



# Abbeon Cal, Inc.

Industrial Plastic Working Equipment & Precision Instruments

## Hair Hygrometer Operating Instructions Thermometer and Climate Meter (Thermo-Hygrometer)



*We offer a wide variety of Dial Instruments*

**For information and pricing of calibration and  
NIST certification, call: (800) 922-0977.**

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## Hair Hygrometer

Hygrometers serve to measure the relative humidity (water vapour content of the air) in % relative moisture. Human or industrially manufactured (synthetic) hair is used as the measuring element which expands with increasing humidity. The moisture-dependent change in length is transferred to the indicator with the aid of fine mechanics. Through special treatment of the hairs, FISCHER hygrometers react virtually inertia-free to every change in the air moisture.

Human and synthetic hair differ in their properties. The decision between a real hair hygrometer and a hygrometer with synthetic hair is therefore based in particular on the use of the hygrometer: Real hair hygrometers react quickest to changes in moisture and can also be used at low temperatures (usage range -35 ... +65°C). The display stability of the real hair hygrometer is, however, only maintained if the hairs are regularly regenerated in high moisture. In the case of outdoor use, the hygrometer is regenerated almost daily by the high night moisture. In this case, maintenance is not required. In the case of use in an indoor climate, high moisture is generally not present such that the hygrometer should be exposed to high humidity at least every 3 weeks. Since the cost is quite high, we recommend the use of a hygrometer with synthetic hair for use in an indoor climate. This hygrometer works without requiring maintenance, regular moistening is not required. We still recommend to carry this out at least once or twice per year. To do so, the hygrometer is either hung outdoors over night or covered with a warm moist towel for roughly one hour.

The real hair hygrometer is the correct hygrometer for use outdoors and for regularly high moisture. For use inside, hygrometers with synthetic hair should preferably be used.

## **Thermometer**

Thermometers serve to measure the actual air temperature (heat status of the atmosphere) in °C. A bimetal with high specific deflection is used as the measuring element which reacts with low inertia to changes in temperature. Bimetal thermometers work without requiring maintenance.

## **Installation**

For use outdoors, we recommend that you install the hygrometer or the thermometer at a point that is protected as far as possible from weather conditions. It should be largely protected against direct sunlight and rainfall so that the measuring instrument displays unaltered values. For use in a room, hygrometers or thermometers should not be fixed on an exterior wall since this is generally cooler than the room itself. Proximity to heating elements and other radiation sources should also be avoided.

## **Healthy Living with Optimal Room Climate**

The correct temperature and optimal humidity ensure comfortable and healthy living and working. By using a hygrometer and a thermometer or a climate meter (thermometer/hygrometer combination), you can have both measurements together and easily at a glance.

Depending on the use of the room, room temperatures of 18 to 22° C are optimal. The best room humidity for humans is in the range of 35 to 65%. An optimal room climate with the lowest heat energy consumption can in particular be achieved through well-considered, active ventilation. You save on heating costs by opening the windows a few times a day for a short time, but opened wide. In this case, the old, used and moist air is exchanged very quickly with cold, but always dry fresh air particularly in the case of cold weather.

## Technical Data

### Hair hygrometer

Usage range	0 ... 100 % relative moisture, -35 ... +65 °C
Measurement accuracy	± 3 % rel. moisture (25...100%) + 1 scale division, otherwise ± 5 % r.m.

### Hair hygrometer synthetic

Usage range	0 ... 100 % relative moisture, 0 ... +70 °C
Measurement accuracy	± 3 % rel. moisture (25...100%) + 1 scale division, otherwise ± 5 % r.m.

### Thermometer

Usage range	Corresponding to measurement range of the thermometer
Measurement accuracy	± 1 K + 1 scale division

Hygrometers and thermometers are checked and set precisely in the factory. Nevertheless in certain cases, a correction of the display may be required, for example following a hard impact during transport. The correction can be carried out using a suitable screwdriver.

Hygrometer: The correction screw consists of brass. It is visible in a lateral opening on the housing.

Thermometer: The opening for the correction is located on the rear side of the housing, on the back of the indicator axis. To correct the display, introduce the screwdriver into the visible slot of the measuring unit.

We recommend to only carry out resettings if comparable measurements with reference measuring devices have produced noticeable deviations. You can find further information here:



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