

IMPROVED SUTHERLAND INK RUB TESTER

Only Tester Used In Establishing ASTM Designation D 5264 Standard Test Method For Abrasion Resistance Of Printed Materials By Sutherland Rub Tester

The tester is a motor driven instrument for moving a weighted test strip over a printed specimen through an arc. The Sutherland Rub Tester has been redesigned to improve its operation. James River's corporate research and development laboratories did extensive testing of the Sutherland Rub Tester. The result of this work is an affordable abrasion testing instrument that retains all the features that made it an industry standard plus improvements that insure it will remain the industry standard.

The stroke of the tester has been shortened which increases the precision and more closely simulate abrasion damage found in the field. James River research and other published work in the print abrasion testing arena have shown that quick strokes simulate some type of rub damage (most notably shipping damage).

The Sutherland motor now has two speeds; the first speed (42 cycles per minute) is the same as the older models, while the second speed (85 cycles per minute) is faster. These new improvements will reduce the long test time needed for certain types of substrates (plastics, UV varnishes, printed films, etc.).

The Sutherland was also modified to incorporate a digital counter with a fiber optic sensor to insure the accuracy of the number of rubs for a given test. Simply enter the number of rubs desired and the instrument will stop automatically at exactly the correct number of strokes.

A single mounting pad for the test strip is now cut to fit the weight. It was found that precision of the test is increased by using a 2 inch (5 cm) by 4 inch (10 cm) pad on the bottom of the weight. Two pound and four pound weights and scoring fixture are included.



Illustrated is the Sutherland Rub Tester showing two-pound and four-pound weights to which test specimens are attached and the scoring device.

The upper receptacle of the timer is for remote timer control. The lower receptacle is the same voltage as the instrument. 110 volts single phase is standard. 220 volts optional at extra cost.

ABRASION

A supply of 80 x 80 count bleached muslin cloth has been found useful in testing wet smear, wet rub, and wet bleed.

The Sutherland Rub Tester is designed to evaluate the scuffing or rubbing resistance of the printed or coated surface of paper, paperboard, film, etc. The test results are reproducible.

The following tests may be made with the instrument:

- A. Dry Rub
- B. Wet Rub
- C. Wet Bleed or Transfer
- D. Wet Smear
- E. Functional Rub

TEST SPECIMEN

The test requires two pieces of stock, the printed test specimen and a test receptor, which is usually unprinted. Cut a test specimen, approximately six by three inches, representing average ink lay and coverage. When the printed area permits, the six inch direction should be cut across the grain of the sheet, but must not cross pressed or cut scores.

Prepare test strips of unprinted material from the same shipment of stock used in printing the test samples. Cleanly cut 2 x 7 inch strips for the four-pound weight are prepared by placing a strip face down against the end pin of the scoring device and scoring the strip at the white dot positions to facilitate bending the strip to conform to the test block.

To prepare samples for the two pound weight, 2 x 5-1/4 inch strips are placed face down against the end pin of the scoring device and score at the red dot position to facilitate bending the strip to conform to the test weight.

PRICE

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| AB-0103 | Complete instrument 110 volt, 60 cycle, 1 phase, dual speed unit comes equipped with a two-pound weight, four-pound weight, and a scoring fixture | \$4142.00 |
| AB-0106 | Complete instrument 220 volt, 50 cycle, same as above | \$4376.00 |

Replacement Parts

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| AB-0112 | Heated weight (optional) 2 lbs. | \$870.00 |
| AB-0114 | Heated weight (optional) 4 lbs. | \$870.00 |

Additional replacement parts and accessories are available

Replacement Pads

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| AB-0121 | New Style: 1 pad (base) 2-5/8" x 6" and 2 pads (weights) 2" x 4" | \$31.50 |
| AB-0123 | Old Style: 1 pad (base) 2-5/8" x 6" and 4 pads (weights) 1" x 2" | \$31.50 |
| AB-0129 | Silicone pad (for heated weight) | \$31.50 |

Note: For optimum results, pads should be changed every six months.

Reference: *"The Improved Sutherland Rub Tester"* by Dr. Bruce Blom, Senior Research Fellow, Mead Central Research Laboratories, Chillicothe, OH
April 1994 issue *"American Ink Maker"*

Because of the simplicity of the tester, it is currently being evaluated as a means for assessing the drying, degree of cure, and solvent resistance of inks as part of ASTM's subcommittee D-01.56 on printing ink activities.

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