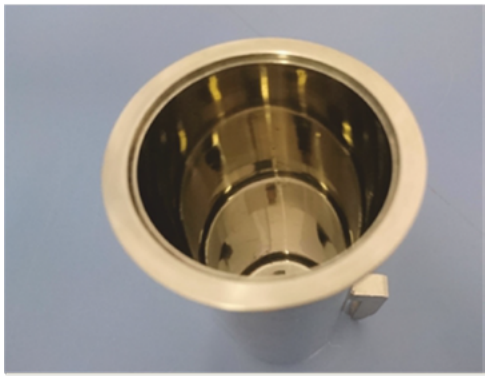
BENNINGER

IRD-IV

Infrared laboratory dyeing machine

Infrared Laboratory Dyeing Machine IRD-IV

The infrared laboratory dyeing machine dyes woven or knitted textile samples made of natural as well as synthetic base material. For heating an infrared source is being used and cooling is done by means of air.



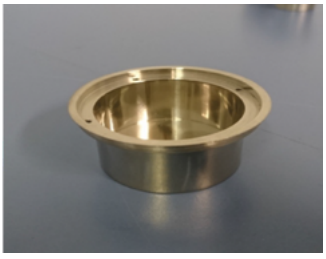
Main Advantages
- Crease- and spot-free sample dyeing
- Knitted and woven fabrics as well as yarn can be dyed
- Natural and synthetic materials
- State of the art process controller with large integrated program memory
- Low liquor ratio: 1:5 fabric dyeing cotton
- Stainless steel cabinet
- Dosing without opening the beakers
- No glycerin or cooling water needed
- Very good price / performance value

Simple Operation
- Filling dye liquor and textile
- Simple fixation of the beakers into the machine
- Calling of the dye program from memory and starting the dye process

Beaker support
- Three-dimensional movement and 360° rotation (clockwise and counterclockwise) allow even and dyed through samples
- The multifunctional beaker holder allows the use of different beaker sizer
- Reversable rotation and speed between 5 and 100 rotations per minute

Beaker sizes
- 175 ml x 16 beakers (standard: piece samples only)
- 350 ml x 12 beakers (for yarn or piece samples)
- 500 ml x 8 beakers

Dosing Innovation for Liquid and Powder Chemicals



Disadvantages of no adding possibility

- Time is lost (opening and closing beaker) and cooling down of the dye bath takes place. This increases the possibility of creases and wrinkles.
- Adding over time (as dosing on the production machines) is not possible.
- Danger of having spots on fabric, because of adding chemicals directly into the dye bath.
- Time consuming operation and great care of the operator is needed. Errors are frequent and reproduction from lab to production is not optimal.

Disadvantages of the injection method

- Time consumption during adding relatively big, since for every beaker approx. 10 to 15 seconds are being lost (on a 16 beaker machine, adding takes therefore approx. 3 - 4 minutes). This increases the possibility of crease marks and wrinkles on fabrics.
- Only solutions (no powder chemicals) can be added. This increases liquor ratio, e.g. when soda ash has to be added. Reproduction from lab to production is not optimal.
- The solution is given to the bath in a very short time. Spots are very frequent since the chemical is not added in a time frame as on the production machine.
- Membranes and injection device need spare parts and are therefore costly.

Our system

- With the optional specially designed lids, powder as well as liquid chemicals can be put into a small beaker (separated from the dye bath).
- Actuating a lever (time approx. 3 seconds per beaker = less than 1 minute for a 16 beaker machine) initiates the slow dilution of the chemical into the dye bath (beaker lid must not be opened to activate this process).
- Comparing the above systems with our system: Beakers do not move for only one minute. This increases the quality (less wrinkle and crease marks).
- Since the chemical mixes slowly with the dye bath, concentrated chemicals are not touching the fabric and the fabric is dyed spot-free.
- It is the optimal method for the cotton and cotton/polyester dyers but also for any other materials.

Process Controller
- Setex 575 CE or Sedo-Treepoint 1808+ controllers
- Controllers can be connected to Orgatex or Sedomaster
- Graphical display showing dyeing curve, process steps, temperature, speed and rotation direction.

Temperature measuring
The measuring of the temperature takes place inside the beakers allowing the direct measurement of the dye liquor. This enables the machine to accurately control and regulate the temperature.

Heating system
- The laboratory dye machine is equipped with two 1 kW or 1.5 kW (max.) infrared heating tubes.
- Maximal temperature: 140 °C
- Heating rate can be varied between 0.1 °C/min and 4°C/min.

Cooling system
Air cools down to the required temperature. The machine does not need any cooling water.

Options
- The standard beaker holder has 16 positions. Optionally, a holder with 12 beaker positions is available.
- To dye yarn, we suggest our yarn holder. This accessory is available in combination with the 350 ml beakers.
- Teflon foil to dye crease sensitive and delicate materials.

Specifications

Dimensions (W x D x H):	810 x 650 x 910 mm
Machine weight:	120 kg
Power consumption:	2.5 to 3.5 kW
Heating power:	3 kW
Voltage:	400 V, 50 or 60 Hz
Max. ambient temperature:	40 °C

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