



东莞市环仪仪器科技有限公司
HU ANYI INSTRUMENTS CO.,LTD

HY-315A Single wing drop testing machine

Operating Manual

Survival by quality,
Development with integrity,
Efficiency by management.

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Preface

Thank you for choosing our products. We not only provide you with high-quality products, but also provide reliable after-sales service.

To ensure the personal safety of users and the integrity of the instrument, please read this operation manual thoroughly before using this instrument and pay attention to the precautions for use. This operation manual introduces in detail the design principle, basis standard, structure, operation specification, calibration, maintenance, possible failure situations and troubleshooting methods, electrical diagrams, etc. of this instrument. Any "test regulations" and "standards" mentioned in this operation manual are for reference only. If you have any objections, please review the relevant standards or materials yourself.

Special statement:

- This operation manual shall not be used as the basis for any request to the Company.
- The company reserves the right to interpret this operation manual

I、 Safety precautions

Safety marks:

In this manual, there are the following important display items regarding safety precautions and when using the instrument. In order to prevent accidents and dangers, be sure to abide by the following danger, warning, and caution notes:

Dangerous:



The items displayed here indicate that if not followed, the operator may be injured.

Caution:



The items shown here indicate possible damage to the instrument if not followed.

Caution:





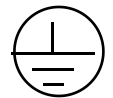
This displays items that are indicated as having the potential to affect test results and quality.

【Note】



The items displayed here represent the auxiliary statements for the operation and use of this product.

1. On this instrument, the following marks indicate attention and warning.

	Warning sign	This symbol indicates where it is necessary to refer to the operating manual.
	Hazardous voltage sign	This symbol indicates high voltage hazard.
	Ground protection sign	Indicated as the ground terminal on this instrument.

II、 Machine overview

Single-arm drop tester This machine is specially designed to test the damage of product packaging by falling, and to evaluate the impact strength during transportation

Design applicable standards:

ISO2248 JISZ0202-87 GB/T4857.5-92

Profile Editor:

The single-wing drop tester can perform free drop tests on the faces, corners and edges of packaging products. It is equipped with a digital height display and uses a decoder for height tracking, so that the product drop height can be accurately given, and the error with the preset drop height does not exceed 2% or 10mm. This machine adopts a single-arm double-column structure, with electric reset, electric control drop and electric lifting devices: easy to use;

Principle Edit:

The drop tester simulates the situation when the product is dropped from different edges, corners and surfaces to the ground at different heights after packaging, so as to understand the damage of the product and evaluate the drop height and impact resistance of the product packaging components when it drops. In this way, the packaging design can be improved and perfected according to the actual situation of the product and within the scope of national standards. This tester is specially designed to test the internal damage of various products caused by falling during handling or transportation after packaging. In order to prevent and eliminate harm in advance, this machine can be used to conduct expected tests to obtain the best solution, so as to minimize losses during transportation, and evaluate the impact resistance of electronic components when they are dropped during transportation; the reliability of the diamonds, corners and surfaces of the packaging container can be tested.

III、 Technical parameters

1. Drop height: 0-1500 mm adjustable
2. Drop height error: $\pm 1\text{mm}$
3. Maximum height: 4300mm
4. Maximum weight of test piece: 100Kg
5. Base plate size: $\geq 1800*1600\text{mm}$
6. Overall dimensions: $\geq 1800*1600*2900\text{mm}$
7. Maximum size of test piece: 800 x 800 x 1600
8. Impact panel size: 1700 x 1800 (double)
9. Support arm size: 160*250*10
10. Drop height error: $\pm 10\text{mm}$
11. Overall dimensions of the test bench: approximately 1700 x 1800 x 2315
12. Net weight: about 300kg
13. Falling method: free fall from all directions including faces, corners and edges.
14. Transmission mode: electric transmission
15. Equipment repeated drop time: $\leq 180\text{S}$
16. Impact panel parallel error: ≤ 1 degree
17. The angle error between the falling surface and the horizontal during the falling process: ≤ 1 degree
18. Equipment reliability: cumulative number of normal drops $\geq 5,000$ times
19. Control method: intelligent digital control, using digital servo vibrator and microcomputer dynamic control
20. Height display: LED instrument digital display
21. Power supply and power: AC415V, $\geq 4\text{KW}$

IV、 Drop test bench structure

1. The main column is made of special high-quality steel, processed by external grinding and electroplating, durable and never rust;
2. Taiwan ST special customized chain;
3. The surface, edge and corner drop test is truly completed;
4. Electric reset, electric control drop and electric lifting device, easy to use;
5. Ensure the free separation of the cargo bracket and the packaging specimen, realize the free fall of the packaging specimen, small impact vibration, stable and reliable;
6. Equipped with a digital height display and a decoder for height tracking, so as to accurately give the product drop height;
7. The error with the preset drop height does not exceed 2% or 10mm.

V、 Note and maintenance

1. After each test, the drop arm must be dropped to prevent the drop arm from being deformed by the long reset of the drop arm, which will affect the test results. Please reset the motor to stop rotating before pressing the drop button each time before dropping.
2. After the new machine is installed at the factory, appropriate low-concentration engine oil must be added to the sliding rod. It is strictly forbidden to add anti-rust oil or high-concentration engine oil and accumulated corrosive oils).
3. If the oiling area is dusty for a long time, please lower the machine to the bottom, wipe off the previous engine oil, and then re-oil;
4. The drop machine is an impact mechanical device. When the new machine is used for more than 500 times, all screws must be tightened again.

VI. Working environment requirements

Temperature: $5^{\circ}\text{C} \sim +28^{\circ}\text{C}$ [1] (average temperature within 24 hours $\leq 28^{\circ}\text{C}$)

Relative humidity: $\leq 85\%\text{RH}$

Power supply conditions: three-phase four-wire + protective ground wire,

Voltage range: AC $(380 \pm 38)\text{V}$

The user is required to configure an air or power switch of corresponding capacity for the equipment at the installation site, and this switch must be used independently for this equipment

VII. Features

1. This machine can perform free fall tests on the faces, corners and edges of the package.
2. Equipped with a digital height display and an encoder for height tracking, it can accurately give the product drop height and the error with the preset height is no more than 2% or 10mm.
3. This machine adopts a single-arm double-column structure, with electric reset, electric drop and electric lifting devices, which is easy to use.
4. The single-arm setting can easily place the product, and the angle error between the impact surface of the drop angle and the floor plane is less than or equal to 5 degrees
5. The bottom plate thickness is 10mm, and the bottom plate has enough weight and force area to achieve a load of 80kg at a height of 1.5 meters. When the equipment is tested, the arm is tilted and does not shake to achieve free fall of the package.

VIII、OI (Operating instructions)

1. Connect the power supply: AC380V 50HZ
2. Turn on the power switch (it is strictly forbidden for untrained personnel to enter the yellow warning line to perform any related test operations at this time. It is strictly forbidden to stand under the drop arm, which is very dangerous). The power indicator light is on, and the instrument enters the standby state after self-checking;
3. Set the required height, press the "SET/Set" key until the interface display flashes, and set the required height (unit: mm); when setting the height, press the right shift key or increase the value to change the required height; after setting the height value, press the "SET/Set/Confirm" key to

confirm that the height setting is completed, and the standby state can be (note that the instrument has been calibrated when the machine leaves the factory. Except for setting the height by yourself, do not change other parameters, otherwise there may be a malfunction); when the drop arm drops to the lowest height, the "RST/Reset" key is required, and then the machine is raised.

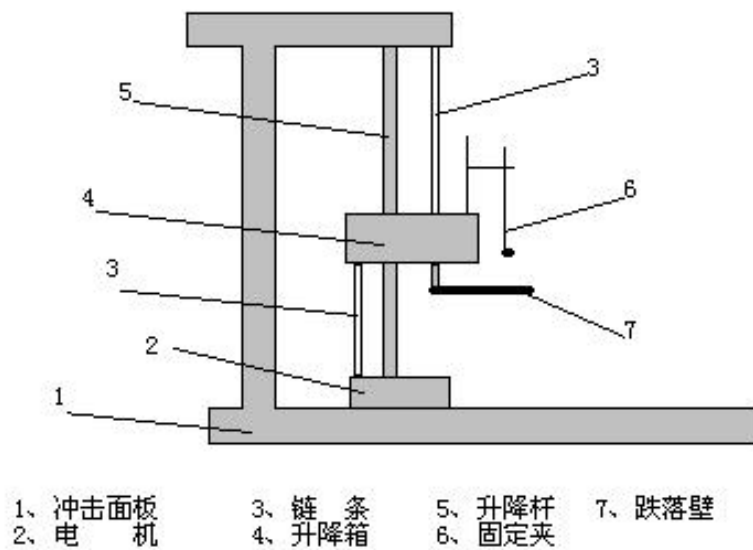
4. After the height setting is completed, place the object to be tested on the test board and fix the fixture (note: when testing, it must be completed by two people) and press the required surface, angle, and edge by yourself.

5. Test method: When the up button is pressed to the set height, it will automatically stop rising and enter the test state (the operator leaves the test area). Press the drop button, the test object will fall freely, and the test is completed;

Remarks: If there is an emergency, please do not handle it yourself, but notify the manufacturer or seller to avoid accidents;

IX. Machine appearance picture





- | | | | |
|-----------------|-----------------|-----------------------|---------------|
| 1. Impact panel | 2. Motor | 3.Chain | 4.Lifting box |
| 5. Lifting rod | 6.Securing clip | 7. Falling off a wall | |

X. Precautions and maintenance

1. After each test, the drop arm must be dropped to prevent the long-term reset of the drop arm from deforming the spring and affecting the test results. Before each drop, please reset the position and stop the motor before pressing the drop button;
2. After the new machine is installed at the factory, appropriate low-concentration engine oil must be added to the sliding round rod. It is strictly forbidden to add anti-rust oil or high-concentration engine oil and accumulated corrosive oils).
3. If there is too much dust at the oiling place for a long time, please lower the machine to the bottom, wipe off the previous engine oil, and then re-oil the machine;
4. The drop machine is an impact mechanical equipment. When the new machine is used for more than 500 times, all screws must be tightened to avoid malfunctions.

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