

Elcometer 116A

Whirling Hygrometer

Operating Instructions



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A copy of this Instruction Manual is available for download on our Website via www.elcometer.com.

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Thank you for your purchase of the Elcometer 116A Whirling Hygrometer (Psychrometer). Welcome to Elcometer.

Elcometer are world leaders in the design, manufacture and supply of inspection equipment for coatings and concrete. Our products cover all aspects of coating inspection, from development through application to post application inspection.

The Elcometer 116A Whirling Hygrometer is a world beating product. With the purchase of this product you now have access to the worldwide service and support network of Elcometer. For more information visit our website at www.elcometer.com

1 INTRODUCTION

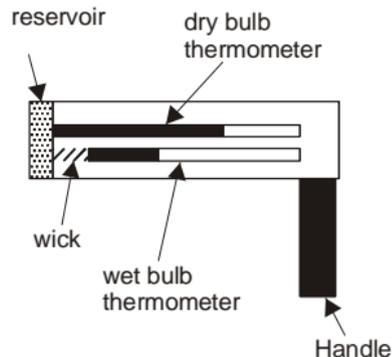
The Elcometer 116A Whirling Hygrometer is designed to measure the ambient relative humidity from which the dewpoint temperature can be calculated. The Elcometer 116A Whirling Hygrometer is scaled in degrees Celsius. A simple Relative Humidity Guide is provided but more accurate results can be obtained using the Elcometer 114 Dewpoint Calculator.

1.1 WHAT THE BOX CONTAINS

- Elcometer 116A Whirling Hygrometer
- Relative Humidity Guide
- Operating Instructions

2 USING YOUR WHIRLING HYGROMETER

1. Fill the reservoir with distilled water.
2. Check that the wick covers the bulb of the wet thermometer fully and is saturated with water.
3. Hold the handle of the hygrometer and whirl it for 20 to 40 seconds.
4. Quickly read the wet thermometer and whirl the hygrometer again.
5. Repeat steps 3 and 4 until consecutive readings are the same. Read the wet & dry thermometers.
6. Calculate the wet bulb depression, ie, the difference between the dry and wet bulb temperatures.
7. Use the table to find Relative Humidity (%RH).
 Eg. Temperatures, dry 20°C, wet 15°C;
 Depression (20-15) = 5°C; Relative Humidity: 59%
 (See value at intersection of dry bulb column and depression row)
 To calculate Dewpoint:
 On the bulb scale, use the wet bulb reading and move down the column to the Relative Humidity which is closest to the calculated value, read depression. So if RH is 58%, depression is 4.5°C; Dewpoint = wet bulb - depression = 15 - 4.5 = 10.5°C.



2.1 ACCURATE USE

To achieve an accurate measurement of wet bulb temperature :

- Keep the wick clean, tight fitting, fully over the thermometer bulb and saturated with distilled water.
- Evaporate the maximum amount of water from the wet bulb by whirling the hygrometer faster than 180rev/min.
- Minimise the effect of your body by holding the hygrometer in front of you, facing the wind. On a still day walk forwards while whirling.
- Reduce environmental effects by not whirling in direct sunlight or near heat sources.
- Read the wet bulb temperature as soon as whirling has stopped and do not touch the thermometer while taking readings.
- Only use values when consecutive readings are the same.

Incorrect use of the hygrometer will result in the wet bulb temperature, and consequently %RH and dewpoint, being too high.

For greater calculation accuracy, use the Elcometer 114 Dewpoint calculator or psychrometric tables.

3 MAINTENANCE

Elcometer products are designed to give many years reliable service under normal operating and storage conditions.

4 TECHNICAL SPECIFICATION

Dimensions:	230 x 80 x 28mm
Range:	-5°C to 50°C
Weight:	300g (0.6lb)

Relative Humidity Table

	Accuracy	Range
%RH	±2%	1 - 99%RH
Dewpoint	±2°C	0 - 20°C
Dewpoint	±6°C	>20°C

Your Elcometer 116A Whirling Hygrometer may be packed in a cardboard and foam package. Please ensure that this packaging is disposed of in an environmentally sensitive manner. Consult your local Environmental Authority for further guidance.

5 SPARES & ACCESSORIES

Spirit Thermometer °C	T1164441-
Relative Humidity Table Card	T1164488-
Pack of 5 Wicks	T1164487-
Dewpoint Calculator	G114---2

To order spare parts, contact Elcometer, your local Elcometer supplier or visit www.elcometer.com

6 RELATED EQUIPMENT

In addition to the Elcometer 116A Whirling Hygrometer, Elcometer produces a range of Climatic Testing equipment. Users of the Elcometer 116A Whirling Hygrometer may also benefit from the following Elcometer product ranges :

- Elcometer 319 Dewpoint meter
- Elcometer 113 Magnetic Thermometers
- Elcometer 212 Digital Pocket Thermometer