The first Regain tester instrument has been produced in Italy by BRANCA and it dates back to 1925 and it represents still a symbol in the history of our brand (see old picture attached), and the system evolution continues to increase until there was a huge diffusion from the years 1945 to 1965 with a widespread sale; the Regain tester has been actually distributed all over the world.
In the early '70s, we presented the first REGAIN TESTER instrument, where the hot air is generated across negative pressure, and it obtains optimal results with exceptionally shorter drying time than the traditional one (see the leaflet of Rapid Oven Regain tester – WIRA or CSIRO).

The Wira Improved Rapid Regain Tester

- For testing scoured wool, top and yarn
- Simple test procedure
- Regain results for scoured wool and top obtained in less than 10 minutes
- Thermostatically controlled heating

The regain of scoured wool, top and yarn samples weighing up to 50g can be determined with this apparatus. The test procedure is similar in principle to the normal oven method but very much quicker. An adaptor for cores and small samples up to 12g is also available (see overleaf).

The sample of material is packed in the detachable pan—diameter 10 cm, height 16 cm—which fits on top of the tester. The filled pan is weighed before being placed on the tester for drying of the sample. A pushbutton operates a powerful turboblower which forces air at 105°C through the material. An excess of air is provided, and a constant flow for all materials is obtained by adjusting a lever-controlled bleed-off valve.

The heating elements inside the tester are thermostatically controlled and, once set, need no further adjustment for normal testing. The temperature is set using the dial on the right in the photograph and is indicated on the circular thermometer below the pan.

Drying takes about 5 min for scoured wool and top and about 20 min for yarn. The dry weight is obtained by weighing the pan full and then empty. The regain is determined from the weight loss and the dry weight. An appropriate balance is needed for the weighing operations, and Wira will be pleased to advise on this.
TRADITIONAL RAPID REGAIN TESTER METHOD (WIRA INSTRUMENT)

Grafico 1

BRANCA RAPID REGAIN TESTER METHOD (BRANCA IDEALAIR)

Grafico 2

A - PRELIEVO ASPIRAZIONE
B - DOPO IL FILTRO
C - DOPO IL VENTILATORE
D - DOPO IL RISCALDAMENTO
E - DOPO SPULSIONE ARIA

ASPIRATION DE L'AIR
APRÈS LE FILTRE
APRÈS LE VENTILATEUR
APRÈS LE RECHAUFFAGE
APRÈS L'EXPULSION DE L'AIR
The greatest benefits were given by the action of water vapor diffusion from the hearth of the fiber without damaging it as shown in comparative tests made by M. Denis (Directeur de la S.A. Les Conditionnements Publics Verviètois) and by L. Rousseau (Directeur du Centre de Recherches et de Contrôle Lainier & Chimique de Verviers [Celac]), thus the yams made of wool fiber dried with our instrument didn’t change its properties during the dyeing process compared to the fiber dried with traditional models (see for example Chinese model with 8 baskets) which presented an alteration of the outer shape of fibers through the analysis of comparison made even under a microscope.
In the 70s, the oven was still equipped with a mechanical balance that later in the '80s has been replaced by electronic scales like METTLER, SARTORIUS, SAUTER, etc.; in the year 1985 using the output of proximate scale serial communication the instrument has been developed with the automation of successive weighings with MS DOS programming language that allowed automatically the print out of a test report and included substitution settings of test samples.
The main feature of the new REGAIN TESTER instrument, unlike all the other models of our competitors, it is represented from the opening panel of test area, which consists of a flap in the upper side of the instrument used to place the basket on the suction flange and able to correct setting to the initial weight by adding / removing the material maintaining the basket in the starting position.

The current version of the compartment in which it is located the basket is actually constituted by a bell sealed area, with an opening flap, in which all four side walls are at temperature controlled at the same value thus avoiding all flotation errors (as “buoyancy” effects) due to the convective air motions that may influence the precise weighing in centigrams and avoids any friction contact on the borders of internal spaces that distorts the weighing results even when the material in the basket is not perfectly distributed inside; the scale is located under the oven and its position denies any temperature influences in addition to its gentle lifting system.
Figure: BRANCA Regain tester air flow

Even when the test is performed the movement of air in the space of the scale operates under negative pressure and it is located in a space constantly at external temperature.
As regards to the proximate scale, it is possible to perform operations of automatic calibration ("Set to 0") and it allows to read values of the initial wet weight up to 1000g with an accuracy of 0.01g.

The application program can be monitored and changed online through our remote support which gives great advantages especially in the case of alarms diagnostic.

It's possible to interface the instrument through a serial communication port to a PC and perform operations of monitoring and further analysis from laboratory.
Through the Excel file the operator has the availability to print all Data for trend graphs analysis; Inside the test report are presented all information shown to ASCII printer test report too;

<table>
<thead>
<tr>
<th>- Date</th>
<th>- Original mass</th>
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</thead>
<tbody>
<tr>
<td>- Sample nr.</td>
<td>- Dry mass;</td>
</tr>
<tr>
<td>- Test N:r</td>
<td>- Official regain value;</td>
</tr>
<tr>
<td>- Material;</td>
<td>- Real value;</td>
</tr>
<tr>
<td>- Code N:r</td>
<td>- Correction;</td>
</tr>
<tr>
<td>- Operator</td>
<td>- Total drying time;</td>
</tr>
<tr>
<td>- Test N:r executed;</td>
<td></td>
</tr>
</tbody>
</table>

Moreover there is a list of results for each drying processes where are presented the duration and the results in grams;

![Test Results Table](image)

![Drying Procedures Graph](image)

![Test Report](image)

**1. SAMPLE FEATURES**

- Material:
- Analytical:
- Composed of:
- Composition:
- N type:
- Air Tmax:
- Total gross mass [kg]:
- **Total dried mass [kg]:**
- **Total net mass [kg]:**
- **Total mass [kg]:**
- **Dried mass [kg]:**
- **Moisture content [kg]:**
- **Moisture content [%]:**

**2. TEST RESULTS**

<table>
<thead>
<tr>
<th>N</th>
<th>Drying time [min]</th>
<th>Drying mass [g]</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>12</td>
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