - Protected Against Access of Solid Foreign Objects - Dust Tight

Duration:	If extraction rate is 40-60 volumes per hour, duration is 2 hours If extraction rate is less than 40 volumes per hour at depression of ≤ -20mbar, test is continued until 80 volumes have been drawn through or 8 hour elapsed
Maximum Flow rate:	60 times the volume of the specimen per hour
Maximum Vacuum:	≤ -20mbar
Specimen Configuration:	Non-Operational

Note: All enclosures with first characteristic numeral 6 shall be deemed category 1.

IPX7 – Temporary Immersion in Water

Water Level:	1 metre above lowest point of enclosure
Duration:	30 minutes
Specimen Configuration:	Non-Operational
Water Temperature:	Within ±5ºC of equipment temperature

Test Engineer

P. Makwana Test Engineer

Approval

R. J. Sutton Verification Controller

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Procedure:

IP4X - Protected Against Access to Hazardous and Against Solid Foreign Objects

A 1mm diameter probe was applied with a force no greater than 1.1N against all openings in all areas of Interest on the specimen, Figure 1.

IP6X- Protected Against Access of Solid Foreign Objects - Dust Tight

The specimen was connected to a vacuum pump, pressure indicator and flow meter to calculate the test duration. The specimen was mounted in the dust chamber and re-connected to the vacuum pump to provide a vacuum of 20 mbar below laboratory ambient pressure during the test. The test was carried out in accordance with the specification for a period of 8 hours. Figures 2 and 3 illustrated before and after dust testing of the specimen.

IPX7 – Temporary Immersion in Water

The temperature of the specimen and water was checked to ensure the differential was within 5ºC. The specimen was secured in its normal working orientation and then immersed in laboratory ambient temperature tap water, Figure 4, to a depth of 1.0m to the lowest surface of the specimen, for a period of 30 minutes

Results:

IP4X - Protected Against Access to Hazardous and Against Solid Foreign Objects

The specimen was found to have no openings that could be penetrated by the access probe of 1 mm Ø reducing adequate clearance between the access probe and hazardous parts.

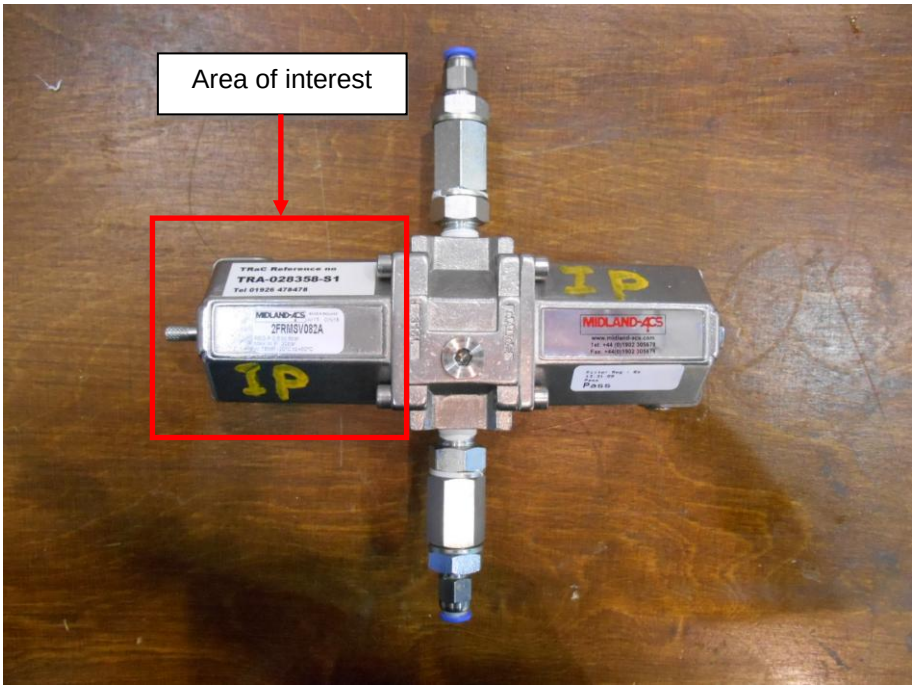
IP6X- Protected Against Access of Solid Foreign Objects - Dust Tight

After testing the specimen was cleaned externally before being opened for internal inspection. No dust ingress was found.

IPX7 – Temporary Immersion in Water

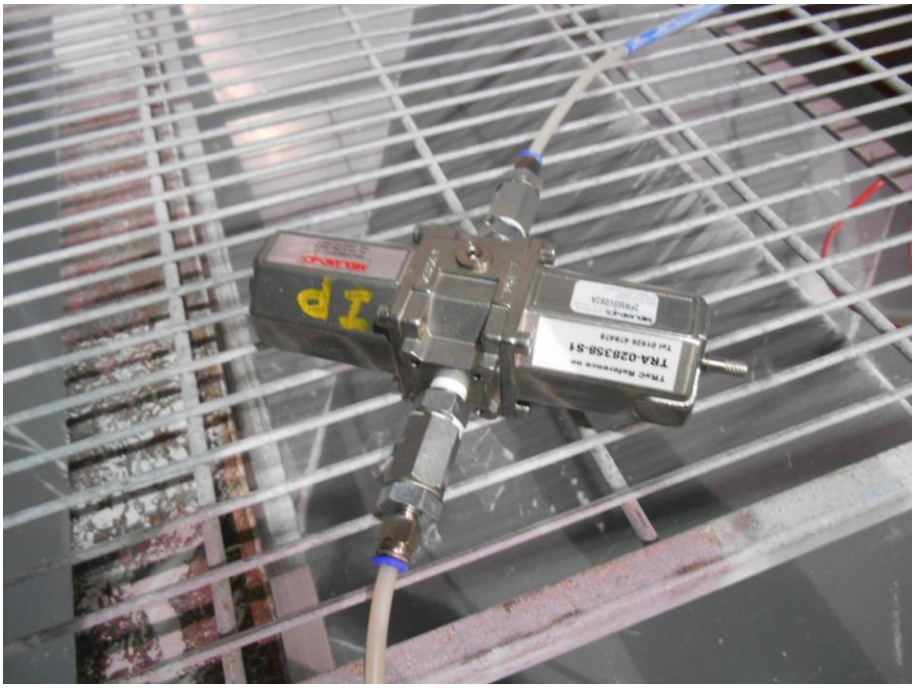
After testing, the specimen was dried externally before being opened for internal inspection. No water ingress was found.

The specimen TRA-028358-S1 therefore satisfies the requirements of BS EN 60529: 1992+A2:2013 IP67.



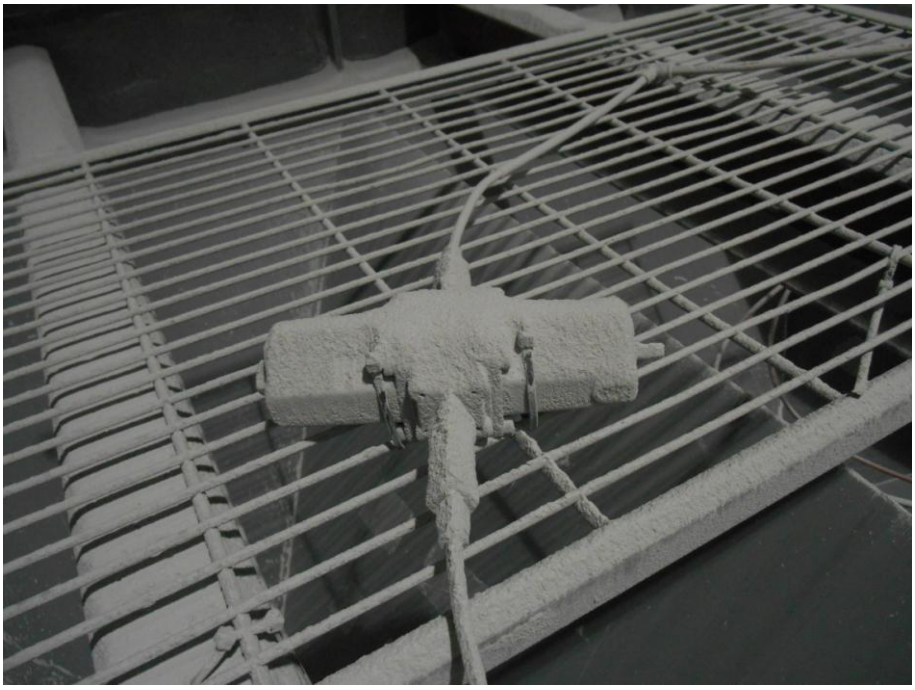
SPECIMEN TRA-028358-S1 CONFIGURATION

FIGURE 1



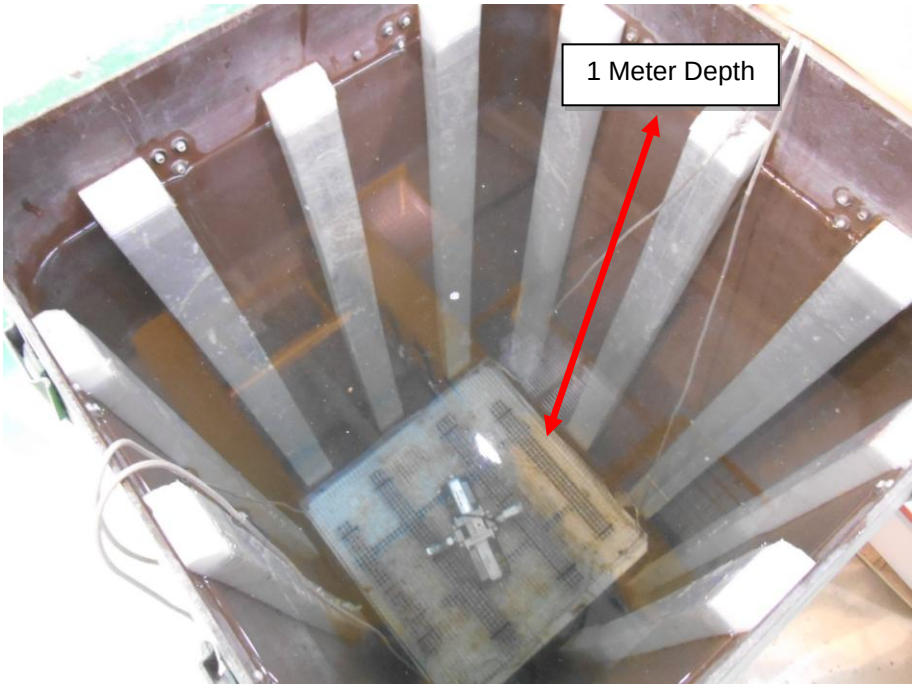
SPECIMEN BEFORE UNDERGOING IP6X DUST TEST

FIGURE 2



SPECIMEN AFTER UNDERGOING IP6X DUST TEST

FIGURE 3



SPECIMEN UNDERGOING IPX7 IMMERSION IN WATER

FIGURE 4