

# ABRASION TYPE MARTINDALE (ABRASION & PILLING TESTER)

The abrasion Martindale is designed to test the **resistance to abrasion** (consumption degree) of leather and fabric with different dye fastness or finish, and the **pilling formation**.

The *consumption degree* is determined by rubbing it against a standard abrader fabric, while the *pilling formation* by rubbing two pieces of manufactured product against each other.

The samples are mounted on a sample holder of standard dimension, and subjected to weight determined (according to the standards), then the rubbing tests are carried out by performing a translational movement that traces a **figure** called **Lissajous**.

The sample is subjected to abrasive degree for a predetermined number of rubs.

These test cycles will be interrupted at scheduled time intervals, to check of the sample surface.

The evaluation of the abrasion (degree of wear), according to standards, is carried out after a certain number of cycles, observing the differences in appearance compared to the original sample and possibly registering the weight loss.



## INTERNATIONAL STANDARD

- ASTM D 4966 (Abrasion)
- ASTM D 4970 (Pilling)
- UNI EN ISO 12945-2
- UNI EN ISO 12947 - 1/2/3/4
- BS 3424 : Part 24
- DIN 53863
- IWS TM 112
- IWS TM 196
- DIN 53865
- IS 12673 (plane abrasion method 1)
- IWTO 40-88 (E)
- MARKS & SPENCER P 17,19,19A,19B
- SN 198525
- SN 198529
- SFS 4328

The Martindale abrasion and pilling tester can be supplied with 1, 4 or 6 places to carry out the test, and in two different models: with manual lift or with pneumatic lift of the heads.

MODEL	1 HEAD	4 HEADS	6 HEADS
Method of test	Abrasion/pilling	Abrasion/pilling	Abrasion/pilling
No. of sample	1	4	6
Head lift	Manual	Manual or Pneumatic	Manual or Pneumatic
Surface of sample	6,45 cm <sup>2</sup> 64cm <sup>2</sup>	6,45 cm <sup>2</sup> 64cm <sup>2</sup>	6,45 cm <sup>2</sup> 64cm <sup>2</sup>
Pression	3 – 9 – 12 kPa	3 – 9 – 12 kPa	3 – 9 – 12 kPa
RPM	47.5	47.5	47.5
Figure of Lissajous	60.5 mm	60.5 mm	60.5 mm
Power supply	230 V 50 – 60 Hz – 2 A	230 V 50 – 60 Hz – 2 A	230 V 50 – 60 Hz – 2 A
Dimensions	340 x 520 x 300 mm	560 x 640 x 420	560 x 640 x 420
Weight	35Kg	50Kg	60kg

The pneumatic lift model of the sample holders is equipped with a *touch screen panel*, which allows you to set a different number of abrasion cycles for each head and the possibility to load up to charge until 30 different programs in the control unit.

Therefore, it is possible to set, during a single test session, a different number of cycles on each sample, without the necessary supervision to restart the machine.

For example it is possible to set the instrument in the evening, to make it work all night and the next day verify the abrasion for a sample at 10,000 rpm(spins), another for 20,000 and a third for 30,000 rpm.



Electronic Programmable Display



Fast Sample Clamping System

#### **CONSTRUCTIVE CHARACTERISTICS:**

- Stainless Steel frame anti acid varnished;
- Adequate powerful engine reducer;
- Stainless Steel abrasion group;
- Interchangeable normalized weights capable of exercising 3, 9 and 12 Kpa pressure.

#### **CONTROL BOARD**

- Electronic with digital panel ( Wide Area Touch Screen for pneumatic version), featuring each sample carrier own counter, and general counter;
- General Switch - Start push button;
- Stop push button;
- Emergency push button.

#### **CONSUMABLE INCLUDED IN THE SUPPLY**

- Wool abradent fabric (1 x 1.6 mt);
- Pre-cut felt discs dia. 140 mm (10pcs);
- Pre-cut felt discs dia.90 mm (10pcs);
- Foam/Sponge (1 x 0,5 mt).

#### **SUPPLIES FOR MARTINDALE**

##### • **ABRASION TEST:**

- Polyurethane foam sheets;
- Wool abradent fabric;
- Standard wool felt discs diam. 90 or diam. 140mm;
- Standard non-woven felt discs diam. 140mm;

Cork Base for Sample.

##### • **PILLING TEST:**

- Standard non-woven felt discs diam. 90mm;
- Comparative photograp standard;
- Polyurethane tubes.

Circular sample cutter for Martindale (available: diam. 38, diam. 90 and diam. 140mm).

It is provided with cork base and spare blades.

