ATAGO-Refractometers

Handrefractometers HR 10, 20 and 32

To rapidly determine and control the concentration/mixing ratio of aqueous coolants (emulsions and solutions)

The TESTRÖ Hand Refractometers are optical measuring instruments that have the following important advantages over the classic and so far mainly used determining methods:

- Suitable in particular for all aqueous coolants, no matter what they are based on
- Applicable also to other industrial liquids, e.g. ones used for washing, pickling and hardening. The media must not be that aggressive that they affect the prism or the light sensor plate
- Determination and checking of new and used emulsions and solutions can be done in a few moments, directly at the machines, in the work shop or in the laboratory.
- Considerably more exact method of determination, tolerance +/- 0.1, respectively 0.2, with regard to the concentrate
- Clean measuring method with minimal amounts without using separating chemicals.
- Small dimensions that make it possible to take the instrument to the factory measuring instrument in pocket size, easy to handle

- for further information see next page -

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Handrefractometers – further information

Measuring principle

The measuring method is based upon the principle of total reflection of light beams that impinge at a certain angle on the liquid that is to examine/measure. These light beams are refracted as a function of the concentration. While measuring there appears an easily readable light blue boundary on the instruments scale. The concentration is determined by the scale value and the respective concentrate factor. Instead of a calculation from the reading value and the factor, an evaluation can also be made by a nomo- or diagram. Hereby, an immediate reading of the concentration, respectively the mixing ratio is possible.

Calibration

This refractometer needs to be calibrated before being used for the first time each day. Moreover, if the ambient temperature changes during the day, it needs recalibrated.

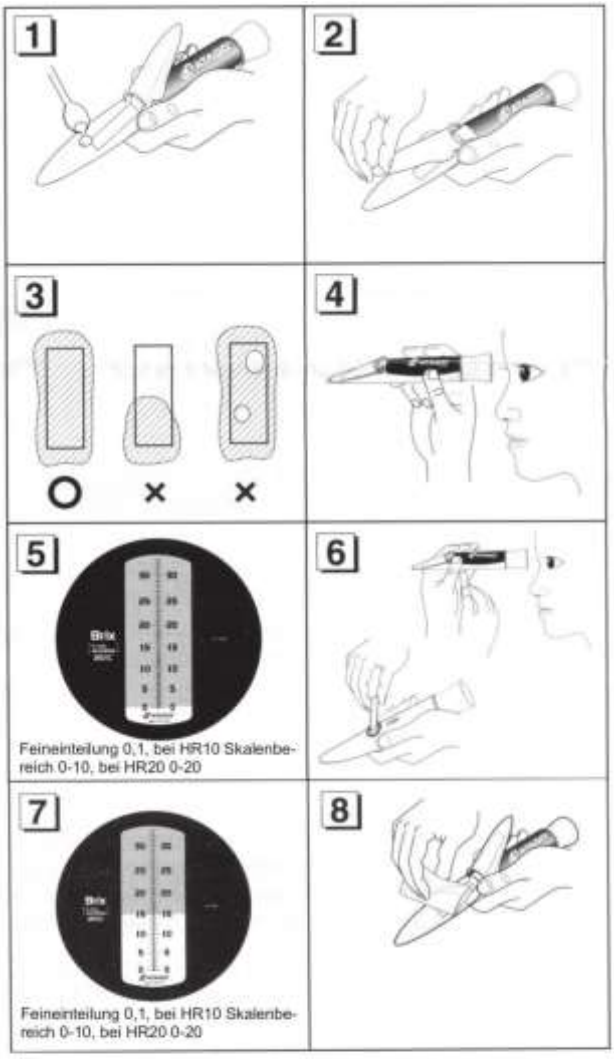
1. Put one or two drops of distilled water or tap water (Figure-1)
2. Close the Daylight plate gently (Figure-2)
3. Distilled water or tap water or solution must spread evenly over the prism surface. Air bubbles should be eliminated (Figure-3)
4. View the scale through the eyepiece. To focus, turn the eyepiece in either direction until clear (Figure-4)
5. Confirm that the blue boundary line coincides with "0%" on the scale (Figure-5)
6. If the boundary line does not coincide with "0%", turn the scale adjustment screw with a screwdriver until it does (Figure-6)

Measurement

1. Put one or two drops of sample on the prism (Figure-1)
2. Close the Daylight plate gently (Figure-2)
3. The sample must spread evenly over the prism surface. Air bubbles should be eliminated (Figure-3)
4. View the scale through the eyepiece. To focus, turn the eyepiece in either direction until clear (Figure-4)
5. Read the measurement value where the boundary line intersects the scale (Figure-7)
6. Wipe the sample off with a wet tissue (Figure-8)

Cleaning and maintenance

The measuring instrument is to be kept dry and, if possible, in its case. After use the prism and the light sensor plate have to be cleaned with water and wiped dry. (Figure-8) Parts of the accessory are intended for this procedure.



9. Zubehör

Technical data	MASTER-10M (HR 10)	MASTER-20M (HR 20)	MASTER-M (HR 32)
scale range	0-10	0-20	0-32
scale divisions	0,1	0,1	0,2
scale accuracy	0,1	0,2	0,2
dimensions according to type: max. 200 mm long, 35 mm Ø weight including box: approx. 400 g			

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