

Abbe 60 Refractometers

Abbe 60 Direct Reading Refractometer

More stringent requirements of quality control and, in some cases, legislation, mean that greater accuracy is being demanded of refractometers. The Abbe 60 Direct Reading models, available in two measuring ranges, have been designed to meet these requirements.

The latest designs incorporate an externally mounted LED light source for sample illumination. A wavelength compensation device is used to 'achromatise' to the mean sodium wavelength (589.3nm). Refractive Index can be read directly from a scale divided to 0.001 allowing for estimation to ± 0.0001 . Temperature control can be achieved by circulation of water; prism temperature is displayed in digital form.

Direct reading models are particularly suitable for the measurement of sugar solutions and sugar content of food and drink products. They can also be used to determine the refractive index of pure liquids, solutions and formulated products including; flavourings, fragrances, oils and fats, solvents, plastics, resins, adhesives and many other industrial chemicals.

Instruments come complete with external power supply, standardisation plate and contact liquid, plastic dust cover and instructions for use.



Abbe 60/95

- **Refractive Index**
- **Brix**

Specification

Order Code	Model	Scale and scale division	
		Sugar % (Brix)*	Refractive Index
10-99	60/DR	0-95 x 0.5	1.30-1.74 x 0.001
10-03	60/95	0-50 x 0.2 50-95 x 0.1	1.30-1.535 x 0.001

The working temperature range for these instruments is from +5 to 75°C

* Sugar scale is based in % w/w sucrose in water or Brix (ICUMSA 1974)

High Accuracy Range of Abbe 60 Refractometers

The high accuracy models are designed for use with monochromatic light sources such as the sodium and spectral range available from Bellingham+Stanley. A PC program for conversion of scale readings to refractive index (RI) or Brix (Sugar%) is available as FREEWARE from the B+S website. With good temperature control and use of the micrometer Vernier Scale, an average accuracy of ± 0.00004 RI can be achieved across the specified measuring range. Temperature can be controlled by use of a water bath and circulator; prism temperature can be read from the digital display on the instrument.

High Accuracy Abbe 60 Refractometers are ideal for use in academic, research and development, quality control and other industrial laboratories where the highest accuracy and precision is often sought. The Abbe 60/ED Refractometer conforms to the requirements of ASTM D1218 and is used widely throughout the petroleum industry.

Instruments come complete with external power supply, digital thermometer, traceable standardisation plate and contact liquid, sodium D line calibration tables, plastic dust cover and instructions for use. Accessories and spares for the high accuracy models are listed overleaf.



Abbe 60/LR

- **Dispersion Measurement**
- **Conforms to ASTM D1218**

Specification

Order Code	Model	Refractive Index Range
10-04	60/ED	1.30-1.74 approximately
10-06	60/LR	1.20-1.70 approximately

The working temperature range for these instruments is from +5 to 75°C



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Abbe 60 Refractometers



Volatile liquid cell



Divided cell



Silica test plate

Spares and Accessories

Order Code	Description
10-42	Volatile liquid cell.
10-58	Divided cell for differential measurements.
10-43	Contact liquid (monobromonaphalene) for test plates and solid samples with RI up to 1.65. Quantity 6ml.
10-61	Contact liquid (methylene iodide) for test plates and solid samples with RI up to 1.74. Quantity 3 ml.
10-62	Contact liquid (SMI) for solid samples with RI to 1.79. Quantity 10 ml.
10-69	Abbe filter eye cap for use with spectral sources using appropriate interference filter. Manufactured to order.
10-44	Glass test plate with RI approximately 1.5222.
10-46	Silica test plate RI 1.45839 (traceable). Certificate available at extra cost.
10-49	Polarising eyepiece for bi-refringent samples.
10-59	Glass substrate for set resin samples (use with 10-43).
10-660	Abbe utilities software. (Available from the B+S website).
13-395	Spare desiccator.
55-104	Power supply 110 to 230v ~ ±10%, 50/60 Hz.
55-150	Waterproof power supply 100 to 230v ~ ±10%, 50/60 Hz.

Note: The high accuracy Abbe 60/ED and 60/LR refractometers require Sodium or Spectral Lamp outfits, please refer to the 'Spectral Sources' leaflet.



The **ABBE REFRACTOMETER** derives its name from the 19th Century physicist and father of modern optical technology, Ernst Abbe (1840-1905). He was the co-founder of the Carl Zeiss Jena Optical Company and Schott Glasswerk.

Abbe designed an instrument for measuring dispersion which became the precursor for a refractometer – the so-called Abbe Refractometer.

Weights and Dimensions:

Gross weight: 9.0kg.
 Net weight: 5.5kg.
 Dimensions (packed): 42 x 34 x 25cm (0.035³).

Power supply:

External 110 to 230v ~ ±10% 50/60 Hz.
 Supplied with instrument.



Bellingham+Stanley Ltd. operates a Quality Management System complying with BS EN Bellingham+Stanley Ltd. Certificate No. LRQ 0963791).

Bellingham+Stanley Ltd. pursue a policy of continuous product development and improvement and, as such, information given on this Data Sheet may be updated or withdrawn without notice.



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