



Abbe 5 Refractometer

FOR ACADEMIA, RESEARCH AND GENERAL LABORATORY APPLICATIONS

The Abbe 5 is an affordable refractometer ideally suited for use where a wide refractive index measurement range is required such as in small contract laboratories or applications where sample throughput is relatively low. The instrument is also ideal for practical demonstrations and experiments in chemistry and physics laboratories of schools, colleges and universities.

The instrument features both refractive index and Brix scales, with the prism temperature being monitored electronically and displayed on the integral digital display. Waterbath connections provide prism temperature control facilitating accurate readings to 4 decimal places RI (1 decimal Brix). Dispersion measurements of solids materials such as glass, contact lenses and fibre optics may be made in accordance with standard practice.

The Abbe 5 refractometer is supplied with a glass calibration plate, contact liquid, and instruction manual and is packed in a hard flight case for easy transportation and storage. Limited warranty is 24-months.

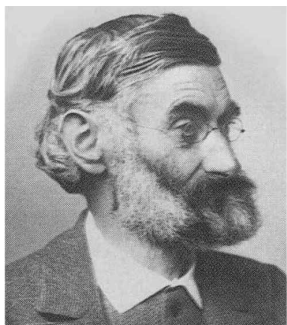


- Dual Scale
- Refractive Index & 0-95 Brix
- Dispersion Measurement
- Optional Light Source



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Abbe 5 Refractometer



Specifications

| | |
|----------------------------|---|
| Scale | 0-95 °Brix / 1.30 - 1.70 RI |
| Resolution | 0.1 / 0.0005 |
| Operating temperature | 5-70 °C |
| Temperature resolution | 0.1°C |
| Ambient temperature | 5-40°C |
| Power supply (temperature) | Battery (1 x 1.5V AA alkaline). Approx. life 12 months continual use |

Order Codes

| Code | Description |
|--------|---|
| 44-501 | Abbe 5 refractometer supplied with glass calibration plate, contact liquid and instruction manual packed in a hard flight case for easy storage |
| 44-520 | Abbe 5 light source for mounting on instrument base. UK/EU plug. 230v~, 50-60Hz |
| 44-525 | Abbe 5 light source for mounting on instrument base. US plug. 110v~, 50-60Hz |
| 44-522 | Abbe 5 light source - spare bulb (pack of 5) |
| 44-590 | Spare prism box assembly |
| 72-200 | Traceable calibration plate (silica: 1.45839 ± 0.0001 RI at 20 °C) |
| 10-43 | Contact liquid (monobromonaphthalene) for test plates and solid samples with an RI up to 1.65 RI. Quantity 6ml. |
| 10-61 | Contact liquid (methyl iodide) for test plates and solid samples with an RI up to 1.74 RI. Quantity 6ml. |

Weights & Dimensions

| | |
|----------------------|---------------------------------------|
| Weight (gross) | 3.5 kg |
| Weight (net) | 2.55kg |
| Dimensions (packed): | 27 x 37 x 18cm (0.018m ³) |

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.



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Abbe 60 DR & 95 Refractometers

DIRECT READING MODELS FOR ACADEMIA, RESEARCH AND GENERAL USE

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, and instructions for use. Limited warranty is 24 months.

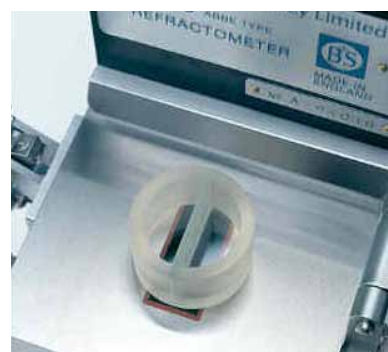


- Dual scale
- Refractive Index and °Brix
- Integral LED light source



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Direct Reading Abbe 60 Refractometers



| Specifications | 60DR | 6095 |
|-----------------------------------|---|-----------------------------|
| Range (Refractive Index / °Brix) | 1.30 - 1.74 / 0-95 | 1.30-1.535 / 0-95 |
| Scale division (Refractive Index) | 0.001 | 0.001 |
| Scale division (°Brix) | 0.5 | 0.2 (0-50) 0.1 (50-95) |
| Precision (scale / by estimation) | ±0.001 RI (±0.0001 RI) (±0.25 °Brix) | ±0.2 (0-50) ±0.1 (50-95) |
| Operating temperature | 5-75 °C | |
| Temperature resolution | 0.1°C | |
| Ambient temperature | 5-40°C | |
| Power supply | 110-230V~, 50/60Hz | |

Order Codes

| Code | Description |
|--------|--|
| 10-99 | Abbe 60DR Refractometer supplied with calibration plate, contact liquid, power supply and instruction manual |
| 10-03 | Abbe 6095 Refractometer supplied with calibration plate, contact liquid, power supply and instruction manual |
| 10-42 | Volatile liquid cell |
| 10-58 | Divided cell for differential measurement |
| 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 - wavelength defined at point of order |
| 10-44 | Glass test plate - approx. 1.5222 RI |
| 10-46 | Silica test plate - 1.45839 RI. Certificate of Verification showing traceability available at extra cost |
| 10-49 | Polarising eyepiece for bi-refringent samples |
| 10-59 | Glass substrate for set resin samples (requires use of contact liquid code 10-43) |
| 10-660 | Abbe utility software (also available from www.bellinghamandstanley.com at no cost) |
| 13-395 | Spare desiccator |
| 55-104 | Spare power supply for Abbe refractometer (110-230V~, 50/60Hz) |

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Abbe 60 ED & LR Refractometers

ULTIMATE PRECISION FOR RESEARCH AND ACADEMIA ACROSS THE VISIBLE SPECTRUM

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, and instructions for use. Limited warranty of 24 months.

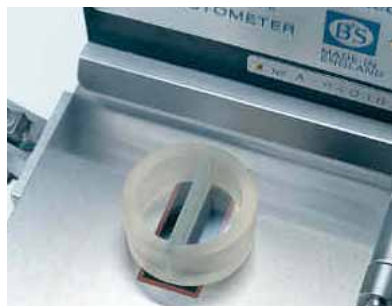


- Abbe No. and dispersion measurement
- Conforms to ASTM D1218 and D1747



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High Precision Abbe 60 Refractometer



Specifications

| | 60ED | 60LR |
|--------------------------|--------------------|--------------|
| Range (equivalent to) | 1.30 - 1.74 RI | 1.20-1.70 RI |
| Precision (mean @ 589nm) | ±0.00004 | |
| Operating temperature | 5-75 °C | |
| Temperature resolution | 0.1°C | |
| Ambient temperature | 5-40°C | |
| Power supply | 110-230V~, 50/60Hz | |

Order Codes

| Code | Description |
|--------|--|
| 10-04 | Abbe 60ED Refractometer supplied with calibration plate, contact liquid, power supply and instruction manual |
| 10-06 | Abbe 60LR Refractometer supplied with calibration plate, contact liquid, power supply and instruction manual |
| 59-01 | Free standing sodium lamp outfit with bulb (35w, approx. 3000 hours) - 230V~, 50Hz |
| 59-06 | Free standing sodium lamp outfit with bulb (35w, approx. 3000 hours)- 110V~, 60Hz |
| 59-20 | Free standing spectral lamp outfit (without spectral bulb) - 230V~, 50Hz |
| 59-25 | Free standing spectral lamp outfit (without spectral bulb) - 110V~, 60Hz |
| 59-50 | Spare sodium bulb (35w, approx. 3000 hours) |
| 59-33 | Mercury bulb (approx. 200 hours) |
| 59-37 | Cadmium bulb (approx. 200 hours) |
| 59-39 | Helium bulb (approx. 200 hours) |
| 10-42 | Volatile liquid cell |
| 10-58 | Divided cell for differential measurement |
| 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 |
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| 10-660 | Abbe utility software (also available from www.bellinghamandstanley.com at no cost) |
| 13-395 | Spare desiccator |
| 55-104 | Spare power supply for Abbe refractometer (110-230V~, 50/60Hz) |

Note: Abbe 60ED & 60LR must be used in conjunction with a monochromatic light source such as those listed above. Adequate care must be taken when laser or other high intensity light is used. Always read the health & safety instructions before use.



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