





# Refractometers

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## Refractive index measurement for laboratories and the industry

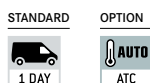
### Features

- The KERN ORA refractometers are universal, maintenance free analogue handheld refractometers
- The handy and robust design allows the easy, efficient and sustainable use in everyday life
- Manually calculated conversions and errors of the user are avoided by multiple selectable scales
- These scales are especially developed, exactly calculated and checked. They are also characterized by their thin and clear lines
- The optical system and the prism cover are made of special material which allows a low-tolerance measuring
- All ORA models are equipped with an eyepiece for easy and smooth setting for many different diopter strengths
- The models marked with "ATC" have an automatic temperature compensation which enables accurate measurement at different ambient temperatures (10 °C/30 °C)
- The following accessory-parts are included:
  - Storage box
  - Calibration liquid
  - Calibration block (if required)
  - Pipette
  - Small screwdriver
  - Cleaning tissue
- Further accessories are available optionally

### Technical data

- Die-cast housing of copper-aluminium alloy, chrome coated
- Measurement temperature without ATC: 20 °C
- Measurement temperature range with ATC: 10 °C/30 °C
- Dimensions of the box: 205×75×55 mm (depending on the model)
- Product length: approx. 130 – 200 mm (depending on the model)
- Net weight approx. 135 – 600 g (depending on the model)

09



**Scope of application: Sugar**

The following models are particularly suitable for the measurement of the “BRIX” value. They are used to determine the sugar content in food, especially in fruit, vegetables, juice and soft drinks. In the same ideal way these refractometers serve for monitoring processes in the industry (coolant monitoring, oils, lubricants and fats).

The main scope of applications is:

- Industry: Monitoring of lubricants for process and quality control
- Food industry: Beverages, fruits and sweets
- Agriculture: Determination of the degree of ripeness of fruits for quality control in harvesting
- Restaurants and large-scale catering establishment



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 10BB</b>	Brix	0 - 10 %	0,1 %		<b>80,-</b>
<b>ORA 10BA</b>	Brix	0 - 10 %	0,1 %	✓	<b>85,-</b>
<b>ORA 18BB</b>	Brix	0 - 18 %	0,1 %		<b>80,-</b>
<b>ORA 20BB</b>	Brix	0 - 20 %	0,1 %		<b>80,-</b>
<b>ORA 20BA</b>	Brix	0 - 20 %	0,1 %	✓	<b>85,-</b>
<b>ORA 32BB</b>	Brix	0 - 32 %	0,2 %		<b>80,-</b>
<b>ORA 32BA</b>	Brix	0 - 32 %	0,2 %	✓	<b>85,-</b>
<b>ORA 62BB</b>	Brix	28 - 62 %	0,2 %		<b>80,-</b>
<b>ORA 62BA</b>	Brix	28 - 62 %	0,2 %	✓	<b>85,-</b>
<b>ORA 82BB</b>	Brix	45 - 82 %	0,5 %		<b>80,-</b>
<b>ORA 80BB</b>	Brix	0 - 80 %	0,5 %		<b>80,-</b>

**Scope of application: Honey**

The following models are particularly suitable for the measurement of the “BRIX” value, as well as the water content in honey and “degrees Baumé” to determine the relative density of liquids.

The main scope of applications is:

- Beekeeping
- Honey production



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 3HB</b>	Brix Baumé Water content	58 - 92 % 38 - 43 °Bé 12 - 27 %	0,5 % 0,5 °Bé 1 %		<b>85,-</b>
<b>ORA 3HA</b>	Brix Baumé Water content	58 - 92 % 38 - 43 °Bé 12 - 27 %	0,5 % 0,5 °Bé 1 %	✓	<b>90,-</b>
<b>ORA 6HB</b>	Water content	12 - 30 %	0,1 %		<b>95,-</b>
<b>ORA 6HA</b>	Water content	12 - 30 %	0,1 %	✓	<b>100,-</b>

**Scope of application: Salt**

The following models are particularly suitable for the measurement and concentration control of the mass fraction of sodium chloride in water as well as of the content of NaCl (salt) in water. This is often used in the preparation and the cooking of sauces, bases for pastries, the production of brines (e.g. for white cheese) and the preparation of seafood and marinades for meat.

The main scope of applications is:

- Food industry
- Restaurants and large-scale catering establishment
- Aquaristic: Fishkeepers/Fishfarmers in sea and sweetwater



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 1SB</b>	Salinity specific gravity	0 – 100 ‰ 1,000 – 1,070 sg	1 ‰ 0,001 sg		<b>80,-</b>
<b>ORA 1SA</b>	Salinity specific gravity	0 – 100 ‰ 1,000 – 1,070 sg	1 ‰ 0,001 sg	✓	<b>85,-</b>
<b>ORA 2SB</b>	Salt (NaCl)	0 – 28 %	0,2 %		<b>80,-</b>
<b>ORA 2SA</b>	Salt (NaCl)	0 – 28 %	0,2 %	✓	<b>85,-</b>
<b>ORA 3SB</b>	Salt (NaCl) Brix	0 – 28 % 0 – 32 %	0,2 % 0,2 %		<b>80,-</b>
<b>ORA 3SA</b>	Salt (NaCl) Brix	0 – 28 % 0 – 32 %	0,2 % 0,2 %	✓	<b>85,-</b>

**Scope of application: Wine**

The following models are particularly suitable for the measurement of the content of sugar in fruits. It indicates the expected °Alcohol of the fruit. The degree of ripeness of fruit (fruit-sugar) can also be determined, such as e.g. grapes.

The main scope of applications is:

- Agriculture: Wine-growing and fruit-growing
- Wine-production
- Must and alcohol production



°Oe = Degree Oechsle, °KMW = Klosterneuburger Must balance

Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 1WB</b>	Oechsle KMW (Babo) Brix	0 – 140 °Oe 0 – 25 °KMW 0 – 32 %	1 °Oe 0,25 °KMW 0,2 %		<b>80,-</b>
<b>ORA 1WA</b>	Oechsle KMW (Babo) Brix	0 – 140 °Oe 0 – 25 °KMW 0 – 32 %	1 °Oe 0,25 °KMW 0,2 %	✓	<b>85,-</b>
<b>ORA 3WB</b>	Oechsle Brix	30 – 140 °Oe 0 – 32 %	1 °Oe 0,2 %		<b>80,-</b>
<b>ORA 3WA</b>	Oechsle Brix	30 – 140 °Oe 0 – 32 %	1 °Oe 0,2 %	✓	<b>85,-</b>
<b>ORA 7WB</b>	Oechsle KMW (Babo) Brix	30 – 140 °Oe 0 – 25 °KMW 0 – 32 %	1 °Oe 0,2 °KMW 0,2 %		<b>80,-</b>
<b>ORA 7WA</b>	Oechsle KMW (Babo) Brix	30 – 140 °Oe 0 – 25 °KMW 0 – 32 %	1 °Oe 0,2 °KMW 0,2 %	✓	<b>85,-</b>
<b>ORA 1AB</b> <small>NEW</small>	Percentage by volume Percentage by volume	0 – 50 % (v/v) 50 – 80 % (v/v)	1 % (v/v) 2,5 % (v/v)		<b>80,-</b>
<b>ORA 2AB</b>	Percentage by mass Percentage by mass	0 – 50 % (w/w) 50 – 80 % (w/w)	1 % (w/w) 2,5 % (w/w)		<b>80,-</b>

NEW New model

**Scope of application: Urine**

The following models are particularly suitable for the measurement of the specific gravity (sg) in urine, the quantity of serum (serumproteine) in urine (doping control among athletes), and the refractive index.

The main scope of applications is:

- Hospitals
- Doctor's surgeries/Physicians
- Medical training institutions
- Nursing homes
- Sports medicine (doping test)
- Veterinary



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 2PB</b>	Serum protein Urine (spec. gravity) Refractive index	0 - 12 g/dl 1,000 - 1,050 sgU 1,3330 - 1,3600 nD	0,2 g/dl 0,002 sgU 0,0005 nD		<b>80,-</b>
<b>ORA 2PA</b>	Serum protein Urine (spec. gravity) Refractive index	0 - 12 g/dl 1,000 - 1,050 sgU 1,3330 - 1,3600 nD	0,2 g/dl 0,002 sgU 0,0005 nD	✓	<b>85,-</b>
<b>ORA 5PB</b>	Serum protein Urine (s. g. dog) Urine (s. g. cat)	2 - 14 g/dl 1,000 - 1,060 sgU 1,000 - 1,060 sgU	0,1 g/dl 0,001 sgU 0,001 sgU		<b>80,-</b>

**Scope of application: Industry/Automotive**

The following models are particularly suitable for the measurement and determination of AdBlue, glycol concentration (ethylene (EG) and propylene (PG)), battery fluid (BF), urea, the freezing point of fountain solution (CW). Furthermore these models are suitable for the measurement of thermal exchange systems.

The main scope of applications is:

- Automotive industry: Car-workshops and producers
- Chemical industry
- Solar industry: Antifreeze monitoring
- Geothermal industry: Brine-concentration-measurement for ground heat
- Forestry/Lumbermen



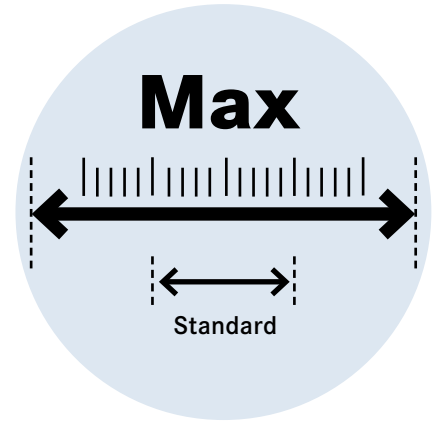
Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 4FB</b>	EG (G11/12) PG (G13) CW BF	-50 - 0 °C -50 - 0 °C -40 - 0 °C 1,10 - 1,40 kg/l	1 °C 1 °C 5 °C 0,01 kg/l		<b>80,-</b>
<b>ORA 4FA</b>	EG (G11/12) PG (G13) CW BF	-50 - 0 °C -50 - 0 °C -40 - 0 °C 1,10 - 1,40 kg/l	1 °C 1 °C 5 °C 0,01 kg/l	✓	<b>85,-</b>
<b>ORA 1UB</b>	Urea	0 - 40 %	0,2 %		<b>80,-</b>
<b>ORA 1UA</b>	Urea	0 - 40 %	0,2 %	✓	<b>85,-</b>
<b>ORA 4UB</b>	Urea EG (G11/12) PG (G13) CW BF	30 - 35 % -50 - 0 °C -50 - 0 °C -40 - 0 °C 1,10 - 1,40 kg/l	0,2 % 1 °C 1 °C 5 °C 0,01 kg/l		<b>80,-</b>
<b>ORA 4UA</b>	Urea EG (G11/12) PG (G13) CW BF	30 - 35 % -50 - 0 °C -50 - 0 °C -40 - 0 °C 1,10 - 1,40 kg/l	0,2 % 1 °C 1 °C 5 °C 0,01 kg/l	✓	<b>85,-</b>

**Scope of application: Expert applications**

The following models have a special large measuring range for the refractive index and large divided scales for the measurement and clear reading of Brix values.

The main scope of applications is:

- Universal application, especially when extra large measuring ranges are required



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 80BE</b>	Brix	0 – 50 % 50 – 80 %	0,5 % 0,5 %		<b>140,-</b>
<b>ORA 90BE</b>	Brix	0 – 42 % 42 – 71 % 71 – 90 %	0,2 % 0,2 % 0,2 %		<b>315,-</b>
<b>ORA 1RE</b>	Refractive index	1,333 – 1,405 nD 1,405 – 1,468 nD 1,468 – 1,517 nD	0,005 nD 0,005 nD 0,005 nD		<b>320,-</b>
<b>ORA 4RR</b>	Refractive index	1,440 – 1,520 nD	0,001 nD		<b>85,-</b>



ORA 4RR



ORA 90 BE/ORA 1RE



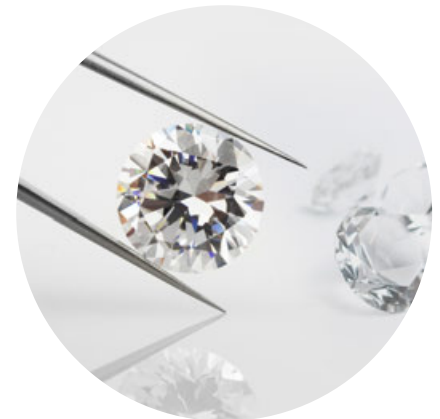
ORA 80BE

**Scope of application: Gemmology/Jewellery**

The Gem models have a special refracting-index range for jewellery. For this refractometer there is a nice leather bag in the scope of delivery included.

The main scope of applications is:

- Jewellers
- Training/Education
- Jewellery industry



Model	Scales	Measuring range	Division	ATC	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORA 1GG</b>	Refractive index	1,30 – 1,81 nD	0,01 nD		<b>225,-</b>



ORA 1GG

**Accessory parts: Analogue refractometer – ORA**



Prism coverplate with LED  
ORA-A1101



Calibration liquid/  
Contact liquid



Leather bag  
ORA-A2103



Calibration block

Model	Description	Price excl. of VAT ex works €
<b>KERN</b>		
<b>ORA-A1101</b>	Prism coverplate with integrated LED illumination	<b>19,-</b>
<b>ORA-A2103</b>	Leather bag for analog refractometers	<b>19,-</b>
<b>ORA-A1001</b>	Calibration liquid – distilled water Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A1002</b>	Contact liquid – Clove oil (for Calibration value 19,6%) Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A1003</b>	Calibration liquid – saturated salt solution Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A1004</b>	Contact liquid – Clove oil (for Calibration value 78,8%) Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A1005</b>	Calibration block for models ORA 82BB, ORA 3HA, ORA 3HB, ORA 6HA, ORA 6HB , ORA 4RR	<b>19,-</b>
<b>ORA-A1007</b>	Contact liquid – Diiodomethane “Standard” (Refractive index: 1,74 nD) Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A3001</b>	Contact liquid – Diiodomethane “Pro” (Refractive index: 1,79 nD) Volume: 2 ml	<b>35,-</b> ↓
<b>ORA-A1008</b>	Calibration block for model ORA 1GG	<b>19,-</b> ↓
<b>ORA-A2001</b>	Prism coverplate (spare part)	<b>19,-</b>

↓ Price reduction

Relationship overview – refractometer calibration (analogue)

Model refractometer	Calibration value	Calibration liquid	Article number liquid	Calibration block	Article number calibration block
ORA 10BA; ORA 10BB; ORA 18BB; ORA 1WA; ORA 1WB; ORA 20BA; ORA 20BB; ORA 32BA; ORA 32BB; ORA 3SA; ORA 3SB; ORA 3WA; ORA 3WB; ORA 7WA; ORA 7WB; ORA 80BB; ORA 80BE	0 % Brix	distilled water	ORA-A1001	-	-
ORA 1UA; ORA 1UB	0 % Urea	distilled water	ORA-A1001	-	-
ORA 4FA; ORA 4FB; ORA 4UA; ORA 4UB	0 °C EG/PG/CW	distilled water		-	
ORA 1SA; ORA 1SB	0 ‰ Salinity	distilled water		-	
ORA 2SA; ORA 2SB	0 % Salt (NaCl)	distilled water		-	
ORA 2AB	0 % Vol (weight)	distilled water		-	
ORA 2PA; ORA 2PB; ORA 5PB	1,000 sg Urine	distilled water		-	
ORA 62BA; ORA 62BB	29,6 % Brix	saturated salt solution	ORA-A1003	-	-
ORA 3HA; ORA 3HB; ORA 82BB	78,8 % Brix	Clove oil CAS 8000-34-8	ORA-A1004	yes	ORA-A1005
ORA 4RR	1,4875 nD	Clove oil CAS 8000-34-8	ORA-A1004	yes	ORA-A1005
ORA 6HA; ORA 6HB	19,6 % Water content	Clove oil CAS 8000-34-8	ORA-A1002	yes	ORA-A1005
ORA 1GG	1,515 nD	Diiodomethane CAS 90-11-9	ORA-A1007	yes	ORA-A1008



NEW



Transport and storage case



Rear view

## Digital refractive index measurement for laboratories and the industry for multi-application

### Features

- The KERN ORF refractometers are accurate and universal maintenance free digital handheld refractometers
- The large display is easy to read. Mistakes in reading are avoided
- The typical and practical design is suitable for a quick and convenient everyday use and is characterized by its easy-using and robustness
- The KERN ORF range is protected to international IP65 protection class, against dust and water splashes. After use, you can rinse the refractometer under running water
- The large, easy-to-read TFT colour display with integrated temperature display supports the user to reliably determine the measurement
- A large selection of models is available with single or multiple scales. This allows the use in various applications
- The instrument comes with an optimized software that can show a result in different scales
- The integrated automatic temperature compensation (ATC), avoids the manual conversion of the measurement. This allows a quick and efficient usage of the instrument
- Due to the fact that the refractometer has been calibrated at the factory, this guarantees that it can be used immediately for accurately measuring your sample.
- The following accessory-parts are included:
  - Calibration liquid
  - Pipette
  - Storage box
  - 2 x AAA batteries
  - Leather bag
  - Small screwdriver
  - Cleaning tissue

### Technical data

- Measurement temperature: 5 °C – 40 °C
- Overall dimensions WxDxH 133x65x38 mm
- Net weight approx. 200 g
- Power supply: 2 x AAA (1,5 V)
- Lifetime of the battery: approx. 3.750 measurements
- ATC (Automatic Temperature Compensation)
- Minimum sample volume: 2–3 drops
- Automatic energy management (AUTO-OFF after 90 seconds)

STANDARD



### Scope of application: Sugar

The following models are particularly suitable for the measurement of the “BRIX” value. They are used to determine the sugar content in food, especially in fruit, vegetables, juice and sweet or soft drinks. In the same ideal way, these refractometers serve in monitoring processes in the industry (coolant monitoring, oils, lubricants and fats). Alternatively, the display can be switched to show the refractive index.

The main scope of applications is:

- Industry: Monitoring of lubricants in machines and quality control
- Food industry: Beverages, fruits and sweets
- Agriculture: Determination of the degree of ripeness of fruit for quality control in harvesting
- Restaurants and large-scale catering establishment



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 45BM</b>	Brix Refractive index	0 - 45 % 1,3330 - 1,4098 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	<b>340,-</b>
<b>ORF 92BM</b>	Brix Refractive index	58 - 92 % 1,4370 - 1,5233 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	<b>370,-</b>
<b>ORF 85BM</b>	Brix Refractive index	0 - 85 % 1,3330 - 1,5100 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	<b>395,-</b>

### Scope of application: Honey

The following models are particularly suitable for the measurement of the “BRIX” value, the water content in honey according to the International Honey Commission (IHC2002) and “degrees Baumé” to determine the relative density of liquids. Alternatively the display can be switched to show the refractive index.

The main scope of applications is:

- Beekeeping
- Honey production



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 92HM</b>	Brix Baumé Water content Refractive index	58 - 92 % 38 - 43 °Bé 13 - 25 % 1,4370 - 1,5233 nD	± 0,2 % ± 0,2 °Bé ± 0,2 % ± 0,0003 nD	0,1 % 0,1 °Bé 0,1 % 0,0001 nD	<b>370,-</b>

**Scope of application: Salt**

The following models are particularly suitable to determine the concentration of NaCl (salt) in water. This is often used for the preparation and for the cooking of sauces, bases for pastries, the production of brines (e.g. for white cheese) and the preparation of seafood and marinades for meat. Alternatively the display can be switched to show the refractive index.

The main scope of applications is:

- Food industry
- Restaurants, and large-scale catering establishment, canteens



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 3SM</b>	Brix Salt (NaCl) Refractive index	0 - 45 % 0 - 28 % 1,3330 - 1,4100 nD	± 0,2 % ± 0,2 % ± 0,0003 nD	0,1 % 0,1 % 0,0001 nD	<b>340,-</b>

**Scope of application: Wine**

The following models are particularly suitable for the measurement of the sugar content in fruit. It indicates the expected °Alcohol of the fruit. The degree of ripeness of fruit (fruit-sugar) can also be determined, such as e.g. grapes.

The main scope of applications is:

- Agriculture: Wine-growing (viticulture) and fruit-growing
- Wine-production
- Must and alcohol production



°Oe = Degree Oechsle, °KMW = Klosterneuburger Most Waage

Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 2WM</b>	Mass SW Vol. AP Oechsle KMW (Babo)	0 - 35 % 0 - 22 % 0 - 150 °Oe 0 - 25 °KMW	± 0,2 % ± 0,2 % ± 1 °Oe ± 0,2 °KMW	0,1 % 0,1 % 1 °Oe 0,1 °KMW	<b>340,-</b>

**Scope of application: Urine**

The following models are particularly suitable for the measurement of the specific gravity (sg) in urine, the quantity of serum (serumproteine) in urine (doping control among athletes), and the refractive index.

The main scope of applications is:

- Hospitals
- Doctor's surgeries/Physicians
- Medical training institutions
- Nursing homes
- Sports medicine (doping test)



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 1PM</b>	Serum protein Urine (spec. gravity) Refractive index	0 - 12 g/dl 1,000 - 1,050 sgU 1,3330 - 1,3900 nD	± 0,1 g/dl ± 0,001 sgU ± 0,0003 nD	0,1 g/dl 0,001 sgU 0,001 nD	<b>340,-</b>

**Scope of application: Industry/Automotive**

The following models are particularly suitable for the measurement and determination of AdBlue, glycol concentration (ethylene (EG) and propylene (PG)), battery fluid (BF), urea, the freezing point of fountain solution (CW). Furthermore these models are suitable for the measurement of thermal exchange systems.

The main scope of applications is:

- Automotive industry: Car-workshops and producers
- Chemical industry
- Solar industry: Antifreeze monitoring
- Geothermal industry: Brine-concentration-measurement for ground heat
- Forestry/Lumbermen



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 2UM</b>	EG PG BF CW	-50 - 0 °C -50 - 0 °C 1.00 - 1.50 kg/l -40 - 0 °C	± 0,5 °C ± 0,5 °C ± 0,01 kg/l ± 0,5 °C	0,1 °C 0,1 °C 0,01 kg/l 0,1 °C	<b>340,-</b>
<b>ORF 5UM</b>	EG PG Urea CW	-50 - 0 °C -50 - 0 °C 0 - 40 % -40 - 0 °C	± 0,5 °C ± 0,5 °C ± 0,2 % ± 0,5 °C	0,1 °C 0,1 °C 0,1 % 0,1 °C	<b>340,-</b>
<b>ORF 6US <small>NEW</small></b>	Urea Refractive index	0 - 40 % 1,3330 - 1,4100 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	<b>340,-</b>

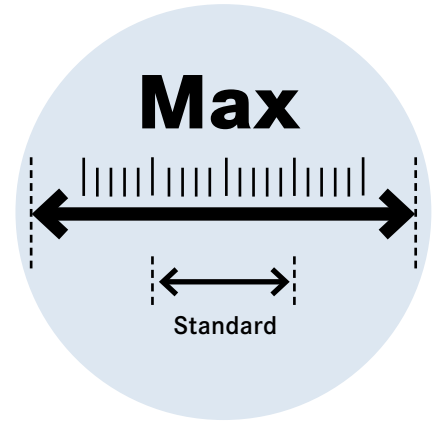
NEW New model

**Scope of application: Expert applications**

The following model has a special large measuring range for the refractive index.

The main scope of applications is:

- Universal measuring instrument, especially for applications with extra large measuring ranges



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORF 1RS</b>	Refractive index	1,3330 - 1,5400 nD	± 0,0005 nD	0,0001 nD	<b>430,-</b>

**Accessory parts: Digital refractometer – ORF**

Model	Description	Price excl. of VAT ex works €
<b>KERN</b>		
<b>ORF-A1005</b>	Prism cover for digital refractometers	<b>25,-</b>
<b>ORA-A1001</b>	Calibration liquid – distilled water Volume: 2,5 ml	<b>19,-</b>
<b>ORA-A1006</b>	Calibration liquid – Triethyl citrate Volume: 2,5 ml	<b>19,-</b>
<b>ORD-A2104</b>	Leather bag for digital refractometer (Spare part)	<b>19,-</b> ↓

↓ Price reduction



Calibration liquid/  
Contact liquid

Relationship overview – refractometer calibration (digital)					
Model refractometer	Calibration value	Calibration liquid	Article number liquid	Calibration block	Article number calibration block
<b>ORF 45BM; ORF 85BM; ORF 3SM</b>	0 % Brix	distilled water	ORA-A1001	-	-
<b>ORF 2WM</b>	0 °KMW	distilled water	ORA-A1001	-	-
<b>ORF 1PM; ORF 1RS</b>	1,3330 nD	distilled water	ORA-A1001	-	-
<b>ORF 2UM; ORF 5UM</b>	0 °C EG/PG/CW	distilled water	ORA-A1001	-	-
<b>ORF 6US</b>	0 % Urea	distilled water	ORA-A1001	-	-
<b>ORF 92BM; ORF 92HM</b>	60 % Brix	Triethyl citrate CAS 77-93-0	ORA-A1006	-	-



## Refractive index measurement for pharmacy, laboratories and industry

### Features

- The KERN ORT refractometers are universal analog Abbe refractometers
- The handy and robust design allows the easy, efficient and sustainable use in everyday life
- The integrated scale allows the use in different applications and provides the best possible security to read the measurement results accurately
- The scope of delivery includes:
  - Calibration solution
  - Calibration block
  - Pipette
  - Small screwdriver
  - Cleaning tissue
  - Digital thermometer
- Accessories are available as options

### Technical data

- Measurement temperature: 20 °C
- Overall dimensions W×D×H  
180×90×240 mm
- Net weight approx. 1950 g

STANDARD



**Scope of application: Industry/Pharmacy/Laboratory**

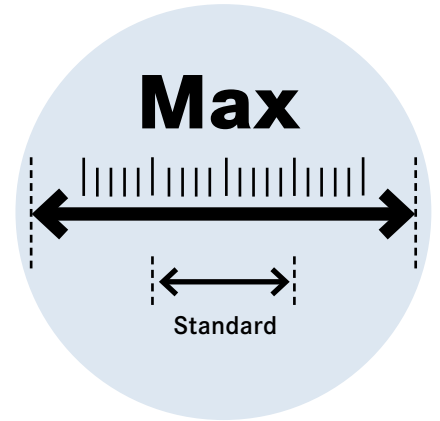
The following model is a simple yet highly reliable Abbe refractometer with a digital thermometer. Liquid, solid and pasty samples can be evaluated. This refractometer is robust, accurate and easy to use. Optionally a solide aluminium case for transport and storage is available. It measures the refractive index (nD).

The main scope of applications is:

- Sugar industry: for example cane sugar
- Pharmacy
- Beverage industry
- Food industry
- Chemical industry
- Oil industry/Refinery
- Laboratories
- Training

Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
<b>KERN</b>					
<b>ORT 1RS</b>	Brix Refractive index	0 - 95 % 1,3000 - 1,7000 nD	± 0,1 % ± 0,0002 nD	0,25 % 0,0005 nD	<b>690,-</b> ↓

↓ Price reduction



ORT 1RS

**Accessory parts: Abbe refractometer – ORT**

Model	Description	Price excl. of VAT ex works €
<b>KERN</b>		
<b>ORA-A1102</b>	Aluminium suitcase Dimension: 310×120×240 mm, weight: 1300 g	<b>80,-</b> ↓
<b>ORA-A2266</b>	Digital thermometer (0 °C/50 °C) (Spare part)	<b>60,-</b>
<b>ORA-A2267</b>	Calibration block for ORT 1RS	<b>40,-</b>
<b>ORA-A1107</b>	Contact liquid – Alpha-Bromonaphthalene (Refractive index: 1,65 nD) Volume: 2,5 ml	<b>25,-</b>
<b>ORA-A3001</b>	Contact liquid – Diiodomethane “Pro” (Refractive index: 1,79 nD) Volume: 2 ml	<b>35,-</b> ↓

↓ Price reduction



Transport and storage case  
ORA-A1102



Calibration block  
ORA-A2267

Relationship overview – refractometer calibration (Abbe)

Model refractometer	Calibration value	Calibration liquid	Article number liquid	Calibration block	Article number calibration block
<b>ORT 1RS</b>	engraved on the block (nD value)	Alpha-Bromnaphthalene CAS 90-11-9	ORA-A1107	yes	ORA-A2267