

Ex 4/4



RESEARCH, DEVELOPMENT AND TESTING
NATIONAL INSTITUTE FOR
ELECTRICAL ENGINEERING
ICMET CRAIOVA

LABORATORIES DEPARTMENT
HIGH VOLTAGE DIVISION - HVD
Low Voltage Laboratory

acreditat pentru
ÎNCERCARE



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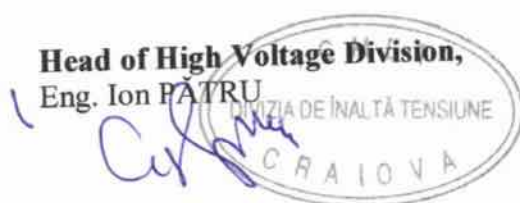
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TYPE TEST REPORT
No. 20064 / 07.08.2009

- | | |
|----------------------------|---|
| 1. CUSTOMER: | PANEL ELEKTRIK SAN VE TIC LTD. ŞTI |
| 2. CUSTOMER'S ADDRESS: | Org. San. Böl.17. Cad. No.27 Yakapinar/ADANA/TURKEY |
| 3. MANUFACTURER: | PANEL ELEKTRIK SAN VE TIC LTD. ŞTI |
| 4. MANUFACTURER'S ADDRESS: | Org. San. Böl.17. Cad. No.27 Yakapinar/ADANA/TURKEY |
| 5. TESTED PRODUCT: | 36 kV, 630A, Load Break Switch and Fuse Combination Switchgear, serial no. 02-2009-0006 |
| 6. REFERENCE STANDARD: | IEC 62271-105:2002 |
| 7. TESTS PERFORMED: | Dielectric tests on auxiliary and control circuits |
| 8. TEST DATE: | 05.08.2009 |
| 9. TEST RESULT: | The product PASSED the tests. |

This report contains 5 pages and it is edited in 4 copies from which 3 copies for customer.

Head of High Voltage Division,
Eng. Ion PĂTRU



Head of Laboratory,
Eng. Aurelia SCORNEA

AS

WARNINGS:

- The results refer to the tested product only.
- Publication or reproduction of the contents of this report in any other form, unless its complete photocopying, is not allowed without writing approval of the division to which laboratory belong to.
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- All signatures from the present report are originals.
- The product was presented to be tested by the customer.



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IDENTIFICATION OF THE TESTED PRODUCT:

Tested product: 36 kV, 630A, Load Break Switch and Fuse Combination Switchgear
Type: MMMH 36-02
Serial number / year: 02-2009-0006 / 2009
Technical specification/drawing: presented in Annex 1
Photo of the product: presented in Figure 1
Contract No.: 2266/01.06.2009
Product receiving date: 05.08.2009
Product condition at receiving: New



Figure 1: Tested product

TECHNICAL CHARACTERISTICS ESTABLISHED BY MANUFACTURER:

Rated voltage: 36 kV
Rated operating current: 630 A
Frequency: 50 Hz
Arc test current and duration: 16kA/1s
Rated supply voltage for auxiliary and control circuits: 24V DC / 220V AC

TESTS PROGRAM:

Dielectric tests on auxiliary and control circuits

RESPONSIBLE FOR TESTS: Eng. Ion DINU

DIELECTRIC TESTS ON AUXILIARY AND CONTROL CIRCUITS

1. **Product receiving date:** 05.08.2009
2. **Test date:** 05.08.2009
3. **Reference standard:** IEC 62271-105:2002
4. **Atmospheric conditions:** $t = 27.1^{\circ}\text{C}$, $\text{RH} = 46.5\%$
5. **Equipment used:**
 - Generator hybrid for impulse voltage, negative polarity and alternative voltage type SIP010, serial no. 620091, manufactured by RFT Germany, calibration certificate no. 167(-)/14.10.2008, expanded uncertainty $U=4.5\%$ for alternative voltage for coverage factor $k=2$
 - Thermohygrometer type HD 100, serial no. 06102402, manufactured by KIMO, France, calibration certificate no. Dj 011-055 0482/ 2009, expanded uncertainty $U=0.3^{\circ}\text{C}$ for temperature measurement and $U=2\%$ for relative humidity for coverage factor $k=2$

6. Working procedure

The dielectric tests on auxiliary and control circuits were performed according to IEC 62271-105:2002, clause 6.2.10.

Auxiliary and control circuits of the switchgear and controlgear were subjected to short-duration power-frequency withstand tests between the auxiliary and control circuits connected together as a whole and the frame of the switching device, connected to the earth.

The test voltage of 2 kV, 50 Hz was applied for duration of 1 min.



Figure 2: Auxiliary and control circuits



Figure 3: Dielectric tests on auxiliary and control circuits

7. **Responsible for tests:** Eng. Ion DINU 

8. Test result

The product passed the test.

During the tests above, there were not disruptive discharges.



Annex 1

