



**S.C.I.L. Scrub Tester for Coated Fabrics**  
**Operation Manual**  
**FAB-ISO-5981/LW**



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## 1. Introduction

The Flex Abrasion (Scrub) tester is designed to assess the adhesion of coating on fabrics. In the test a 100mm x 50mm coated fabric sample is loaded into the machine, which gives a pre-selected number of scrubs while a 10N load presses on the fabric. When the scrub cycle is finished, the fabric is examined for damage. The test simulates the simple hand test for adhesion where a fabric is held between the thumb and forefinger of both hands and rapidly flexed while rubbing together.

### **FEATURES**

Electronic count of scrubs

Manual or automatic stop when pre-selected scrubs reached

Safety cover prevents use if lifted

Easy to use quick release fabric clamps.

Protection against overheating

## 2. Specification

**Size:** 49cm x 31cm x 21cm

**Weight:** 20kg approx.

**Voltage:** 230VAC/50Hz

**Power:** 150 W

**Fuse Rating:** 4 amp

**Counter:** Max. count 999999

### **Movement:**

Amplitude of movement = 40mm +/- 1mm

Frequency of crossing of clamps = 2.6Hz

Length of abrading foot = 100mm

Foot width = 10.0mm

Gap between clamps = 12.0mm

Base bar width = 10.0mm

Load applied by abrading foot = 10N

Distance between base bar and upper plane of lower clamp = 3mm

### **3. Operation**

#### 3.1

This instruction manual contains information and warnings, which must be observed by the user to ensure safe operation and retain the apparatus in a safe condition. The instrument has been designed for indoor use only. It should not be switched on if there are obvious signs of mechanical damage and it should not be used under wet conditions.

The instrument must be operated with a protective earth connected via the appropriate (yellow/green) conductor of the supply cable. This is connected to the instrument before the line and neutral supply connections when the supply socket is inserted into the plug on the back of the instrument. If the final connection between the instrument and the supply is made elsewhere, the user must ensure earth connection is made before line and neutral.

If any supply cable other than that supplied with the instrument is used, it must carry an adequate protective earth conductor.

Any interruption of the protective earth conductor inside or outside the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited.

The instrument is safe to operate with the side covers fitted and these must not be removed under normal usage. The side covers protect the operator from live parts and they should be only be removed by suitably qualified personnel for maintenance or repair purposes and then only with the mains power removed (see maintenance section).

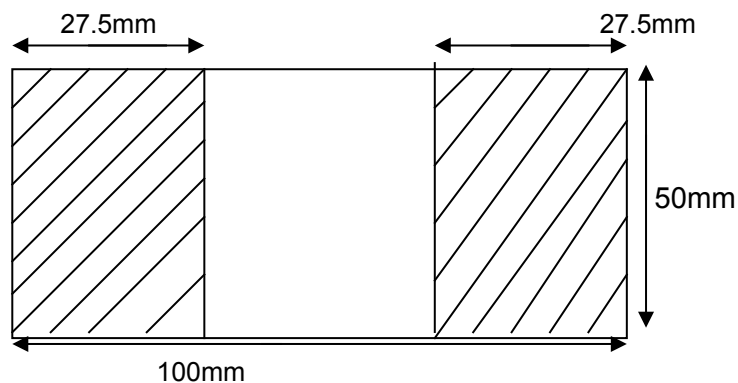
Before connecting the instrument to the supply check that the supply voltage is suitable and that the correct fuse is fitted. The fuse holder is situated behind the cover on the mains power connector. This cover can only be removed when the power lead is removed.

### 3.2

#### Setting up

The arm weight should be positioned so that the foot loading is  $10\text{N} \pm 0.2\text{N}$ . This may be measured by using a digital or spring balance attached to the centre of the foot.

Draw an outline on the fabric  $100\text{mm} \times 50\text{mm}$ , with 2 lines parallel to and  $27.5\text{mm}$  from the shorter edges, so that the longer side is parallel to either the warp or fill yarns (specify which). Cut the sample from the fabric.



### 3.3

#### To obtain reciprocating motion with no sample installed.

1. After connection to the supply, switch on unit and check that the counter 'preset' value lights.
2. Lift the lid to gain access to clamp and foot components.
3. Ensure both clamps are correctly adjusted and the levers are facing outwards. The lever may be moved without loosening the clamp by lifting it to release lock before rotating. Lower the abrading foot to rest on the base bar.
4. Press the counter reset button to zero.
5. Close the lid.
6. Press green start button. The two clamps should move with the required reciprocating action.
7. The motion is stopped either by:-
  - Pressing the red stop button.
  - Opening the lid.
  - The counter reaching the preset value.

### 3.4

#### **Manual movement of clamps**

A device is incorporated in the unit to allow manual movement of the clamps. When the movement is switched off and clamps are stationary the smooth shaft on the right hand side of the unit can be turned to slowly move the clamps.

### 3.5

#### **Test procedure**

1. Raise the lid and align the clamps using the knob on the right hand side of the machine.
2. Place the sample **coated side up** on the lower face of a clamp so that the line drawn on it coincides with the front edge of the clamp.
3. Close the clamp and tighten, ensuring the lever is facing outwards when fully tightened. The lever may be moved without loosening the clamp by lifting it to release lock before rotating.
4. Fold the sample twice across it's width so that the other end can be placed on the lower face of the second clamp with the second line drawn on the fabric coinciding with front edge of the second clamp.
5. Close the clamp and tighten, ensuring the lever is facing outwards when fully tightened. Move the clamps manually to the extremes of their movement to ensure that clamps will move freely and the material is not overstretched.
6. Lower the abrading foot onto the fabric. The fabric in this position should form an S shape when viewed from the side.
7. Press the counter re-set button to zero the count.
8. Select the required number of scrubs using the + and - buttons below the counter digits
9. Close the lid. **NOTE!** The machine will not operate with the lid raised.
10. Start the machine by pressing the green button.  
The machine will automatically stop when the selected count is reached. Pressing the Red button at any time will interrupt the test.
11. Remove the sample after the specified number of scrubs, and examine for coating failure, delamination or pinholing.  
Wear marks on the sample should be more or less straight. Curved wear marks indicate insufficient tightening of the clamps.

#### **Caution!**

Do not attempt to operate the machine with lid raised.

Do not interfere with the override switch operated by the lid.

Ensure all loose clothing is tied back and cannot be trapped in unit.

The unit is for testing fabrics only and should not be used for any other purpose.

## 3.6

### **Clamp assembly**

The clamps are composed of two parts.

A lower part with a shoulder for positioning the test sample, and an upper part which serves as a clamping plate. The upper and lower parts are hinged to allow access to install sample for test.

A clamp bar can be moved over the top of the upper clamp and the screw tightened by hand for the clamping pressure.

Both upper and lower clamps have serration over the clamping area so that when compressed with the clamp bar the test piece does not slip.

The edges of the clamps have a radius in order to avoid cutting the test pieces.

## 3.7

### **To change the foot and base bar.**

Remove the 2 x M3 slot head screws securing the 11mm base bar and packing piece on machine and replace with the 10mm width base bar and the original packing piece.

Remove 2 x 4mm grub screws (2mm A/F hexagon key required) securing the swivel joint on the support arm and remove 2 x 4mm screws (2.5mm A/F hexagon key required) securing the 11.5mm foot. Replace with the 10mm foot.



## 4. Maintenance

No regular maintenance is required, apart from routine checks for excessive movement or noise.

Calibration of foot weight should be done periodically. This is measured by connecting a digital or spring balance to the ring above the abrading foot. Loosen the 2mm A/F set screw securing the weight to the support bar, adjust the distance of the weight to the end of the bar until reading is 10N +/- 0.2N. Tighten the weight set screw.

The construction of the unit is such that full access to all major components can be obtained once the front cover has been removed.

### **Warning!**

**Dangerous voltages are exposed once any cover is removed.**

**Maintenance must only be carried out by suitably qualified personnel.**

The mains supply fuses are in the power connector and access can only be obtained by removing the power connector.

### **To remove any cover**

Unscrew the four screws in the corners of the panel. Care must be taken with the front and rear panels as wiring is attached to both the mains socket on the rear panel and the start and stop buttons on the front panel.

The four corner screws on the top plate should not be removed unless the side panels and the clamp drive linkages have been removed.

## Fault finding

Before any fault location is attempted, it is advisable that the voltage is checked.

The faultfinding table defines a suggested procedure to isolate fault.

If no fault is found it is recommended that the unit be returned to the manufacturer.

### Fault finding table

