



Paper Abrasion Tester

LB-10PAT

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1. Introduction

Paper abrasion tester LB-10PAT is a microprocessor controlled abrasion resistance tester. The non-oiled RCA paper rotational motion provides discriminating effect of the wearing of the testing sample. The product is designed to conform to ASTM F2357-04 international testing standard.

2. Features

1. Digital LCD screen for visual monitoring of delivered data
2. Accurate wear resistance determination
3. Fixed diameter roller and constant speed motor with special counter
4. Wide range of adjustable counter number
5. Suitable for electronic product surface testing

3. Specifications

Model No.	LB-10PAT
Counter	0 ~ 99999999
Load	55 g
	175 g
	275 g
Power supply	220 V
Dimensions	530 × 490 × 410 mm
Weight	30 kgs

4. Applications

Used for testing the coating surface abrasion resistance of electronic products with electroplating, baking paint, screen printing, etc.

5. Instrument Introduction



Figure-1

- A.** Winding reel device
- B.** Base level for adjusting the level of the machine. Four feet (Q) can be installed before the instrument is placed, and the level can be adjusted according to conditions.
- C.** Slide bolt, used to confirm whether the vertical axis is parallel to the instrument base, and set: "**B**" (surface instrument, indicating parallel to the instrument). When the "**O**" loop and the test paper are placed in the test area, it must be confirmed whether it is in parallel. The slide plug must be removed from the bottom of the swing arm "**E**" during operation.
- D.** Rotary counter.
- E.** Shaking arm.
- F.** Vertical axis fine adjustment screw.
- G.** Vertical axis, position can be adjusted up and down.
- H.** Boots.

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- I.** Swing the clamp screw on the arm (used to change the vertical axis angle) the vertical axis angle is fixed at the factory. Do not loosen the adjustment.
- J.** A nylon bearing frame is included to guide the paper and tape without any adjustment.
- K.** O-ring, surface damage, or needs to be replaced after six months of use.
- L.** Aluminum supply reel.
- M.** Pressure roller.
- N.** Drive roller.
- O.** 1/4 wide wear tape for testing concave and slender letters.
- P.** Hexagon wrench set.

6. Installation

6.1 Fast installation of abrasion tester

1) Purpose

If users move the slide pin (C) slightly, you can confirm whether the full-weight of the vertical axis falls on the sample to be tested (is parallel to the instrument base).

2) Ways

- Start the motor until it is known that the swing arm (E) lifts the cam to the lowest position and the bearing cam drive shaft is in the empty position.
- Put the swing arm on the flat surface of the slide bolt (G), loosen the two screws on the vertical axis (G), and move the vertical axis (G) up and down so, that the “O” ring is tightly on the sample to be tested.
- Turn the brass weight adjustment screw (F) until the slide bolt (G) is slightly moved, and the vertical axis moves with slight movement.
- Re-tighten the copper screws.
- When there is a load on the sample (vertical axis), this action can set the swing arm to be in parallel with the base of the instrument. Tighten the screws to fix the vertical axis in the adjusted position.
- Remove the slide bolt (G) under the swing arm before running the test. When testing different thickness samples, this item must be adjusted again.

6.2 High revolution number contact wear test function

1) Replace standard rotary for continuous wear test

- The motor is stopped after the rotary counter counts the sound.
- Use a hex wrench to loosen the screws connecting the swing arm and the bearing cam transmission shaft by hand (since the screw is set in a small hole in the shaft, it takes about 3 turns to loosen).
- The bottom end of the drive shaft has two holes for returning to standard rotary mounting.
- Gently push the bearing and drive shaft toward the operator, until the ends of the gap do not come into contact with anything and stop, and gently lower the screw with your hand (do not use force).

2) Perform a continuous wear test method

- Load the sample in the normal way.
- Turn on the motor.
- Stop the motor at regular intervals. Raise the arm to see if it wears to the substrate. Do not move the sample.
- Lower the rocker and if the test is not completed, turn on the motor and continue testing.
- Note that the above viewing method steps do not affect the accuracy of the test artifacts.

6.3 Tape installation method

- Start the motor and pull the tape directly from the supply reel.
- Pass the tape up through the two roller gaps, stop the motor, and install the tape in the order of #1 to #6.
- Push the right axis of the right-hand pressure roller to the right, pull the front end of the tape to the left, pull it out of the length of the center wheel of the winding reel (D), and adjust the tape. In the center of the wheel.
- Insert the front end of the paper into the notch of the center wheel of the winding reel (D).
- The right hand pushes the pressure roller to the right, and the left hand rotates the center wheel counterclockwise and winds the paper more than two turns on the center round.
- **Note:** The two set screws of the winding reel must be tightened to allow the winding reel to rotate.

6.4 Precautions

The four nylon bearings in the nylon bearing frame (N) do not grip the edge of the tape. The supply reel also cannot hinder the rotation of the tape. Start the motor and pull the tape directly from the supply reel. Pass the tape up through the two roller gaps, stop the motor, and install the tape in the order of #1 to #6.

- 1) The slide bolt (F) moves below the swing arm. When the cam is at its lowest position, the motor is stopped, and the swing arm is on the slide bolt.
Note: There is a gap between the cam and the camshaft. There must be no paper strip between the swing arm and the slide bolt.
- 2) The parallel plate sample is fixed on the box-shaped sample stage (P) with single-sided or double-sided adhesive tape, and the sample can also be fixed to the sample stage (p) with the attached clip.
- 3) Use a universal roller plate specimen holder (A) to fix non-parallel surface samples.
- 4) Fix to round sample with universal vise-type sample fixing (B) (users must first remove the template from the universal roller plate sample holder (A)).
- 5) Lower the vertical axis (K) (please loosen the two set screws first) so that the wear test strip is tightly located between the O-ring and the sample, and then tighten the two set screws with your hand to move the vertical axis upward (K), you can gently press the spring and then move, do not press the O-ring or raise the swing arm.
- 6) Slide the slide (F) under the swing arm (H).
- 7) Hold and raise the swing arm (H) to prevent the paper from touching the sample and jog the motor until the cam supports the swing arm (H) and the paper is not on the sample.
- 8) Counter (G).

7. Operations

- 1) **Start the motor:** When the swing arm is in the raised position, check if there is an abrasion to the substrate in the test area (whether the contrast color is different). This method is suitable for the standard swing test.
- 2) Stop the motor at the timing of the continuous wear test to see the results (please also refer to the descriptions of 3, and 2).
- 3) **Note:** Remove the O-ring assembly before daily use (Refer to the description of the following points below) to clean the surface of the O-ring center wheel and other contact surfaces.
- 4) O-rings are an important part of this type of test instrument.
- 5) When there is wear on the outer edge or the phenomenon of aged cracking is shown, and after 6 months of use, a new O-ring needs to be replaced.
- 6) The above proposal strongly urges compliance.
- 7) **Note:** When not in use, remove the O-ring from its original fixed position to prolong its service life.
- 8) For transportation, an O-ring has been installed on the instrument and it can be removed. However, on the vertical axis, three O-rings are attached and must be removed before the instrument is used.
- 9) When installing the O-ring, use 3 to 4 fingers to rotate the O-ring roller through the cone to the fixed position in the wheel, to avoid the outer edge of the O-ring from being impacted.
- 10) As a rule of thumb, if the O-ring wheels cannot be rotated, read the number of revolutions.

8. Maintenance

- 1) The vertical axis angle is fixed.
- 2) It applies to the testing standard of 175g.
- 3) Do not loosen the screws (M) to adjust.
- 4) Any loose adjustment of the angle will cause the load to be irregular and affect the test results.
- 5) For samples with low abrasion resistance, (such as hot letter-type light-printing thin-film printed letter fonts that require a low load test, the lever on the left side of the swivel arm (H) can be weighted appropriately to reduce the load for 175g (weight one) or 55g (weight two).
- 6) To keep the winding reel (D) and the supply reel in a certain position so that the center line of the friction test material is at the center line of the instrument, do not change the position of the support reel after the two reels (fixed before shipment).



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