AR | ABBE REFRACTOMETERS

The modern classic!

The Abbe refractometer was developed in 1869 by Ernst Abbe and is used to determine the refractive index otherwise known as the index of refraction.
It is based on the principle of total reflection which occurs at the boundary between the prism and the sample. The refractive index of the prism determines the upper limit of the measurement range, as it always has to be greater than that of the sample.
With the AR Series, Krüss has two models of the Abbe refractometer in its range. These are easy to use and require only a small sample volume. These devices allow samples in the form of solids or pastes to be measured just as easily as liquids. Furthermore, colouration or clouding scarcely affect the measurement result. Besides the refractive index, the solid content can be determined in %Brix. To determine the refractive index of solids, a contact liquid with an average refractive index is required.
The refractive index of a sample is dependent on the wavelength of the light used for the measurement and on the temperature. As the temperature increases, the refractive index drops. That is why our Abbe refractometers have thermostat connections on both the illumination prism as well as the measurement prism.

Fields of application

Determination of mixing ratios, quality and quantity inspection in the following industries:

- Beverages
- Food
- Sugar / sweeteners
- Chemicals
- Flavours
- Petrochemicals
- Cosmetics / hygiene
- Metalworking
- Pharmaceuticals
- Water / effluent
- Education / research

AR2008

AR4

AR2008 | DIGITAL ABBE REFRACTOMETER

The digital Abbe refractometer AR2008 has an electronic data processing system. The refractive index or Brix value is shown on an LCD display together with the temperature.
A serial interface allows measured values with date and time to be transferred directly to the PC or printer.
An automatic temperature compensation feature is optionally selectable.
The AR2008 has a thermostat connection for prisms and a built-in light source (589 nm) for the measuring prism.
The AR2008 is extremely sturdy and is ideally suited for use in a harsh environment.
It is supplied with a glass calibration plate, contact fluid and a screwdriver as well as a dust hood.

Specifications

Measurement range	1.3000–1.7200 nD 0–95 %Brix
Accuracy	±0.0002 nD ±0.1 %Brix
Resolution	0.0001nD 0.1 %Brix
Temperature Range	0–99 °C
Temperature resolution	0.1 °C
Autom. Temperature compensation	0–90 °C
Interfaces	serial RS-232 9600 Baud serial RS-422 9600 Baud
Power supply	110/230 V, 50/60 Hz, 40 W
Dimensions in cm	12.0 x 29.0 x 25.0
Weight	5 kg

AR4 | ANALOGUE ABBE REFRACTOMETER

The AR4 offers readings via ocular. It has an adjustable scale, temperature controlled prisms, and thermostat connections for prisms.
The refractive index of a sample depends on the wavelength of the light used in measurement.
That is why we supply our AR4 with LED illumination for the measuring prism. This has the standard wavelength of 589 nm and has a very long service life (>100.000 h).
Refractometers also have scale illumination.
Since the refractive index is also temperature-dependent, our Abbe refractometers feature thermostat points on both the lighting and the measurement prisms.
A digital thermometer is supplied. Other wavelengths are available on request.
Our Abbe refractometers can easily be checked and calibrated with the calibration plates provided and comply with all requirements of ASTM D1218.

Specifications

Measurement range	1.3000–1.7200 nD 0-95 %Brix
Accuracy	±0.0002 nD ±0.1 %Brix
Scale division	0.0005 nD 0.25 %Brix
Thermometer	Digital thermometer: -40–120 °C
Illumination	Scale illumination, LED-illumination (590 nm) for prism
Display	Readings via ocular
Power supply	110/220 V, switchable
Dimensions in cm	10.0 x 27.0 x 19.0
Weight	2.5 kg
Special features	Adjustable scale, prisms can be temperature-controlled, thermostat connections for prisms