



Tightness tests for IP66 / NEMA 4 - Local Control Panel LCP9H



VTT Expert Services Ltd

Requested by: Metso Flow Control Oy

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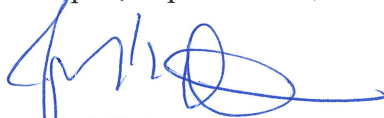
Order 2.9.2016, Kimmo Antikainen

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Tightness tests for Local Control Panel LCP9H

Summary Based on the test results the protection provided by the casing of Local Control Panel LCP9H comply with the requirements stated for the protection class IP66 and Ingress of water (Hosedown and splashing water), Nema Enclosure Type 4.

Espoo, September 21, 2016



Jami Heinsonen
Product Manager



Jari Heikkinen
Expert

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1 General

The test place was VTT Expert Services Ltd and the tests were carried out 16. - 20.9.2016. The specimen was Local Control Panel LCP9H (REV 1.2, No. AV16220039).

The tests were performed in accordance with the standard IEC 60529, "Degrees of protection provided by enclosures (IP Code)" (2013-08) and NEMA Standards Publication 250-2008, "Enclosures for Electrical Equipment (1000 Volts Maximum)".

Ambient conditions: +22 - 23 °C / 41 - 44 % RH.

The test equipment:

- dust test chamber, IDN TL04118, calibrated 20.8.2014, valid 36 months
- WIKA CPG1000 pressure gauge, IDN TL12776, calibrated 5.5.2015, valid 24 months
- NP-G21 flow meter, IDN TL04116, calibrated 5.5.2014, valid 36 months
- Rotronic Hygro Palm Temperature / Humidity meter, IDN TL12780, calibrated 26.8.2016, valid 12 months
- 12,5 mm nozzle, IDN TL04124, calibrated 1.10.2014, valid 36 months
- flow meter Typ M6/6000, IDN TL04122, calibrated 1.10.2014, valid 36 months
- Cempa thermometer, IDN TL18293, calibrated 1.3.2012, valid 60 months
- 25,0 mm nozzle
- flow meter Endress + Hauser Promag 53, IDN TL15944, calibrated 19.9.2016, valid 24 months

2 Dust test for IP6X

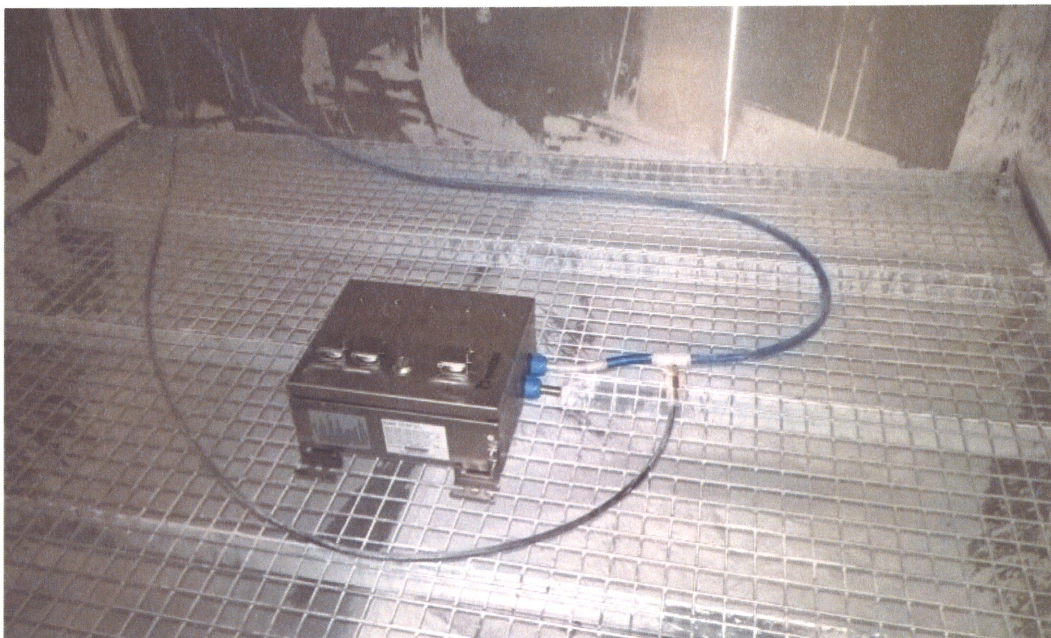
2.1 Test procedure

For the dust test the specimen was placed in the dust chamber provided with talcum powder circulation. The underpressure pipe was connected on the cable entry (see photo 1). The test parameters were following:

- underpressure 2 kPa
- flow rate of the air 0,2...0,3 l/min
- test duration 8 hours

The test results relate only to the sample tested.

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Photograph 1. The test setup for dust test.

2.2 Test results

In the visual examination after the test no deposit of dust was noticed inside the casing.

Based on the results of the dust test the casing of the specimen complies with the requirements stated for the protection class IP6X.

3 Water test for IPX6

3.1 Test procedure

The test was carried out by spraying the specimen with a water jet hose nozzle (Ø 12,5 mm, described in figure 6 in IEC 60529) from all practicable directions for a period of totally 3 minutes.

The flow rate of the water was 100 l/min, temperature +21 °C and the distance from the nozzle to the specimen was 2,8 m.

The test equipment:

3.2 Test results

In the visual examination after test no ingress of water was noticed inside the casing.

Based on the test results the protection against powerful water jets complies with the requirements stated for protection class IPX6.

The test results relate only to the sample tested.

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4 Hose down and splashing water, NEMA Type 4

4.1 Test procedure

The severity of the test was according to the document UL50, Enclosures for Electrical Equipment, Hosedown Test, Type 4. The test was carried out by spraying the specimen with a water jet hose nozzle, Ø 25,0 mm from all practicable directions for a period of 3 minutes 19 seconds.

The flow rate of the water was 240 l/min - 244 l/min, temperature was +22 °C and the distance from the nozzle to the specimen was 3,0 m.

4.2 Test results

In the visual examination after test no ingress of water was noticed inside the casing.

Based on the test results the protection against powerful water jets complies with the requirements stated for Ingress of water (Hosedown and splashing water), Nema Enclosure Type 4.

The test results relate only to the sample tested.

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