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TESTING
CNAS L0681

CHPTL

# TEST REPORT

№:CTQC/ZJ-25.0095

Test object name: Resin-impregnated paper capacitive transformer bushing

Test object type: QXFBRPWD-L-72.5/1250-4

Entrusted by: Shandong Qixing High voltage Electric CO., Ltd

Manufacturer: Shandong Qixing High voltage Electric CO., Ltd

Kind of testing: Type tests

SHENYANG TRANSFORMER RESEARCH INSTITUTE CO., LTD.

CHINA NATIONAL TRANSFORMER QUALITY DETECTION AND TESTING CENTER

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CTQC

Shenyang Transformer Research Institute Co., Ltd.

China National Transformer Quality Detection And Testing Center

# Test Report

№: CTQC/ZJ-25.0095 

| | | | |
|---|---|---|---|
| Test object name | Resin-impregnated paper capacitive transformer bushing | Test object type | QXFBRPWD-L-72.5/1250-4 |
| | | Brand | / |
| Entrusted by | Shandong Qixing High Voltage Electric CO., Ltd. | Kind of testing | Type test |
| Manufac-turer | Shandong Qixing High Voltage Electric CO., Ltd | Sampling date | / |
| | | Test date | Feb. 10, 2025~Feb. 17, 2025 |
| Address | No.1228,Pengcheng Industrial Park, Pingli Road, Xiazhuang Town, Gaomi City, Weifang City,Shandong Province | Serial № | 2502PB003 |
| Standards | IEC60137: 2017<br>GB/T4109-2022<br>Technical contract | Test items | Routine tests<br>Type tests |
| Results | The test results of routine tests, type tests of QXFBRPWD-L-72.5/1250-4 are in accordance with standards and technical contract. The sample passed the above tests.<br>Signing and issuing date: 2025.02.25 | | |
| Note | | | |

Approved by: Lv Xiangpeng Checked by: Du Jiansong Compiled by: Zhang Yan

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2. Testing report is invalid without compiler, checker and approver's signature.
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4. Testing or witnessing only apply to sample.
5. Copying testing certificate or testing report is forbidden without written permission from CTQC(except for copying all the testing report).

Address: Hushitai South Avenue No. 18, Shenbei New District, Shenyang Postal code: 110122 Tel: (024)23785225
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# Test Report



Test results

| № | Test items | Specified values<br>Standards (Technical contract) | Measured values | Conclu-sions |
|---|---|---|---|---|
| 1 | Measurement of dielectric dissipation factor (tanδ) and capacitances at ambient temperature (Before type test) | Applied voltage(kV): 2~20<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 10<br>0.00303<br>413.1 | Passed |
| | | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 44<br>0.00308<br>413.4 | |
| | | Applied voltage(kV): $U_m$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 72.5<br>0.00310<br>413.5 | |
| 2 | Measurement of partial discharge quantity (Before type test) | Applied voltage(kV): $U_m$<br>Partial discharge level(pC): ≤10 | 72.5<br><4 | Passed |
| | | Applied voltage(kV): $1.5U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤10 | 62.8<br><4 | |
| | | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤5 | 44<br><4 | |
| 3 | Dry lightning impulse voltage withstand test (Type test) | Full wave voltage<br>Positive polarity(kV):317.2(Corrected value) ±3%<br>Negative polarity(kV): 357.5 ±3%<br>15 positive and 15 negative polarity<br>Chopped wave voltage(kV): 393.3 ±3%<br>5 negative polarity | <br>318.57~323.33<br>354.48~358.93<br>Each 15 times<br>392.95~396.77<br>5 times | Passed |
| 4 | Wet power-frequency voltage withstand test (Type test) | Applied voltage(kV): 140.8(Corrected value)<br>Duration(s): 60 | 140.8<br>60 | Passed |
| 5 | Long-duration power-frequency voltage withstand test(ACLD) (Type test) | $U_1=U_m$(kV)<br>Duration(s): 60 | 72.5<br>60 | Passed |
| | | $U_2=1.5U_m/\sqrt{3}$ (kV)<br>Duration(min): 60<br>Partial discharge level(pC): ≤10 | 62.8<br>60<br><4 | |
| | | $1.1U_m/\sqrt{3}$ (kV)<br>Duration(min): 5<br>Partial discharge level(pC): ≤5 | 46.1<br>5<br><4 | |
| 6 | Temperature rise test (Type test) | Temperature limit(℃): 105/120<br>Temperature rise limit(K): 75/90 | See 4.6 | Passed |
| 7 | Verification of thermal short-time current withstand (Type test) | Thermal short-time current(kA): $25I_r$<br>Duration(s): 2<br>Final temperature of the conductor(℃): ≤180 | 31.25<br>2<br>146.3 | Passed |

# Test Report



| № | Test items | Specified values<br>Standards (Technical contract) | Measured values | Conclu-sions |
|---|---|---|---|---|
| 8 | Cantilever load withstand test (Type test) | Applied load(N): 4000<br>Duration(s): 60<br>Successfully repeat check items | 4028<br>60<br>Passed | Passed |
| 9 | Visual inspection and dimensions check (Routine test) | According to standard | See 4.9 | Passed |
| 10 | Measurement of partial discharge quantity (After type test) | Applied voltage(kV): $U_m$<br>Partial discharge level(pC): ≤10 | 72.5<br><4 | Passed |
| | | Applied voltage(kV): $1.5U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤10 | 62.8<br><4 | |
| | | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤5 | 44<br><4 | |
| 11 | Measurement of dielectric dissipation factor (tanδ) and capacitances at ambient temperature (After type test) | Applied voltage(kV): 2~20<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 10<br>0.00300<br>413.3 | Passed |
| | | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 44<br>0.00301<br>413.5 | |
| | | Applied voltage(kV): $U_m$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 72.5<br>0.00301<br>413.5 | |
| 12 | Tests of tap insulation (Routine test, special test) | Dry power-frequency voltage withstand test:<br>Applied voltage(kV): 3<br>Duration(s): 60 | <br>3<br>60 | Passed |
| | | Measurement of dielectric dissipation factor (tanδ) and capacitances:<br>Applied voltage(kV): ≥1<br>tanδ: ≤0.05<br>Capacitance(pF): ≤10000 | <br>3<br>0.00502<br>194.0 | |
| 13 | Dry lightning impulse voltage withstand test (Routine test) | Negative polarity(kV): 341.3 ±3%<br>3 negative polarity<br>Chopped wave voltage(kV): 373.8 ±3%<br>2 negative polarity | 342.7~348.8<br>3 times<br>371.58~376.84<br>2 times | Passed |
| 14 | Dry power-frequency voltage withstand test (Routine test) | Applied voltage(kV): 155<br>Duration(s): 60 | 155<br>60 | Passed |
| 15 | Measurement of partial discharge quantity (Routine test) | Applied voltage(kV): $U_m$<br>Partial discharge level(pC): ≤10 | 72.5<br><4 | Passed |
| | | Applied voltage(kV): $1.5U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤10 | 62.8<br><4 | |

# Test Report



| № | Test items | Specified values<br>Standards (Technical contract) | Measured values | Conclu-sions |
|---|---|---|---|---|
| 15 | Measurement of partial discharge quantity (Routine test) | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>Partial discharge level(pC): ≤5 | 44<br><4 | Passed |
| 16 | Measurement of dielectric dissipation factor (tanδ) and capacitances at ambient temperature (Routine test) | Applied voltage(kV): 2~20<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 10<br>0.00299<br>413.5 | Passed |
| | | Applied voltage(kV): $1.05U_m/\sqrt{3}$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 44<br>0.00300<br>413.6 | |
| | | Applied voltage(kV): $U_m$<br>tanδ: ≤0.004<br>Providing capacitance of the sample(pF) | 72.5<br>0.00300<br>413.6 | |
| 17 | Tightness test at the flange or other fixing device (Routine test) | Applied medium<br>Applied pressure (MPa): 0.4 ±0.01<br>Duration(min): 15<br>No leakage and damage | $SF_6$<br>0.4<br>15<br>No leakage and damage | Passed |
| 18 | Visual inspection and dimensions check (Routine test) | According to standard | See 4.18 | Passed |

Note: 1. All the tests were field tests;
2. Tested in Shandong Qixing High voltage Electric CO., Ltd laboratory.

1. Test object parameters

Highest voltage for equipment(kV): 72.5

Rated phase to earth voltage(kV): $72.5/\sqrt{3}$

Rated current(A): 1250

Rated frequency(Hz): 60

Altitude(m): ≤1000

Thermal class of insulation: E

Insulation type of bushing: RIP

Test tap(measured tap, tanδ): With

Rated voltage of voltage tap (Potential tap, capacitance tap)(kV): /

2. Sample condition description

Sample exterior construction and major dimensions(length, diameter) are in compliance with outline drawings.

Measured values: length 1890mm, outer diameter Φ330mm.

| Outline dimensions | Rating plate |
|---|---|
| PBT515 | 8QX.860.009G |

Rating plate and outline drawings see testing report annex.

The form, performance data, specifications of sample rating plate are in compliance with drawing.

The surface of the sample has no collision and damage.

3. Standards

IEC60137: 2017, GB/T4109-2022 Insulated bushings for alternating voltage above 1000V

Technical contract

4. Test items and conclusions

4.1 Measurement of dielectric dissipation factor(tanδ) and capacitances at ambient temperature(Before type test) Test date: Feb. 10, 2025

Humidity: 63.0%; Ambient temperature: 10.2℃; Atmospheric pressure: 102.0kPa

| Applied voltage(kV) | Dielectric dissipation factor(tanδ) | Capacitance (pF) | Result |
|---|---|---|---|
| 10 | 0.00303 | 413.1 | Passed |
| 44 | 0.00308 | 413.4 | |
| 72.5 | 0.00310 | 413.5 | |

Note: tanδ(72.5kV)- tanδ(44kV)= 0.00002＜0.001(Standard value), passed.

4.2 Measurement of partial discharge quantity(Before type test) Test date: Feb. 10, 2025

Humidity: 63.0%; Ambient temperature: 10.2℃; Atmospheric pressure: 102.0kPa

| Prestress voltage (kV) | Duration(s) | Measured voltage(kV) | Partial discharge level(pC) | Result |
|---|---|---|---|---|
| 155 | 60 | 72.5 | <4 | Passed |
| | | 62.8 | <4 | |
| | | 44 | <4 | |

Note: Background noise level was＜4pC before and after test.

4.3 Dry lightning impulse voltage withstand test(Type test) Test date: Feb. 10, 2025

Test atmospheric conditions:

Humidity: 63.0%; Ambient temperature: 10.2℃; Atmospheric pressure: 102.0kPa。

Full wave withstand voltage: Positive 317.2(Corrected value)

Negative 357.5 15 positive and 15 negative polarity

Chopped wave withstand voltage: Negative 393.3 5 negative polarity

Test sequence:

One positive polarity reference voltage full wave impulse;
Fifteen positive polarity rated voltage full wave impulse;
One negative polarity reference voltage full wave impulse;
One negative polarity rated voltage full wave impulse;
Five negative polarity rated chopped wave impulse;
Fourteen negative polarity rated voltage full wave impulses.

Test oscillogram records:

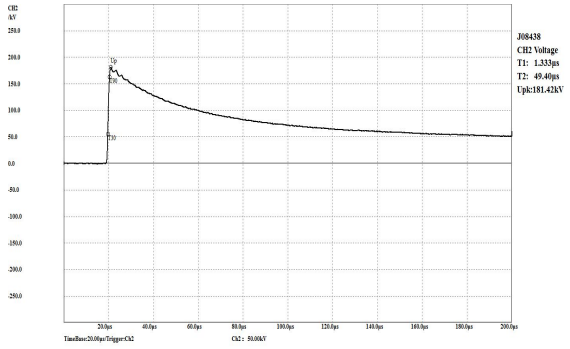
T1: Front time; T2: Time to half value; Upk: Peak voltage;
Tc: Time to chopping; Oz: Factor of over crossing.

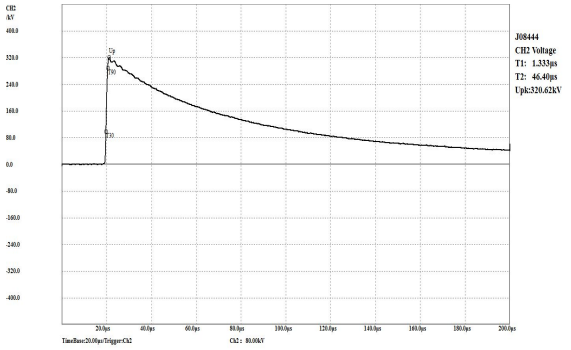
Result: Passed.

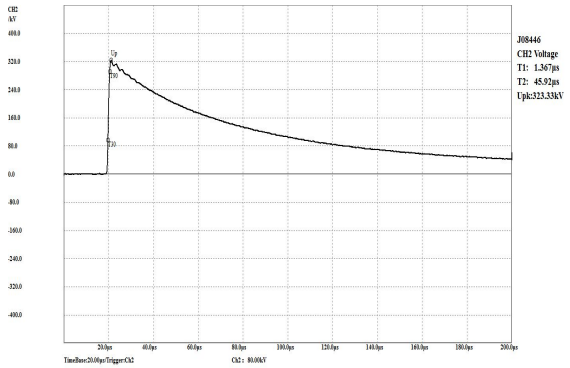
# Test Report

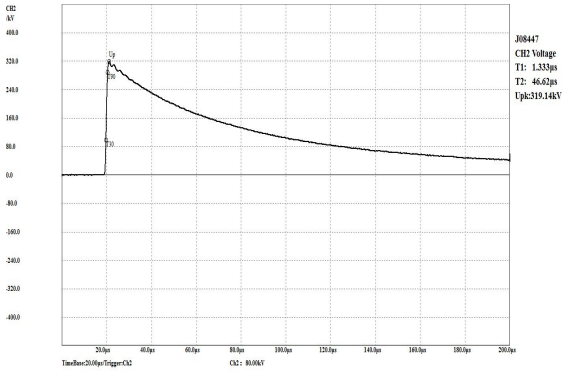


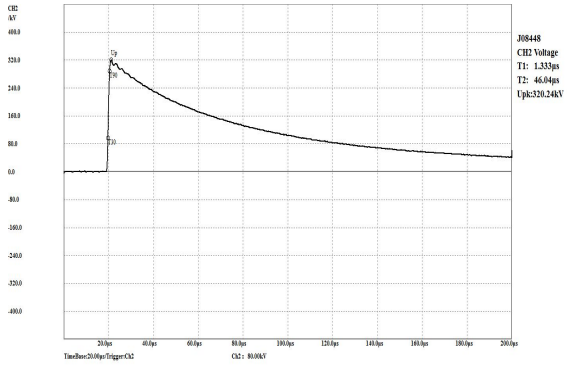
Tested terminal: To earth Test polarity: Positive CH1: Voltage records

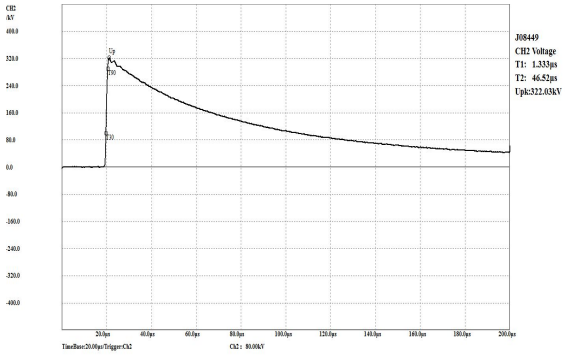


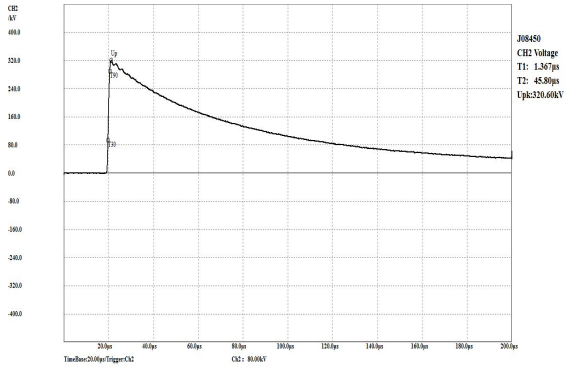



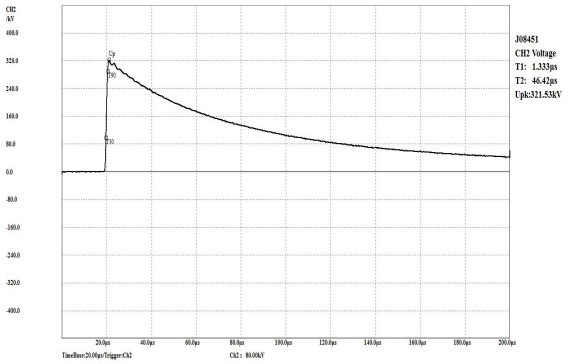



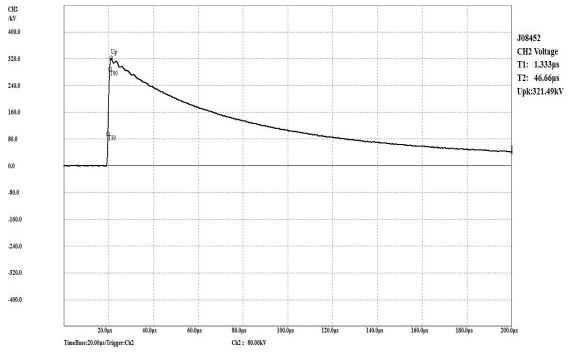



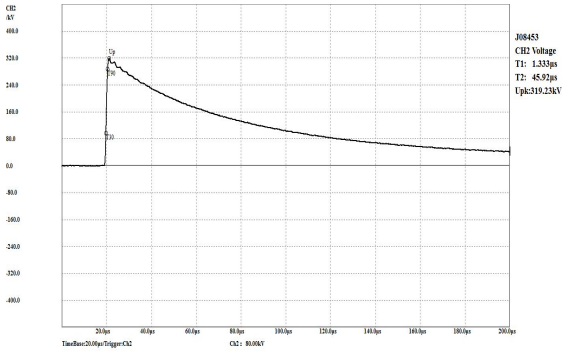



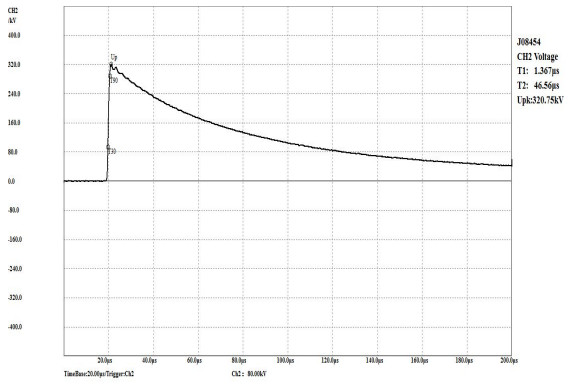



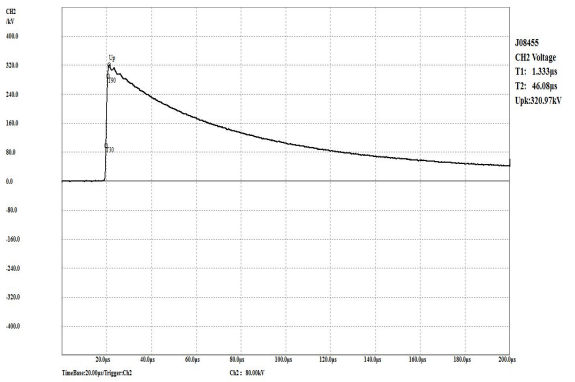



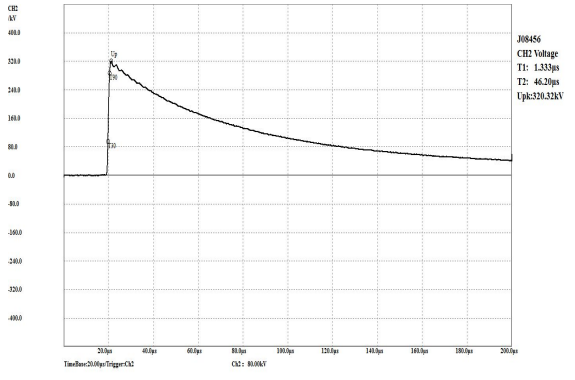
Tested terminal: To earth Test polarity: Positive CH1: Voltage records

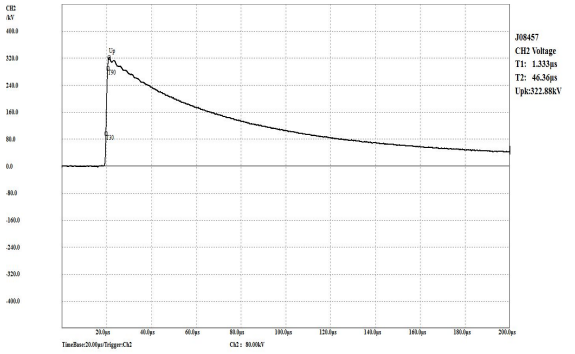


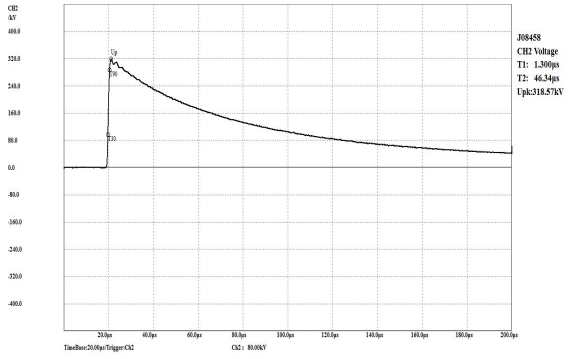



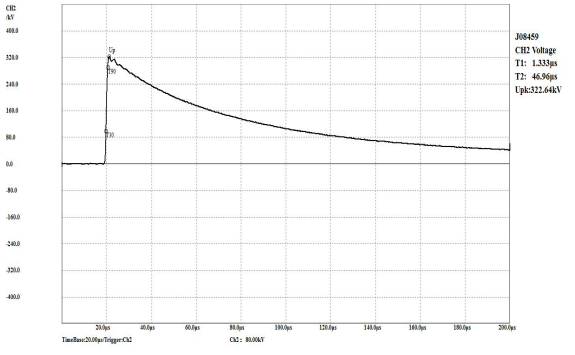



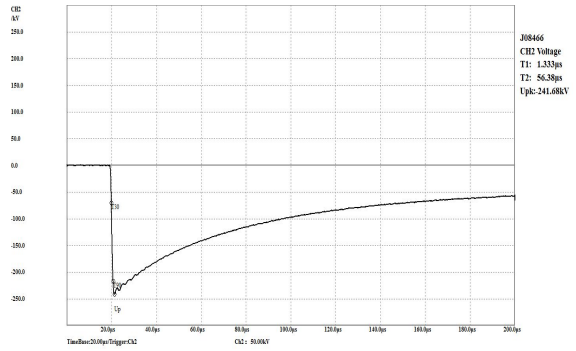



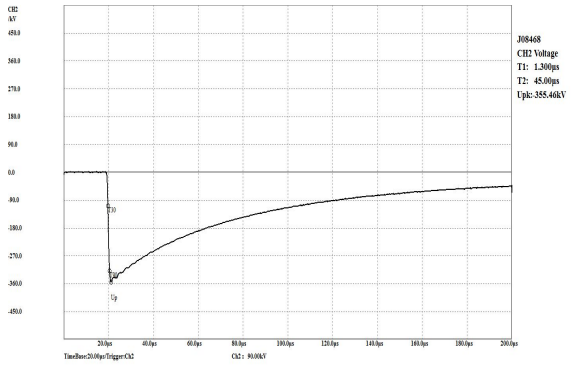



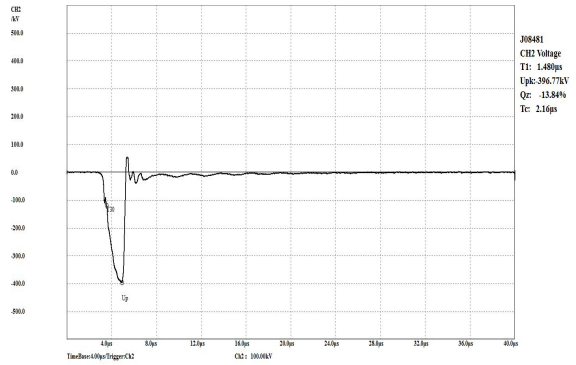
Tested terminal: To earth

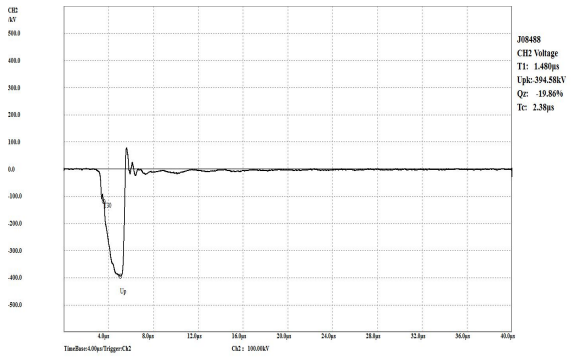
Test polarity: Negative

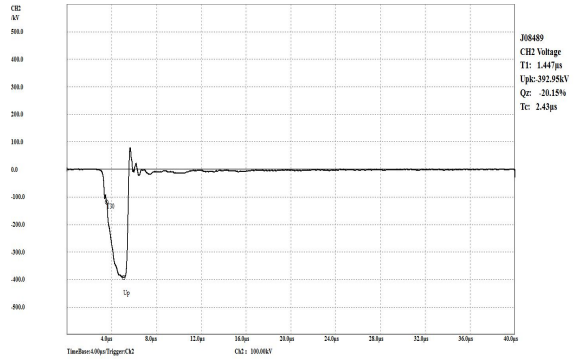
CH1: Voltage records

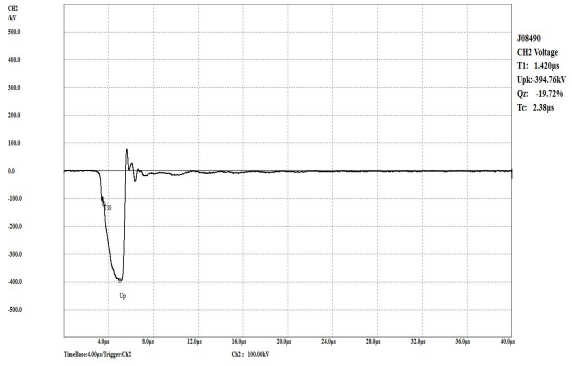


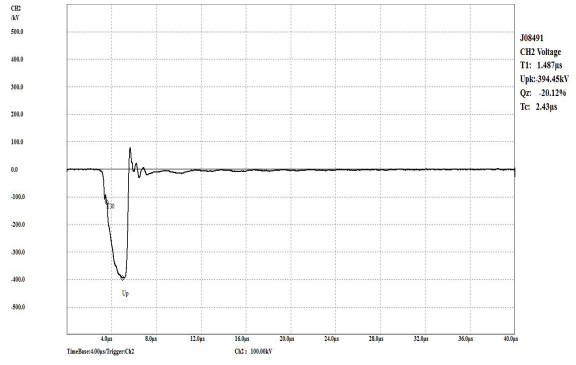



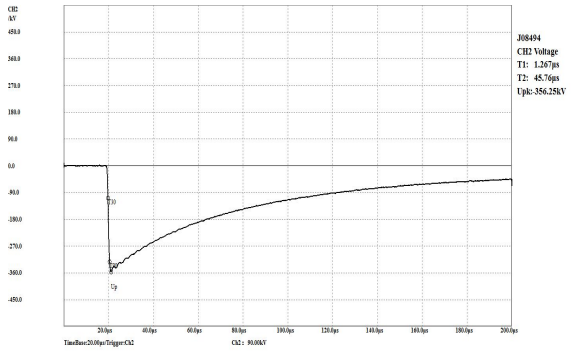



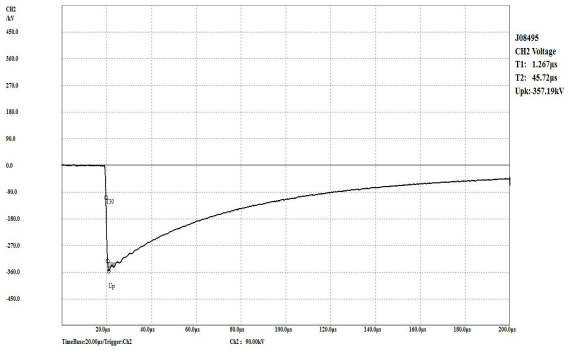



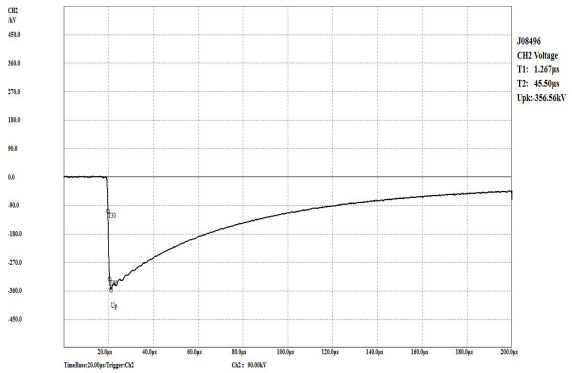
# Test Report

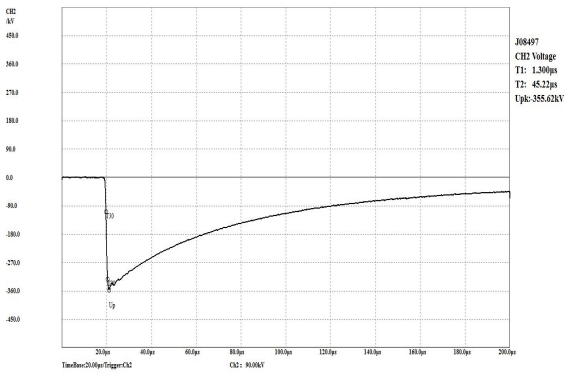


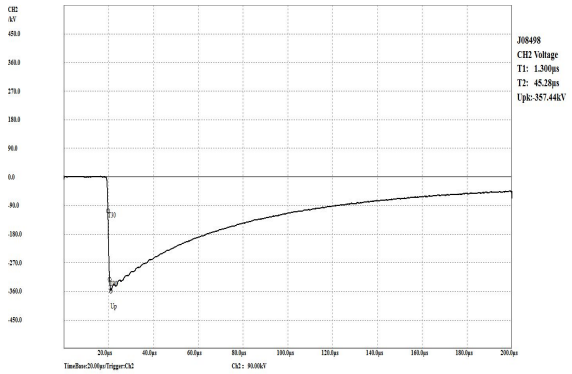
Tested terminal: To earth Test polarity: Negative CH1: Voltage records

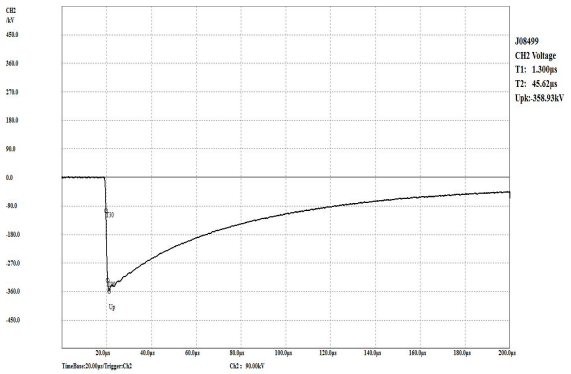


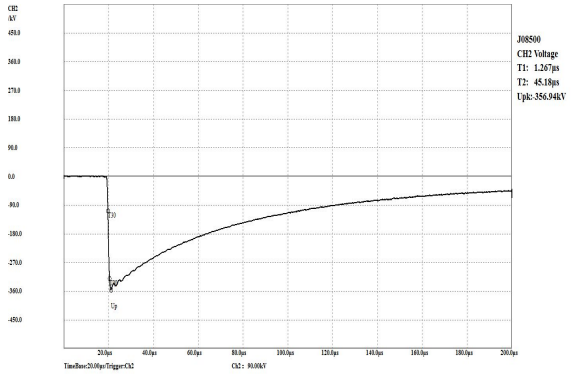



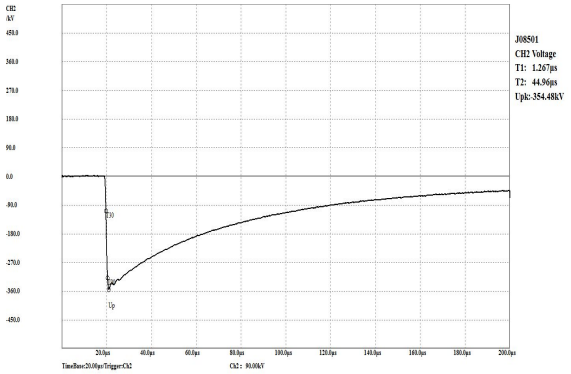



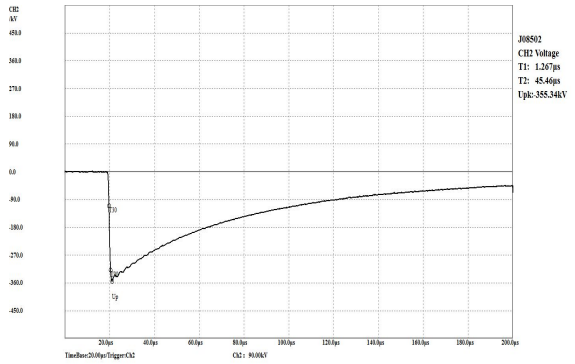



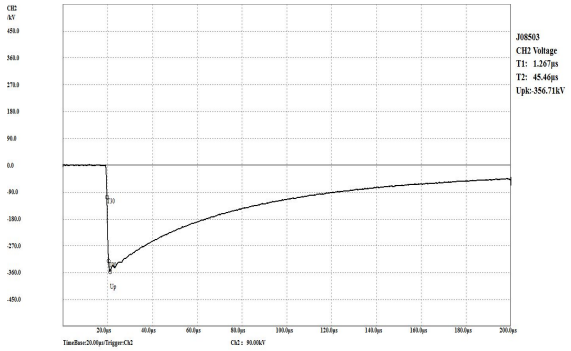



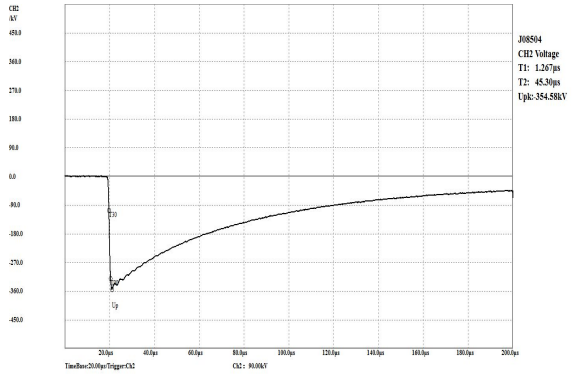



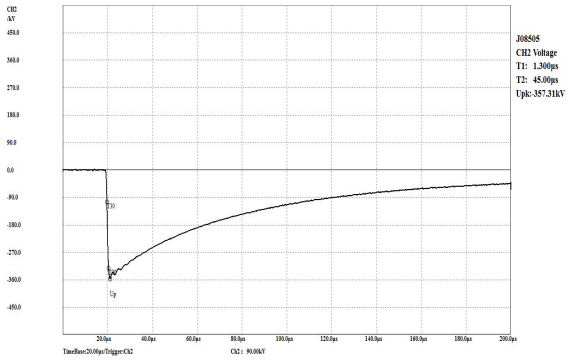



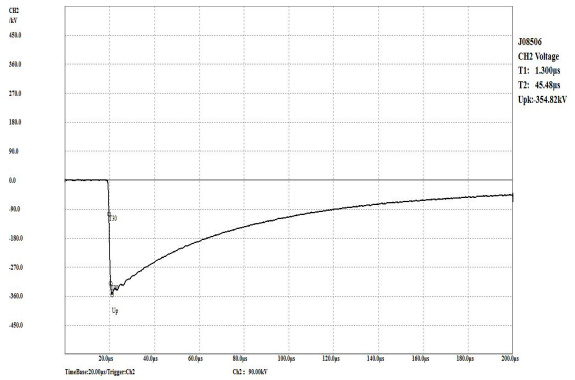
Tested terminal: To earth Test polarity: Negative CH1: Voltage records

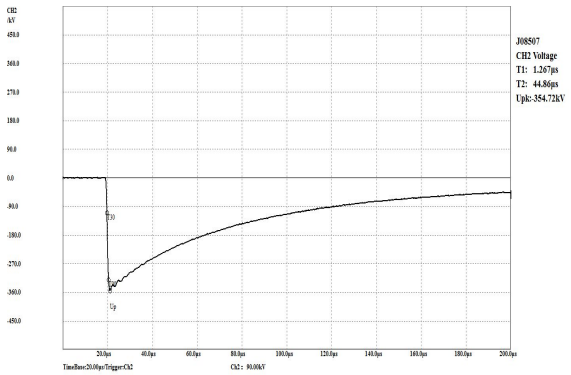


4.4 Wet power-frequency voltage withstand test(Type test) Test date: Feb. 10, 2025

Humidity: 63.0%; Ambient temperature: 10.2℃; Atmospheric pressure: 102.0kPa

| Applied position | Applied voltage(kV) | | | Frequency (Hz) | Duration (s) | Result |
|---|---|---|---|---|---|---|
| | Standard value | Atmospheric corrected value | Applied value | | | |
| Terminal-earth | 140 | 140.8 | 140.8 | 60 | 60 | Passed |

Note: The conductivity of collected water is 100.5μS/cm at 20℃.
Average precipitation rate: Vertical component 1.4mm/min, horizontal component 1.2mm/min.

4.5 Long-duration power-frequency voltage withstand test(ACLD)(Type test)

Test date: Feb. 16, 2025

Humidity: 52.0%; Ambient temperature: 10.3℃; Atmospheric pressure: 102.3kPa

| Applied voltage | | Duration(min) | Partial discharge level(pC) |
|---|---|---|---|
| Multiple | Phase-earth(kV) | | |
| $1.1U_m/\sqrt{3}$ | 46.1 | 5 | <4 |
| $U_2=1.5U_m/\sqrt{3}$ | 62.8 | 5 | <4 |
| $U_1=U_m$ | 72.5 | 1 | / |
| $U_2=1.5U_m/\sqrt{3}$ | 62.8 | 5 | <4 |
| | | 10 | <4 |
| | | 15 | <4 |
| | | 20 | <4 |
| | | 25 | <4 |
| | | 30 | <4 |
| | | 35 | <4 |
| | | 40 | <4 |
| | | 45 | <4 |
| | | 50 | <4 |
| | | 55 | <4 |
| | | 60 | <4 |
| $1.1U_m/\sqrt{3}$ | 46.1 | 5 | <4 |

Note: $U_m$=72.5kV; Background level is＜4pC before and after test.

Result: Passed.

4.6 Temperature-rise test(Type test) Test date: Feb. 13, 2025

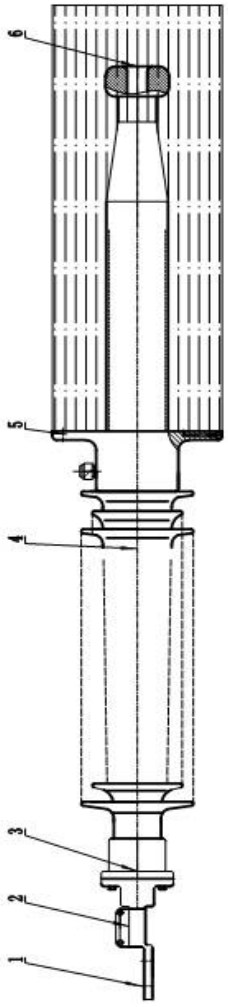
Specified current was 1250A, injected current was 1250A during test, the test duration was 6h, stability duration was 1h.

Temperature-rise calculated value

| No. | Measurement position | Temperature (℃) | Temperature rise(K) | Oil temperature (℃) | Ambient temperature (℃) | Result |
|---|---|---|---|---|---|---|
| 1 | Terminal in the air | 57.3 | 47.2 | 70.4 | 10.1 | Passed |
| 2 | Firmness of terminal in the air | 56.4 | 46.4 | | | |
| 3 | Top of internal conductive rod | 55.8 | 45.7 | | | |
| 4 | Mid of internal conductive rod | 62.0 | 51.9 | | | |
| 5 | Flange | 49.9 | 39.8 | | | |
| 6 | Tail of internal conductive rod | 72.9 | 62.8 | | | |

The measurement position drawing is shown in page 15.

Schematic diagram of measured point of temperature rise




1. Terminal in the air 2. Firmness of terminal in the air 3. Top of internal conductive rod 4. Mid of internal conductive rod
5. Flange 6. Tail of internal conductive rod

4.7 Verification of thermal short-time current withstand(Verify by the calculation)

(Type test) Test date: Feb. 13, 2025

The standard value of thermal short-time current of bushing $I_{th}$=31.25kA, duration $t_{th}$=2s. According to calculation final temperature of the conductor $\theta_f$ =146.3℃. If $\theta_f \leqslant$180℃, it was considered that the bushing could withstand the standard value $I_{th}$ of thermal short-time current.

Sample parameters

| | |
|---|---|
| Conductor material of sample | Copper |
| Conductor resistivityρ(μΩ·cm) | 1.75 |
| Total cross section area $S_t$(cm$^2$) | 11.3354 |
| Measured temperature rise of the bushing (K) | 90 |
| Rated current $I_r$(A) | 1250 |
| Standard value of rated thermal short-time current $I_{th}$(kA) | 31.25 |
| Rated duration $t_{th}$(s) | 2 |
| $\theta_0$(℃) | 130 |
| Current penetration depth $d$(cm) | 0.942 |
| Diameter of the conductor $D$(cm) | 3.8 |
| $\alpha$[(K/s)/(kA/cm$^2$)$^2$] | 0.8 |
| Equivalent cross section area considering the skin effect $S_e$(cm$^2$) | 8.4536 |

Verify by the calculation:

$$\theta_f = \theta_0 + \alpha \frac{I_{th}^2}{S_t \times S_e} \times t_{th} = 146.3℃$$

Result: Passed.

4.8 Cantilever load withstand test(Type test) Test date: Feb. 16, 2025

| Load direction | Applied position | Standard value | | Applied value | | Result |
|---|---|---|---|---|---|---|
| | | Load(N) | Duration(s) | Load(N) | Duration(s) | |
| Vertical | Terminal | 4000 | 60 | 4028 | 60 | No damage, distortion, passed |

4.9 Visual inspection and dimensions check (Type test) Test date: Feb. 16, 2025

It has smooth surface, no cracks. Dimensional check is accordance with the drawing requirement.

Drawing values (mm): 1880±20 725±5 700±10 Φ330 100

Measured values (mm): 1890 725 705 Φ330 100

Arcing distance (mm): 855 Creepage(mm): 2725

Result: Passed.

4.10 Measurement of partial discharge quantity(After type test) Test date: Feb. 17, 2025

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Prestress voltage (kV) | Duration(s) | Measured voltage(kV) | Partial discharge level(pC) | Result |
|---|---|---|---|---|
| 155 | 60 | 72.5 | <4 | Passed |
| | | 62.8 | <4 | |
| | | 44 | <4 | |

Note: Background level is <2pC before and after test.

4.11 Measurement of dielectric dissipation factor(tanδ) and capacitances at ambient temperature(After type test) Test date: Feb. 17, 2025

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Applied voltage (kV) | Dielectric dissipation factor (tanδ) | Capacitance(pF) | Result |
|---|---|---|---|
| 10 | 0.00300 | 413.3 | Passed |
| 44 | 0.00301 | 413.5 | |
| 72.5 | 0.00301 | 413.5 | |

Note: tanδ(72.5kV)- tanδ (4kV) = 0.00002≤0.001(Standard value), passed.

4.12 Tests of tap insulation(Routine test) Test date: Feb. 17, 2025

Power-frequency voltage withstand test

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Applied position | Applied voltage(kV) | Frequency(Hz) | Duration(s) | Result |
|---|---|---|---|---|
| Tap－earth | 3 | 60 | 60 | Passed |

Measurement of dielectric dissipation factor (tanδ) and capacitances

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Applied voltage(kV) | Dielectric dissipation factor(tanδ) | Capacitance(pF) | Result |
|---|---|---|---|
| 3 | 0.00502 | 194.0 | Passed |

4.13 Dry lightning impulse voltage withstand test(Routine test) Test date: Feb. 17, 2025

Test atmospheric conditions

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

Full wave rated withstand voltage: negative polarity:341.3kV; 3 negative polarity

Chopped wave rated withstand voltage: negative polarity:373.8kV; 2 negative polarity

Test sequence

One negative reference full wave impulse;

One negative rated full wave impulses;

Two negative rated chopped wave impulses;

Two negative rated full wave impulses.

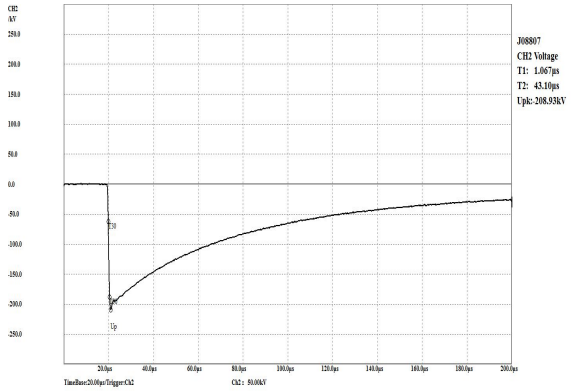
Test records:

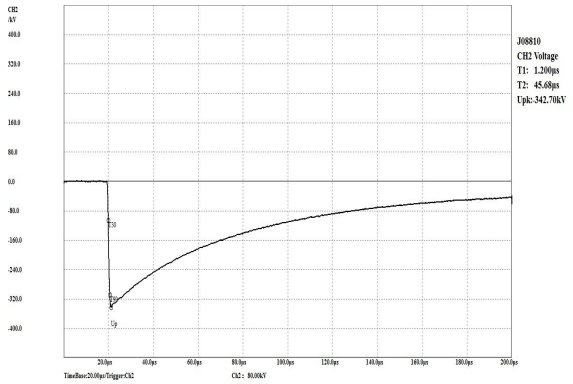
T1: Front time; T2: Time to half value; Upk: Peak voltage;

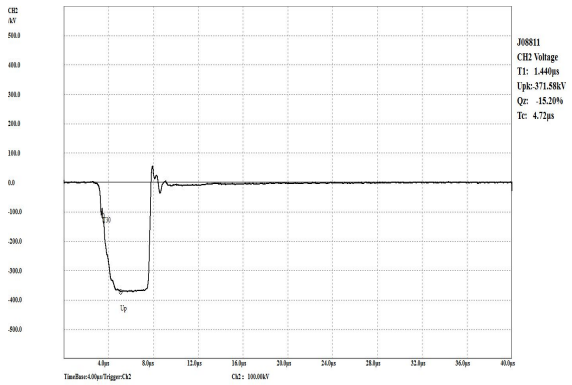
Tc: Time to chopping; Qz: Factor of over crossing.

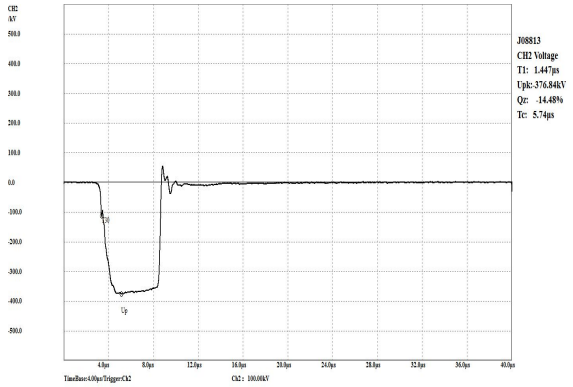
Result: Passed.

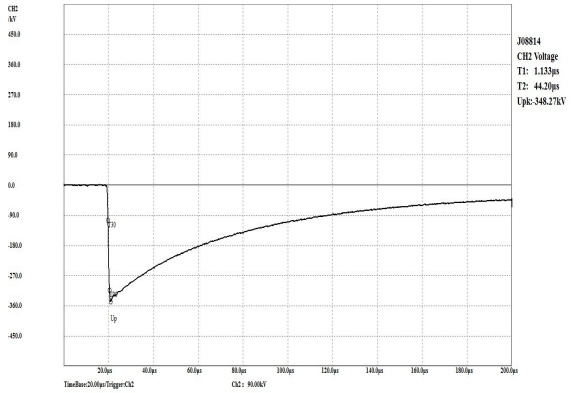
Tested terminal: To earth Test polarity: Negative CH2: Voltage wave

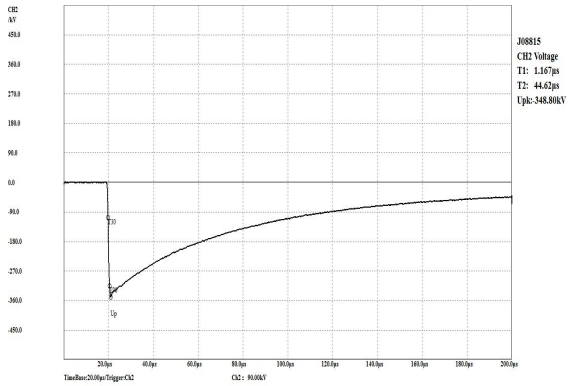


4.14 Dry power-frequency voltage withstand test (Routine test) Test date: Feb. 17, 2025

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Position | Applied voltage(kV) | | | Frequency (Hz) | Duration (s) | Result |
|---|---|---|---|---|---|---|
| | Standard value | Atmospheric corrected value | Applied value | | | |
| Terminal－earth | 155 | / | 155 | 60 | 60 | Passed |

4.15 Measurement of partial discharge quantity(Routine test) Test date: Feb. 17, 2025

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Prestress voltage (kV) | Duration(s) | Measured voltage(kV) | Partial discharge level(pC) | Result |
|---|---|---|---|---|
| 155 | 60 | 72.5 | <4 | Passed |
| | | 62.8 | <4 | |
| | | 44 | <4 | |

Note: Background level is ＜2pC before and after test.

4.16 Measurement of dielectric dissipation factor(tanδ) and capacitances at ambient temperature(Routine test) Test date: Feb. 17, 2025

Humidity: 58.0%; Ambient temperature: 10.4℃; Atmospheric pressure: 102.8kPa

| Applied voltage (kV) | Dielectric dissipation factor (tanδ) | Capacitance(pF) | Result |
|---|---|---|---|
| 10 | 0.00299 | 413.5 | Passed |
| 44 | 0.00300 | 413.6 | |
| 72.5 | 0.00300 | 413.6 | |

Note: tanδ(72.5kV)- tanδ (44kV) = 0.00000≤0.001(Standard value), Passed.

4.17 Tightness test at the flange or other fixing device(Routine test) Test date: Feb. 17, 2025

Ambient temperature: 10.4℃

| Applied medium | Applied pressure(MPa) | Duration(h) | Residual pressure(MPa) | Result |
|---|---|---|---|---|
| $SF_6$ gas | 0.4 | 15 | 0.4 | No leakage or damage, passed |

4.18 Visual inspection and dimensions check (Routine test) Test date: Feb. 17, 2025

It has smooth surface, no cracks. Dimensional check is accordance with the drawing requirement.

Dimensional inspection see 4.9.

Result: Passed.

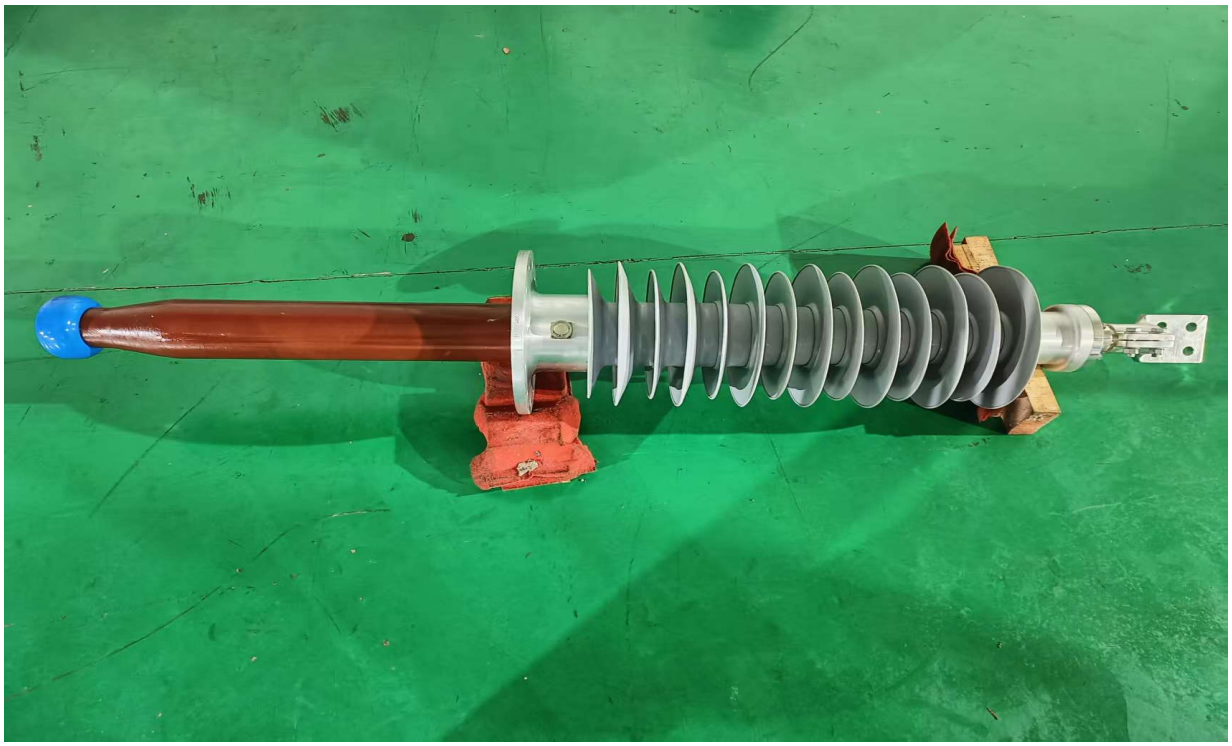
Annex 1

# RATING PLATE AND OUTLINE PHOTOS

№：CTQC/ZJ-25.0095

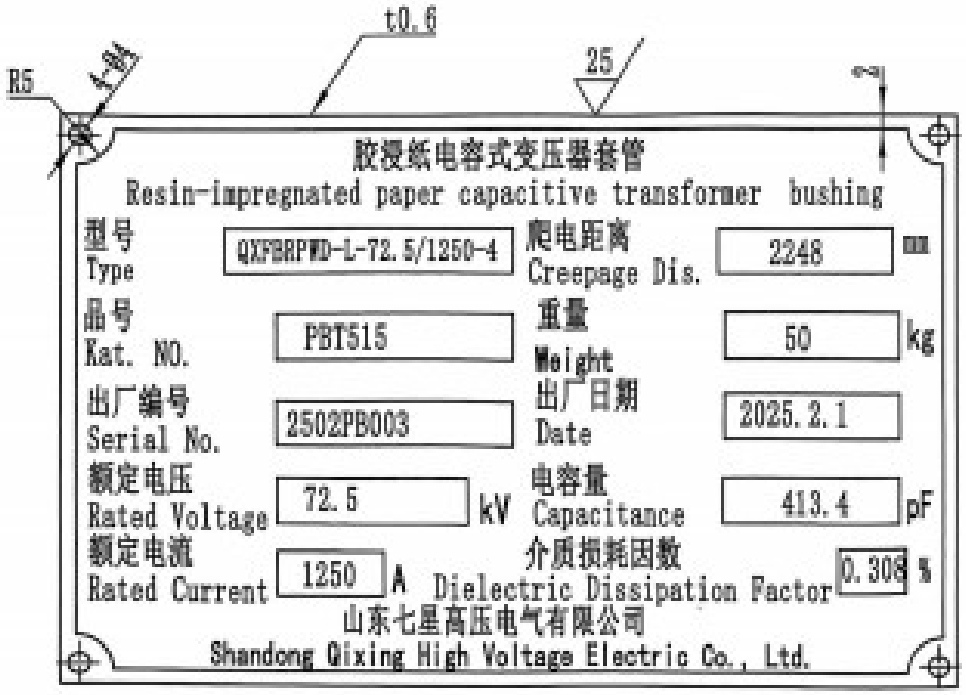
Rating plate:


Outline:



Annex 2

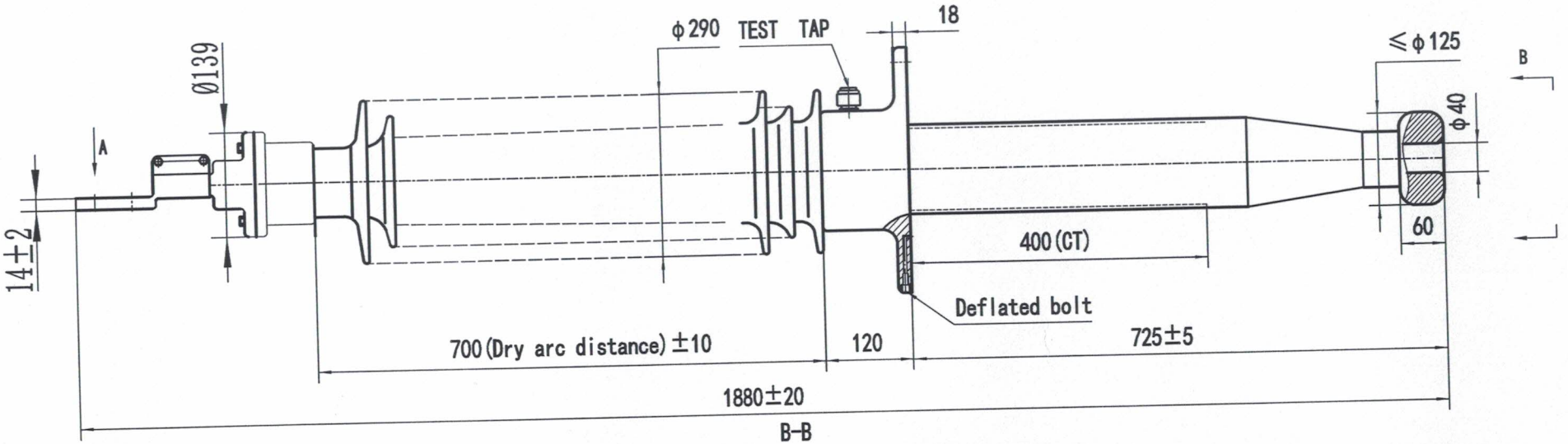
# BUSHING DRAWINGS

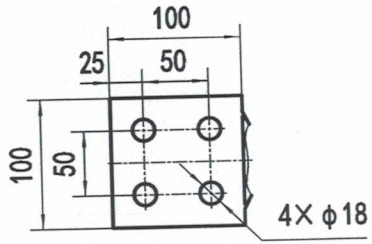


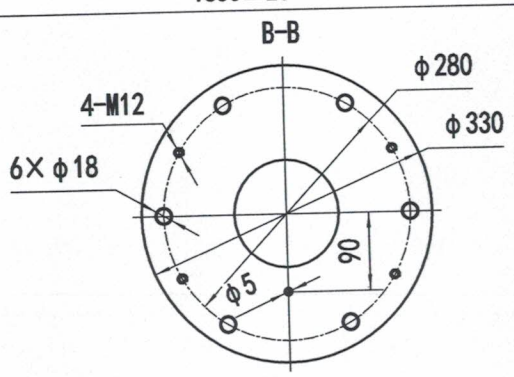

| 借(领)用件登记 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 旧底图总号 | | | | | | | | 产品型号 | |
| 底图总号 | | | | | | | | 铭牌nameplate | |
| 签字 | | | | | | | | | |
| 日期 | 标记 | 处数 | 分区 | 更改文件号 | | 签字 | 日期 | | |
| | 设计 | 张学明 | 2025.2.1 | 标准化 | | | | 316L | |
| 档案员 日期 | 校核 | 石孝刚 | 2025.2.1 | 审定 | | | | | |
| | 会签 | | | 批准 | | 曹明波 | 2025.2.1 | | |

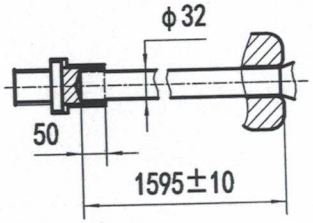
| 图纸代号 | 重量 | 比例 |
|---|---|---|
| QQX.860.009铭 | 0.030 | 1:1 |
| 共 张 | 第 张 | |

Shandong Qixing High Voltage Electric Co. 山东七星高压电气有限公司




Technical parameters

1. Rated voltage: 72.5kV
2. Rated current :1250A
3. 1min power frequency withstand voltage: 155kV
4. Lightning impulse withstand voltage: 325kV
5. Dielectric loss tangent: ≤ 0.4%
6. PD: Um measured ≤ 10
7. Bending load: 4000N
8. Creepage distance: 2248mm
9. Operating ambient temperature: +65℃~-60℃

沈阳变压器研究院有限公司 图纸验收专用章

| 标记 | 处数 | 分区 | 更改文件号 | 签名 | 年、月、日 |
|---|---|---|---|---|---|
| 设计 | 张学明 | 2025.2.1 | 标准化 | | |
| 审核 | 石孝刚 | 2025.2.1 | | | |
| 工艺 | | | 批准 | 曹明波 | 2025.2.1 |

| QXFBRPWD-L-72.5/1250-4 | | |
|---|---|---|
| 阶段标记 | 重量 | 比例 |
| | | 1:10 |
| 共 张 | 第 张 | |

Shandong Qixing High Voltage Electric Co. LTD

Resin-impregnated paper capacitive transformer bushing

Product number: PBT515

# CHPTL

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Power Industry Reactive Compensation Equipment Quality Inspection & Test Center(PRCIQTC)

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