

Operating instructions

Granit Black Edition refractometer

for battery fluid, antifreeze and AdBlue® additives

7302103

Potential applications

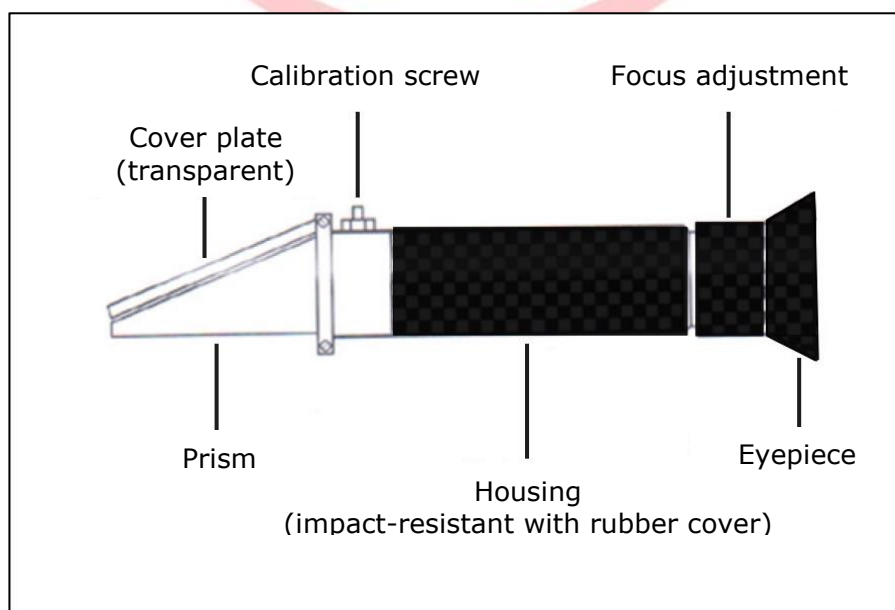
The Granit Black Edition refractometer is used to measure operating fluids. It is suitable for windscreen cleaners with antifreeze, electrolyte, AdBlue® and coolant. The Granit Black Edition refractometer is a one-handed, tube-shaped visual instrument with an eyepiece at one end and a measuring prism at the other. The measuring prism refracts the incident light at a set angle and throws it onto the scale. The light ray angle of refraction changes depending on the sample fluid added to the prism. This angle change is in a fixed ratio to the amount of substance dissolved in the fluid. The resulting measured value can then be read using the calibrated scale.

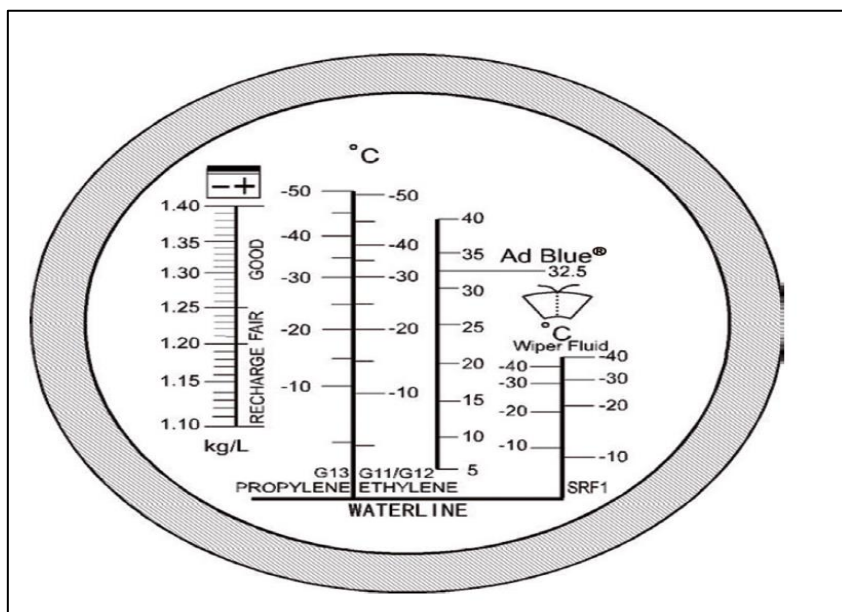
Calibration

Clean the Granit Black Edition refractometer before calibration, then add 1-2 drops of distilled water to the prism. If the light /dark boundary is not 0% (waterline), this should be adjusted using the calibration screw under the rubber cover. Use the calibration screwdriver for this.

Instructions

Clean the Granit Black Edition refractometer, especially the hinged cover and the prism, before starting the measuring procedure. Then add 1-2 drops of the sample to the clean, dry prism. The pipette can be used to apply the sample to the main prism. Make sure that no air bubbles form as this would have a negative effect on the measurement result. When the hinged cover is closed, the sample is distributed evenly between the cover and the prism. Now hold the refractometer up to bright daylight and use the eyepiece to view the scale. The value between the light/dark boundary can be read using this scale, which can be focussed by turning the eyepiece. To prevent deposits collecting on the prism and the cover, the Granit Black Edition refractometer should be carefully cleaned and dried after each measurement.





Ambient temperatures and ATC

Note: when calibrating the Granit Black Edition refractometer, ensure that the ambient temperature is 20°C. Temperature is one of the most important factors influencing the measurement accuracy, and one of the most common causes of errors. ATC (automatic temperature compensation) relieves the user of the responsibility of determining the ambient temperature during the measurement and taking a correction factor into account. When calibrated correctly, the Granit Black Edition refractometer performs this correction automatically, thereby compensating for temperature differences between 10°C and 30°C.

Scale for analysing electrolyte in car batteries/lead accumulators

Measurement range	Resolution
1.10 to 1.40 kg/l	0.01 kg/l
Measurement range	Result
1.10 to 1.20 kg/l	Battery empty (RECHARGE)
1.20 to 1.25 kg/l	Battery partially discharged (FAIR)
1.25 to 1.40 kg/l	Battery charged (GOOD)

G13 scale for determining the freezing point of coolant mixtures (propylene glycol); G13 measurement range -50°C to 0°C/resolution 5°C

This scale can be used to determine the freezing point of coolants in cars (e.g. FRIDEX® EKO, FRIDEX® EKO EXTRA, SOLAREN® P EXTRA, SOLAREN® P PLUS, FRITERM® P PLUS). It can also be used to determine the freezing point of heat transfer fluids in solar-powered systems (e.g. KOLEKTON P SUPER, SOLARTEN SUPER) or coolants for heat pumps and cooling systems (e.g. TERMOFROST P).

G11/G12 scale for determining the freezing point of coolants (ethylene glycol); G11/G12 measurement range -50°C to 0°C/resolution 5°C

This refractometer scale can be used to determine the freezing point of ethylene glycol-based coolants, i.e. type G11 coolants (VW TL 774-C specification, e.g. FRIDEX® G 48, FRIDEX® STABIL) and type G12 coolants (VW TL 774-D/F/G specification, e.g. FRIDEX® G PLUS) that are used in vehicles from the VW Group (Volkswagen, AUDI, Škoda, SEAT).

Scale for determining the freezing point of windscreen cleaners with antifreeze (ethanol); measurement range -40°C to 0°C/resolution 5°C

SRF1 scale for determining the freezing point of windscreen cleaners with antifreeze (isopropanol); measurement range -40°C to 0°C/resolution 5°C

Urea scale for AdBlue® liquid additive; measurement range 0 to 40%/resolution 0.2%

The AdBlue® liquid additive scale is used for exhaust gas after treatment to ensure that they comply with the Euro 4 and Euro 5 standards. AdBlue® is a chemically pure, colourless, non-toxic solution made up of water and synthetic urea (32.5% - this value is highlighted on the scale by a longer line).

Maintenance

The Granit Black Edition refractometer should be kept clean.

Refractometers are visual measuring instruments and should be maintained and serviced accordingly. A visual inspection should also be carried out before using the refractometer to locate any damage or worn parts.

The manufacturer takes no responsibility for personal injury and/or damage to property caused by improper use of the refractometer. All users must read these instructions before use.

Scope of delivery

Before using the Granit Black Edition refractometer, check that the delivery is complete and that no damage has been done during transport.

- One-handed refractometer
- Calibration screwdriver
- Pipette
- Plastic case
- Microfibre cloth

Directions for use

- The hinged cover and the prism must be kept clean as dirt will compromise the accuracy of the Granit Black Edition refractometer.
- Avoid scratching the prism and the hinged cover as this will affect the accuracy of the measurement.
- Only clean the refractometer with a damp cloth, not under running water.
- Avoid knocks and impacts as this may destroy the lens.
- Store the Granit Black Edition refractometer in a dry place.

Disposal

The refractometer should be disposed of or recycled in accordance with the relevant national legislation. AdBlue® is a registered trademark of the German Association of the Automotive Industry VDA (Verband der Automobilindustrie e.V).

Addresses

Sales/Customer Service/
Spare parts sales:

Tel. : +49 (4281) 712 712
Fax : +49 (4281) 712 700

Postal and shipping address:

Wilhelm Fricke SE
Zum Kreuzkamp 7
27404 Heeslingen
Germany

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Original Operating Instructions for Granit Black Edition refractometer
Manufacturer: Wilhelm Fricke SE - D-27404 Heeslingen
1st Edition, November 2019
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