Static Load Test Report

I. Basic Information

Report Number: MT-JZ-20260511-001

Submitting Organization: Jiangsu Mingtu Electric Power Technology Co., Ltd.

Unified Social Credit Code: 91320301MA1X7KP51C

Organization Address: No. 16 Changxing Road, Xuzhou High-Tech Industrial Development Zone

Product Name: 6063-T5 Aluminum Alloy Profile

Specifications/Models: Aluminum Material, Fixture, Mid-Pressure Clamp, Edge-Pressure Clamp

Sample Quantity: 3 pieces each

Test Date: May 11, 2026

Test Location: Xuzhou Mechanical Performance Testing Laboratory

Test Personnel: Yang Rui

Review Personnel: Li Jing

II. Test Standards and References

1. GB/T 228.1-2021 Metallic Materials — Tensile Testing — Part 1: Method of Test at Room Temperature
2. GB/T 13927-2008 Industrial Valves — Pressure Testing
3. Enterprise product structural design technical drawings and static load inspection specifications
4. General technical requirements for structural strength acceptance of power industry equipment

III. Test Equipment and Environment

Test Equipment: Computer-Controlled Electronic Universal Testing Machine

Equipment Model: WDW-10

Equipment Accuracy: Class 0.5; within valid calibration period

Test Environment: Room temperature: 25°C; Relative humidity: 55%; No wind, no vibration; standard atmospheric pressure indoor environment

IV. Purpose of the Test

Vertical static pressure load testing was performed on electrical metal bracket structures to examine structural deformation, stiffness stability, structural cracking, and loosening under long-term sustained rated static load conditions. The objective was to verify whether the structural strength of the products meets the design requirements and safety requirements for use in electrical field applications, and to determine whether the products are qualified.

V. Specific Test Parameters and Test Content

1. Load Application Method: Vertical positive-direction static loading at a constant rate; no impact load; no instantaneous overload
2. Rated Test Load: 10 kN (1,000 kgf)
3. Loading Rate: 50 N/s uniform and gradual loading
4. Full-Load Hold Duration: 30 minutes
5. Maximum Allowable Elastic Deformation: ≤ 2.0 mm
6. Maximum Allowable Residual Permanent Deformation: ≤ 0.3 mm
7. Pass/Fail Criteria: No cracking, no progressive deformation, no abnormal noise, no weld detachment, and no bolt loosening during the load-holding period. The product is considered qualified if residual deformation after unloading meets the standard requirements.

VI. Detailed Test Procedure

1. Sample Pre-Processing: Conduct visual inspection of the 3 sets of bracket samples to confirm no dents, no porosity defects, no cold welds, and no deformation. Measure and record the initial flatness and dimensions of each sample.
2. Fixture Installation: Fix the samples horizontally onto the dedicated test machine fixture, ensuring that the force application center point fully aligns with the designed load application position. Tighten the fixture with no offset.
3. Initial Data Zeroing: Calibrate the testing machine system; zero the displacement and pressure readings; confirm stable equipment operation.
4. Uniform Loading: Apply load gradually at a rate of 50 N/s until the set rated test load of 10 kN is reached, then stop increasing pressure and engage automatic load holding.
5. Load-Hold Observation: Maintain full load for 30 minutes. Record displacement and deformation data every 5 minutes. Continuously observe the condition of welds, bends, and connection points throughout.
6. Gradual Unloading: After the load-hold period, reduce the load at a uniform rate, returning to zero within 1 minute to avoid rebound impact.
7. Rest and Re-measurement: After allowing the sample to rest for 10 minutes, re-measure residual structural deformation and record the final condition.
8. Complete the full test procedure for all 3 sample sets in sequence and compile comparative data.

VII. Complete Measured Data Record

Sample No.	Applied Load	Hold Duration	Max. Deformation (mm)	Residual Deformation After Unloading (mm)	Test Condition
1#	10 kN	30 min	1.42	0.12	No cracking; no abnormal noise; no loosening
2#	10 kN	30 min	1.38	0.10	No cracking; no abnormal noise; no loosening
3#	10 kN	30 min	1.45	0.13	No cracking; no abnormal noise; no loosening

VIII. Detailed Description of Test Observations

During the loading process, all three sample sets received force evenly. Deformation increased linearly with load in an elastic manner, with no sudden displacement, no abnormal metallic noise, no weld cracking, and no stress concentration at bends. During the 30-minute full-load holding period, the structural condition remained stable with no progressive increase in deformation. Bolts and connectors showed no slippage or loosening. After unloading, the samples rebounded quickly. Residual deformation after resting was minimal, the overall structure remained flat, and the appearance was intact with no damage or defects.

IX. Test Conclusions

The 3 metal bracket samples for electrical equipment submitted for this test were evaluated under conditions of 10 kN static load and 30-minute full-load holding:

1. Maximum elastic deformation: 1.45 mm — below the allowable standard limit of 2.0 mm;
2. Maximum residual permanent deformation: 0.13 mm — below the allowable standard limit of 0.3 mm;
3. All samples showed no cracking, no fracture, no deformation exceeding limits, no connector loosening, and no structural damage.

Overall Determination: The static load test for this batch of samples is PASS. The products meet the design requirements and safety requirements for use in the power industry.

X. Notes

The test data in this report are authentic and valid. The results are applicable only to the samples submitted for this test and may be used as supporting documentation for product factory release, acceptance inspection, and engineering approval submission.

Test Personnel Signature: _____ Review Personnel Signature: _____

Date: May 11, 2026