
YG401E-4 Martindale Abrasion And Pilling Tester



INTRODUCTION

The Equipment is designed to subject specimen under a controlled amount of Rubbing at comparatively Low Pressure and in continuously Changing Directions to ensure that all Surface Fibers on the specimen are flexed in order to access the Resistance of fabrics to Abrasion. Under this test, the circular specimen of fabric are rubbed against a standard Abradant, under a known pressure and the resistance to abrasion is determined **by the Number of Rubs to Break a yarn or by the Loss of Mass of the or specimen.**

The equipment can accommodate up to 4 samples simultaneously. Each one is mounted separately in the specially designed specimen holder. The specimens lighter than 500 g/m² are backed with standard polyurethane foam. The abradant material (standard felt & abradant fabric), against which the specimen is rubbed, is clamped tightly over the abrading platform to prevent possible metal-to-metal contact.

The path traced by the test specimen over the abradant is known as Lissajous figure. It changes from a Circle to gradually narrowing Ellipses, until it becomes a straight line, from which progressively widening ellipses develop, in a diagonally opposite direction, before the pattern is repeated. This continuously changing movement ensures that the surface fibers of the specimen are flexed in every direction. The equipment is also suitable for performing Pilling Test, for which only stroke of top moving plate has to reduce from 60.5mm to 24 mm. The Degree of Pilling is assessed against standard photographs.

Smith Barney Inc. are now able to offer a technically advanced machine that is easy to use and inexpensive to own.

USAGE

To determine the abrasion and pilling resistance of all kinds of textile structures.

TESTING STANDARDS

➤ Abrasion Tests

ASTM D4966 Standard Test Method for Abrasion Resistance of Textile Fabrics (Martindale Abrasion Tester Method)

ISO 12947-1 Textiles -- Determination of the abrasion resistance of fabrics by the Martindale method

BS 2543, BS 3424-24, BS 5690, BS 8428, ISO 17704, ISO 5470-2, IWTO 40, M&S P19, Next 18

SFS 4328, SN 198529, TWC 112, Volvo 1024, 7122

➤ Pilling Tests:

ASTM D4970 Standard Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Martindale Tester

ISO 12945-2 Textiles – Determination of fabric propensity to surface fuzzing and to pilling – Part 2: Modified Martindale method

M&S P17, M&S P18C, Next TM26, SN 198525, Woolmark TM196

TEST PROCEDURE

According to the international standards, the fabric samples, being in contact with a disc of the same fabric (for pilling analysis following some specific norms) or an abradant fabric, undergo preset rubbing cycles at a given pressure, making the well-known Lissajous figure.

The wearing test ends when the operator notices the breakage of the first two yarns of the fabric structure. The pilling test ends with the analysis of the pilling effect on the sample surface after a preset number of turns. The evaluation of the results is made by comparison with the reference standard photographs.

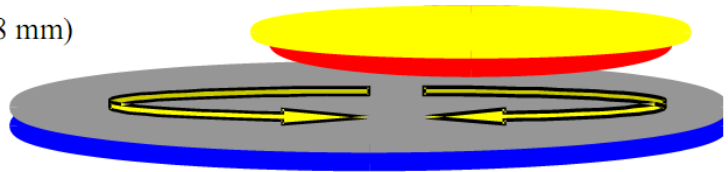
ABRASION TEST (ASTM 4966/4970, ISO12945-1):

■ BACKING FOAM code 314.10 (Ø 38 mm)

■ SPECIMEN (Ø 38 mm)

■ ABRASIVE FABRIC code 314.12 (Ø 140 mm)

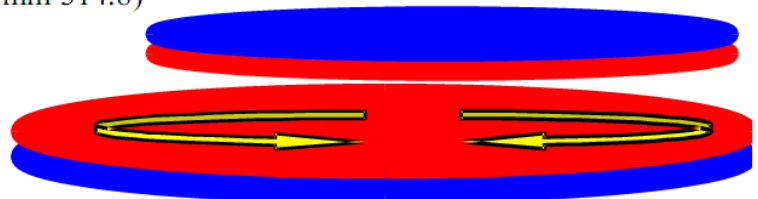
■ BACKING FELT code 314.8 (Ø 140 mm)



SWISS PILLING TEST (SN 198525, ISO12945-2):

■ FELT (Ø 85 mm code 314.20, Ø 140 mm 314.8)

■ SPECIMEN (Ø 90mm /140 mm)

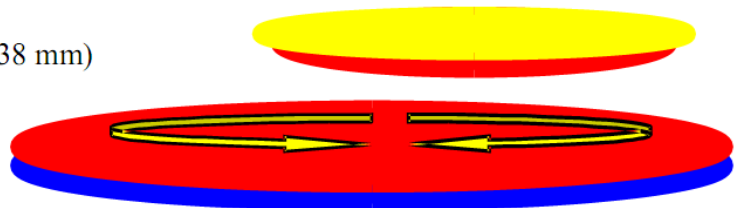


IWS PILLING TEST (IWS TM 196):

■ BACKING FOAM code 314.10 (Ø 38 mm)

■ SPECIMEN (Ø 38mm /140 mm)

■ BACKING FELT code 314.8 (Ø 140 mm)



SALIENT FEATURES

1. Specialized Equipment to determine Abrasion and Pilling Resistance of any type of fabrics.
2. Latest model with four stations for specimen testing at a time.
3. Touch screen keyboard for a simple and intuitive use of the instrument.
4. Independent digital counting of each testing head and total rotation counter.
5. Easy access to the tested specimens (no need to lift or remove the moving plate) and quick replacement of the abradant surface.
6. Emergency stop switch to stop testing, in urgent, without hindering setting.

7. Three types of load 3Kpa, 9Kpa, 12Kpa are available to test samples as per different standards.
8. Supplied with wrench for fixing the sample holder on the front panel of the Instrument and fixing the sample on the holder itself.
9. Complete with all accessories including one stainless Steel marking pen to draw Lissajous figure.
10. All control & components strictly adheres to CE Mark specifications for safety.
11. Supplied with calibration & inspection Certificates.

TECHNICAL DETAILS

1. Scope: **Abrasion:** Flat woven, knitted and certain non-woven fabrics
Pilling: Woven and knitted fabrics
2. No. of specimens: up to four (for Abrasion or pilling)
3. Exposed area of test specimen: 6.45cm²(Abrasion), 64.5cm²(Pilling)
4. Working pressure on test specimen: 3kpa, 9kpa and 12kpa
5. Rotational Speed: 47.5 ± 2.5rpm (20-70rpm adjustable)
6. Total stroke of drive units: 60.5 ± 0.5mm (Abrasion), 24.0 ± 0.5mm (Pilling)
7. Parallelism of top plate to abrading tables: ≤ 0.05mm
8. Parallelism of sample holders to abrading tables: ≤ 0.05mm
9. Dimensions: 600 x 550 x 410 mm
10. Power supply: 220V, 50Hz or 110V, 60Hz
11. Weight: 75 Kg

ACCESSORIES SUPPLIED

1. Main Unit: 01 No.
2. Top Moving Plate: 01 No.
3. Sample Cutter (Ø140mm): 01 No.
4. Sample Cutter (Ø38mm): 01 No.
5. Abrading Platform Clamping Force
6. Numbered Specimen Holders: 04 Nos.
7. Weights (12 kPa) (for Upholstery)
8. Weights (9 kPa) (for Apparel Textiles)
9. Loading Pins: 04 Nos.
10. S.S. Steel Balls: 03 Nos.
11. Pen to Make Lissajous Figure Abrasion & Pilling: 01 No.
12. Increasing Load: 01 No.
13. Standard Woven Felt Pad (140 mm): 08 Nos.
14. Standard Polyurethane Foam (38mm): 20 Nos.
15. Standard Abradant Fabrics (140mm): 08 Nos.
16. Pilling Test Accessories: 01 No.
17. This User's Manual: 01 No.
18. Inspection & Conformance Certificate: 01 No.



Front view of the YG401E-4-4