EPIL TEST REPORT

Project No.: H5-60009

Equipment under Test: Hexagonal Busbar Insulator

Model/Type	: J/H45
Rated Voltage	: 400 V
Material	: Epoxy Resin

Manufactured by: JEBAL Co. (ELECTRO JEBAL IRANIAN KAVIR)

Applicant: JEBAL Co. (ELECTRO JEBAL IRANIAN KAVIR)

Trade Mark: ----

Tested According to: IEC 60660:1999 & Client Request

Reception Date of Sample: 05-Aug-2020

Testing Date: 11-Aug-2020 **Issue Date:** 17-Aug-2020

Test Result: See pages 4 to 8

No. of Pages: 11

Prepared and Tested by: Test Engineer
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Verified by: Technical Manager
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Engineering Deputy of Test and Inspection
Prof. B. Vahidi

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1. GENERAL INFORMATION

1.1. Product Information

Equipment Under Test	: Hexagonal Busbar Insulator
Manufacturer	: JEBAL Co. (ELECTRO JEBAL IRANIAN KAVIR)
Type	: J/H45
Rated Voltage	: 400 V
Material	: Epoxy Resin
Normative Document	: IEC 60660:1999 and Client Request

1.2. Client Information

Applicant	: JEBAL Co. (ELECTRO JEBAL IRANIAN KAVIR)
Telephone	: +98 21 66349481

1.3. Tests Performed

Dry Power Frequency Withstand Voltage Test	: Passed
Dry Power Frequency Flashover Voltage Test	: Performed
Dry Lightning Impulse Withstand Voltage Test	: Passed
Lightning Impulse Puncture Test	: Passed

Note: IEC 60660 is applicable to post insulators with a nominal voltage greater than 1 kV. However, according to the client request, all the test methods applied in this report are in accordance with IEC 60660.

1.4. Test Results and Descriptions:

See pages 4 to 8.

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2. PERFORMANCE and RESULTS of TEST

2.1 Dry Power Frequency Withstand Voltage Test

2.1.1 Test data

Equipment Under Test (EUT)	: Hexagonal Busbar Insulator
Location	: E.P.I.L.
Date	: 11-Aug-2020
Engineer of EPIL	: Ms. Takzare
Normative Document	: IEC 60660 and Client Request

2.1.2 Ambient conditions

Ambient Temperature	: 27 °C
Relative Humidity	: 46 %

2.1.3 Test procedure

The specified dry power frequency withstand voltage is corrected in accordance with 2.7 IEC 60660. The test voltage is maintained at this value for 1 min.

2.1.4 Acceptance criteria

No flashover or puncture shall occur during the test.

2.1.5 Test result

Specified Dry Power Frequency Withstand Voltage (kV)	Correction Factor	Applied Voltage (kV)	Duration (sec)	Result
3.5	0.866	3.03	60	Ok

The test was done according to client request and clause 3.4 of IEC 60660 and EUT **passed** the test.

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2.2 Dry Power Frequency Flashover Voltage Test

2.2.1 Test data

Equipment Under Test (EUT)	: Hexagonal Busbar Insulator
Location	: E.P.I.L.
Date	: 11-Aug-2020
Engineer of EPIL	: Ms. Takzare
Normative Document	: IEC 60660 and Client Request

2.2.2 Ambient conditions

Ambient Temperature	: 27 °C
Relative Humidity	: 46 %

2.2.3 Test procedure

Dry flashover voltage of insulator is determined by increasing the voltage gradually from about 75% of the dry power frequency withstand voltage with a rate of rise of about 2% of this voltage per second. The dry flashover voltage is the arithmetic mean of five consecutive readings and the value, after correction to standard reference atmospheric condition, is recorded.

2.2.4 Result of test

Measured dry power frequency flashover voltage (kV)	Mean value (kV)	Correction factor	Standard dry power frequency flashover voltage (kV)
18.3	21.9	0.866	25.3
22.5			
22.2			
23.2			
23.5			

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2.3 Dry Lightning Impulse Withstand Voltage Test

2.3.1 Test data

Equipment Under Test (EUT)	: Hexagonal Busbar Insulator
Location	: E.P.I.L.
Date	: 11-Aug-2020
Engineer of EPIL	: Ms. Takzare
Normative Document	: IEC 60660 and Client Request

2.3.2 Ambient conditions

Ambient Temperature	: 28.8 °C
Relative Humidity	: 47.7 %

2.3.3 Test procedure

Fifteen standard 1.2/50 µs lightning impulses at the specified withstand voltage level are applied to the test object. The test voltage is corrected with atmospheric correction factor in accordance with clause 2.7 of IEC 60660.

2.3.4 Acceptance criteria

If the number of flashovers does not exceed two and the last impulse is not a flashover, the post insulator has passed the test. in the case where the last voltage application initiates a flashover, it is necessary to extend the test with three more impulses of the same polarity. No further flashover is allowed. The post insulators shall not be damaged by these tests, but slight marks on the surface of the insulating parts or chipping of material used for assembly shall be permitted.

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2.3.5 Test result

Specified Dry Lightning Impulse Withstand Voltage (kV)	Correction Factor	Applied Voltage (kV)	Result
12	0.857	10.3	Ok

The test was done according to client request and clause 3.3.2 of IEC 60660 and EUT **passed** the test.

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2.4. Lightning Impulse Puncture Test

2.4.1 Test data

Equipment Under Test (EUT)	: Hexagonal Busbar Insulator
Location	: E.P.I.L.
Date	: 11-Aug-2020
Engineer of EPIL	: Ms. Takzare
Normative Document	: IEC 60660 and Client Request

2.4.2 Ambient conditions

Ambient Temperature	: 28 °C
Relative Humidity	: 47 %

2.4.3 Test procedure

The insulator, after having been cleaned and dried, shall be completely immersed in a tank containing a suitable insulating medium to prevent surface discharges on it. The immersion medium shall be at room temperature. The test voltage is applied between those parts, which normally have the operating voltage between them. The test voltage value is equal to 1.3 times the specified lightning impulse withstand voltage.

Five consecutive impulses of positive polarity and five consecutive impulses of negative polarity is applied to the insulators.

2.4.4 Acceptance criteria

The insulator passes the test if puncture does not occur below the specified lightning impulse puncture voltage.

2.4.5 Test result

Applied voltage: 1.3*12=15.6 kV

The test was done according to client request and clause 3.6 of IEC 60660 and EUT **passed** the test.

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3 . FIGURES

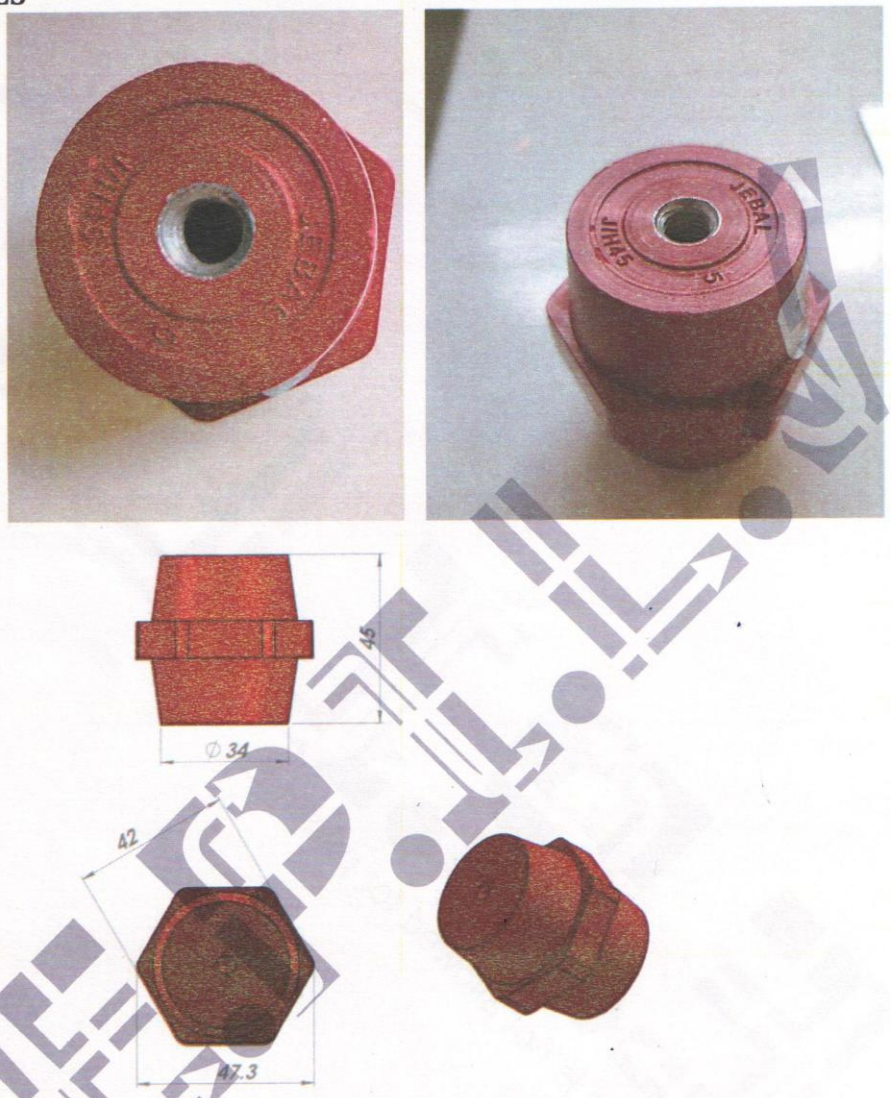


Figure 1: Equipment under test (EUT)

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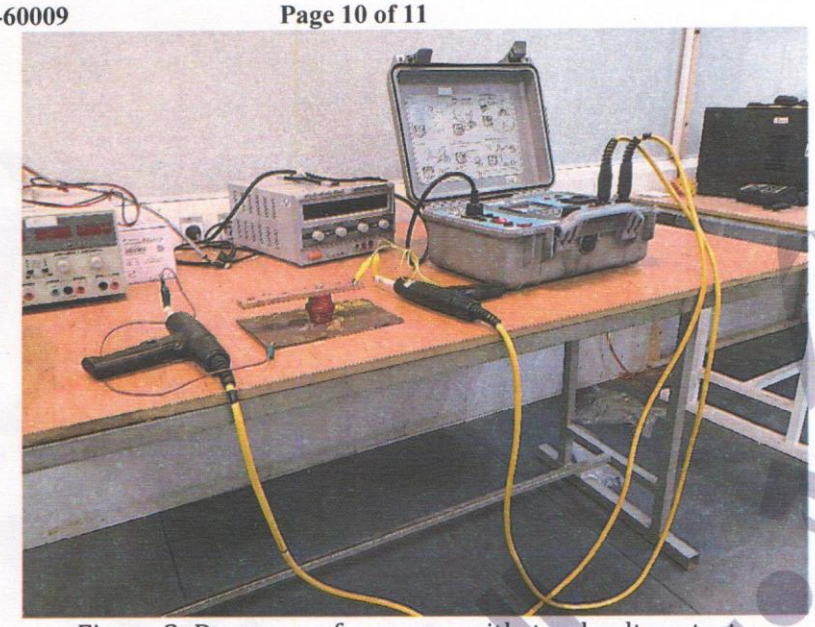


Figure 2: Dry power frequency withstand voltage test

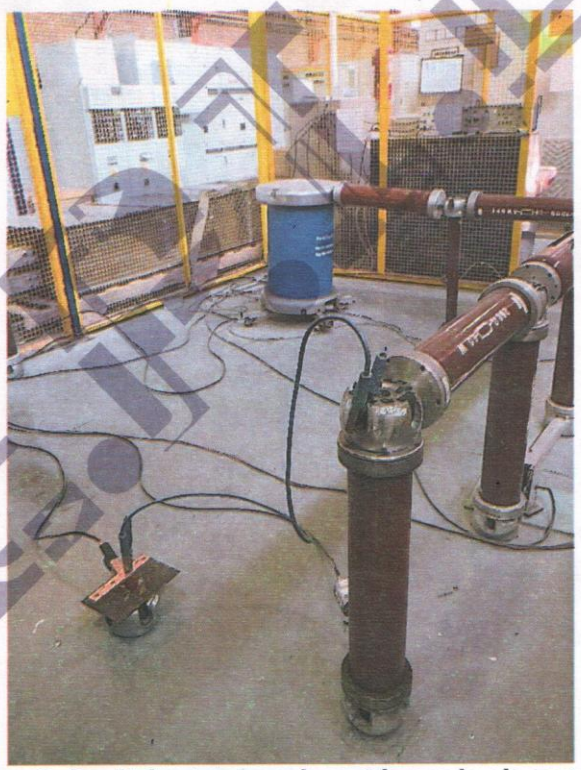


Figure 3: Dry lightning impulse withstand voltage test

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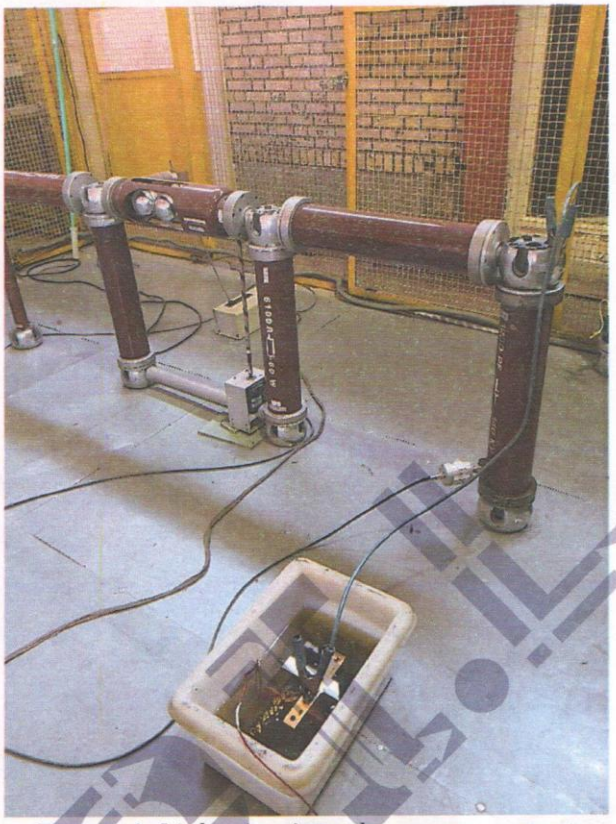


Figure 4: Lightning impulse puncture test

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