

Test report : L9-60013-T3

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EPIL TEST REPORT

Project No.: L9-60013

Equipment under Test: AC Contactor

Type	: HDC3-32
Serial Number	: ----
I _{th}	: 50 A
U _i	: 690 V
U _{imp}	: 6 kV
U _e	: 220/230 V, 380/400 V, 660/690 V
I _e	: 32 A, 32 A, 22 A

Manufactured by: HIMEL

Trade Mark:



Applicant: AMAAD BARGH SEPEHR Co.

Tested According to: IEC 60947-4-1:2018 & IEC 60947-1:2014

Reception Date of Sample: 23-Jan-2021

Testing Date: 08-Feb-2021

Issue Date: 09-Mar-2021

Test Result: See pages 4 to 8

No. of Pages: 9

Prepared and Tested by: Test
Engineer

A. Takzare

Verified by: Technical
Manager

H. Jahangir

Approved:

Engineering Deputy of
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Prof. B. Vahidi

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1. GENERAL INFORMATION

1.1. Product Information

Equipment Under Test : AC Contactor
Manufacturer : HIMEL
Type : HDC3-32
Serial Number : ----
Ue : 220/230 V, 380/400 V, 660/690 V
Ie : 32 A, 32 A, 22 A
Ui : 690 V
Uimp : 6 kV
Ith : 50 A
Normative Document : IEC 60947-4-1:2018 & IEC 60947-1:2014

1.2. Client Information

Applicant : AMAAD BARGH SEPEHR Co.
Telephone : +98 21 88842410
Fax : +98 21 88320923

1.3. Performed Tests

Verification of Impulse Withstand Voltage : Passed
Power Frequency Withstand Verification of Solid Insulation : Passed
Verification of Creepage Distances : Passed

1.4. Test Results and Descriptions:

See pages 4 to 8.

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2. PERFORMANCE and RESULTS of TESTS

2.1 Dielectric Properties

2.1.1 Verification of impulse withstand voltage

2.1.1.1 Test data

Equipment Under Test (EUT)	: AC Contactor (HDC3-32)
Manufacturer	: HIMEL
Location	: E.P.I.L.
Date	: 08-Feb-2021
Test Expert	: Ms. Takzare
Normative Document	: IEC 60947-4-1 :2018 & IEC 60947-1 :2014

2.1.1.2 Ambient conditions

Ambient Temperature	: 22.0 °C
Relative Humidity	: 35.6 %
Pressure	: 865 hPa

2.1.1.3 Performance of test

The test was carried out according to clause 9.3.3.4 of IEC 60947-4-1:2018 and clause 8.3.3.4 of IEC 60947-1:2014. The 1.2/50 μ s impulse voltage was applied five times for each polarity at intervals of 1s minimum. Clearances from live parts to parts intended to be earthed and between poles shall withstand the test voltage given in Table 12 of IEC 60947-1:2014 appropriate to the rated impulse withstand voltage. The correction factor was applied to the standard test voltages in accordance with altitude of the laboratory from the sea level.

The actuator of insulating material and any integral non-metallic enclosure of equipment intended to be used without an additional enclosure was covered by a metal foil and connected to the mounting plate. The metal foil was applied to all surfaces where these are likely to be touched by people during normal operation or adjustment of the equipment and those parts of surface, which can be touched with the standard test finger.

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2.1.1.4 Acceptance condition of test

There shall be no unintentional disruptive discharge during the tests.

2.1.1.5 Test results

Voltage Applied to	Earth Connected to	Circuit-Breaker's Position	Rated Impulse Voltage (kV)	Applied Voltage (kV)	Result
All terminals of the main circuit connected together including the control and auxiliary circuits connected to the main circuit	Enclosure and mounting plate	Close	6	6.4	Ok
		Open	6	6.4	
Each pole of the main circuit	Other poles connected together and to the enclosure and mounting plate	Close	6	6.4	Ok
		Open	6	6.4	
Each control and auxiliary circuit not normally connected to the main circuit	Main circuit, Enclosure and mounting plate	Close	6	6.4	Ok
Each control and auxiliary circuit not normally connected to the main circuit	Other circuit	Close	6	6.4	Ok

✓ Passed

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2.1.2 Power frequency withstand voltage

2.1.2.1 Test data

Equipment Under Test (EUT) : AC Contactor (HDC3-32)
Manufacturer : HIMEL
Location : E.P.I.L.
Date : 08-Feb-2021
Test Expert : Ms. Takzare
Normative Document : IEC 60947-4-1 :2018 & IEC 60947-1 :2014

2.1.2.2 Ambient conditions


Ambient Temperature : 23.6 °C
Relative Humidity : 35.1 %
Pressure : 865 hPa

2.1.2.3 Performance of test

The test was performed according to clause 9.3.3.4 of IEC 60947-4-1:2018 and clause 8.3.3.4 of IEC 60947-1:2014. The test voltage with practically sinusoidal waveform and a frequency 50 Hz was applied in accordance with Table 12A of IEC 60947-1:2014. The actuator of insulating material and any integral non-metallic enclosure of equipment intended to be used without an additional enclosure was covered by a metal foil and connected to the mounting plate. The foil was applied to those parts of surface, which can be touched with the standard test finger during operation or adjustment of the equipment.

2.1.2.4 Acceptance condition of test

During the test, no flashover, breakdown of insulation either internally (puncture) or externally (tracking) or any other manifestation of disruptive discharge shall occur.


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2.1.2.5 Test results

Voltage Applied to	Earth Connected to	Circuit-Breaker's Position	Applied Voltage (V)	Result
All terminals of the main circuit connected together including the control and auxiliary circuits connected to the main circuit	Enclosure and mounting plate	Close	1890	Ok
		Open	1890	
Each pole of the main circuit	Other poles connected together and to the enclosure and mounting plate	Close	1890	Ok
		Open	1890	
Each control and auxiliary circuit not normally connected to the main circuit	Main circuit, Enclosure and mounting plate	Close	1890	Ok
Each control and auxiliary circuit not normally connected to the main circuit	Other circuit	Close	1890	Ok

✓ Passed

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2.1.3 Verification of creepage distances

2.1.3.1 Test data

Equipment Under Test (EUT) : AC Contactor (HDC3-32)
Manufacturer : HIMEL
Location : E.P.I.L.
Date : 08-Feb-2021
Test Expert : Ms. Takzare
Normative Document : IEC 60947-4-1 :2018 & IEC 60947-1 :2014

2.1.3.2 Ambient conditions

Ambient Temperature : 23.1 °C
Relative Humidity : 35.0 %
Pressure : 865 hPa

2.1.3.3 Performance of test

The shortest creepage distances between phases, between circuit conductors at different voltages and live and exposed conductive parts was measured. According to EUT technical specification, the EUT is designated for pollution degree 3.

2.1.4 Acceptance condition of test

The measured creepage distance with respect to material group and pollution degree shall comply with the requirements of clause 7.2.3.4 of IEC 60947-1:2014. Creepage distances shall correspond to a pollution degree and the material group at the rated insulation or working voltage given in Table 15 of IEC 60947-1:2014. For pollution degrees 3, the creepage distances shall be not less than the case A clearances in table 13 of IEC 60947-1:2014.

2.1.4.1 Test results

U (V)	Pollution Degree	Material Group	Minimum Creepage Distance (mm)	Measured Creepage Distance (mm)	Result
690	3	IIIa & IIIb	10	12	Passed

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3. FIGURES



Figure 1: Nameplate of EUT

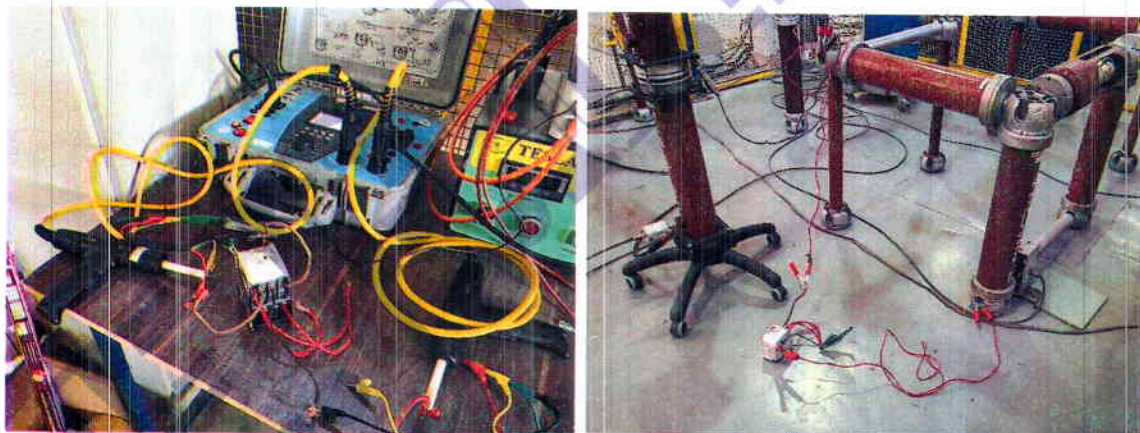


Figure 2: Equipment under dielectric tests