

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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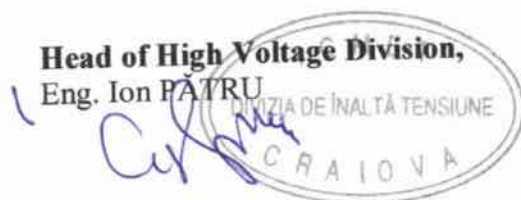
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TYPE TEST REPORT
No. 20064 / 07.08.2009

- | | |
|----------------------------|---|
| 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.
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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

