

**INFRA-RED CONDITIONING APPARATUS
TYPE 4-02-2-4**

By
L. GAJDOS

Factory for Material Testing Apparatus

The apparatus serves for determining moisture content of textile raw materials, semi-finished products and threads.

ing by measuring capacity, resistance or dielectric loss, this novel apparatus makes use of radiating heat for the rapid and restless



Contrary to the classic conditioning apparatus design, working on the principle of heat convection, and to the latest types work-

evaporation of moisture from the sample. The rapid-balance of high sensitivity measures weight loss, of which moisture

content of the tested material can be computed.

Eight infra-red glow lamps are built into the apparatus, arranged under the test sample. The glow lamps are energized from the mains net through the control device, controlling the voltage. This is necessary that the manner of drying, — the first phase of moisture content determination, — should correspond to the periodic drying principle being applied. By this provision testing speed can be increased by 50—60 p. c. as related to the duration of conditioning by heat convection.

Efficiency of this apparatus is also better in relation to apparatus used until now. The old types consumed 3500—4000 watt-hours, whereas the new apparatus needs but 600—700 watt-hours. This difference is somewhat diminished by the quantity of the sample as the maximum weight of the sample is e. g. 300 g loose wool in the case of the new and 600 g of the old apparatus. By the reduction of testing time, however, this is not only compensated for but even time gains can be shown up.

It is evident from the proceedings that the new type infra-red conditioning apparatus is a drying apparatus working with a preadjusted control device. It is in essence an apparatus ensuring the complete drying of the material stowed in, but preventing at the same time any damage to the sample, e. g. burning of loose wool.

The control device can be adjusted for wool, man-made fibres, cotton, silk or rayon.

By the adjustment of the control device intensity of radiation from the infra-red glow lamps is regulated. Thereby moisture content is easily removed from the material, in accordance with the adjusted drying method.

Velocity of drying reaches its maximum in the third minute, decreasing afterwards approximately exponentially. Consequently in the case of rapid tests conclusions can be drawn as to the moisture content to be expected, from the weight decrease achieved during the first few minutes of testing, by using empirically constructed nomograms. The accuracy of this method is 1—1.5 p. c. If precise, strictly authentic tests are to be carried out, drying should be carried on until reaching complete weight constancy. In the present description maximum testing time means the duration of this latter testing method.

Specification of the apparatus

Dimensions of the apparatus.....	1100 × 860 × 560 mm.
Dimensions of the working surface	500 × 500 mm
Weight of the apparatus approx.	110 kg
Mains voltage.....	110—220 V
Consumption.....	700 watt-hours
Maximum current impulse.....	20—10 A
Sensitivity of the balance	0.05 g
Loading capacity of the balance	500 g
Maximum weight of test sample	300 g
Duration of testing...	15—30 min.

The described apparatus is equally suited for determining moisture content of paper, wood plates and seeds.

Manufactured by the Factory for Bureau Machines, Budapest. Exported by METRIM-PEX, Budapest 62. P. O. B. 202.