METALLURGICAL MICROSCOPES
KERN Pictograms

360° rotatable microscope head

Monocular Microscope
For the inspection with one eye

Binocular Microscope
For the inspection with both eyes

Trinocular Microscope
For the inspection with both eyes and the additional option for the connection of a camera

Abbe Condenser
With high numerical aperture for the concentration and the focusing of light

Halogen illumination
For pictures bright and rich in contrast

LED illumination
Cold, energy saving and especially long-life illumination

Incident illumination
For non-transparent objects

Transmitting illumination
For transparent objects

Fluorescence illumination
For the inspection of fluorescent samples

Fluorescence illumination for compound microscopes
With 100 W mercury lamp and filter

Fluorescence illumination for compound microscopes
With 3 W LED illumination and filter

Phase contrast unit
For a higher contrast

Darkfield condenser/unit
For a higher contrast due to indirect illumination

Polarising unit
To polarise the light

Infinity system
Infinity corrected optical system

Zoom magnification
For stereomicroscopes

Parallel optical system
For stereomicroscopes, enables fatigue-proof working

Integrated scale
In the eyepiece

SD card
For data storage

USB 2.0 digital camera
For direct transmitting of the picture to a PC

USB 3.0 digital camera
For direct transmitting of the picture to a PC

WLAN data interface:
For transmitting of the picture to a mobile display device

HDMI digital camera
For direct transmitting of the picture to a display device

PC software
To transfer the measurements from the device to a PC.

Automatic temperature compensation
For measurements between 10 °C and 30 °C

Protection against dust and water splashes IPxx
The type of protection is shown by the pictogram.

Battery operation
Ready for battery operation. The battery type is specified for each device.

Battery operation rechargeable
Prepared for a rechargeable battery operation

Mains adapter
230V/50Hz in standard version for EU. On request GB, AUS or USA version.

Power supply
Integrated in microscope. 230V/50Hz standard EU. More standards e.g. GB, AUS or USA on request.

Package shipment
The time required to manufacture the product internally is shown in days in the pictogram.

Abbreviations

C-Mount Adapter for the connection of a camera to a trinocular microscope

FPS Frames per second

H/SWF High (Super) Wide Field (Eyepiece with high eye point for wearers of glasses)

LWD Long Working Distance

N.A. Numerical Aperture

SLR camera Single-Lens Reflex camera

SWF Super Wide Field (Field number at least $\Phi$ 23 mm for 10× eyepiece)

W.D. Working Distance

WF Wide Field (Field number up to $\Phi$ 22 mm for 10× eyepiece)
Why you should choose a KERN microscope now!

For 175 years, KERN & SOHN has been synonymous with high precision weighing and measuring technology. This claim is the driving force for the development of our microscope and refractometer ranges.

Thanks to consistent customer focus paired with smart ideas and the latest available technology we are proud to be suppliers of high-quality, durable top microscopes and refractometers, which help you to be as efficient as possible in your daily work.

When developing our microscopes we have concentrated on the very best optical quality and have used only high-quality glass and the latest technologies to achieve this. The high-quality Philips halogen and modern LED illumination produce razor-sharp images with high contrast and which will impress you with their brilliant true-colour display – you must have noticed this yourself.

Your advantages:
• all mechanical parts have been designed for a long service life
• special attention has been given to the ergonomy of our microscopes, as this allows the user to work for several hours in a comfortable position which does not cause fatigue
• our microscopes are fully-equipped and can be used immediately
• Highlight for 2020: die KERN camera software – you will be amazed at how user-friendly and intuitive it is, a high-quality tablet camera as well as a comprehensive range of calibration services for refractometers
• and much more...

Use our practical “Check list for microscopes and refractometers”, which may help you to quickly determine specifications for the future instrument. Together with our KERN product specialist you can choose the right product for you.

If there is no suitable product in the standard range, for example, then we will of course configure an individual microscope for you.

Our aim is to develop a market-driven product solution, so with our microscope and refractometer range, the saying holds true: good quality at a competitive price! This is what we stand for and work towards, every day!

With our current 2020 product range you can benefit from improved quality and a clear reduction in price, which we have been able to achieve through more efficient production methods and increased global sales of our microscopes and refractometers and of course we pass this straight on to you

Do you have any questions about our range of microscopes and refractometers?

Your KERN customer consultants are available at any time to help you further.

I hope that you enjoy working efficiently with our KERN Optics products.

Albert Sauter, Managing Director

Your advantages

fast
• 24 hour dispatch service for products in stock – order today, on its way tomorrow
• Sales & service hotline from 8:00 am to 5:00 pm

reliable
• Up to 3 years warranty
• Certified QM system DIN EN ISO 9001

versatile
• One-stop shopping: from microscope through to refractometer – everything from one supplier
• Quick as a flash, find the product you want with the “Quick-Finder” at www.kern-sohn.com

Order hotline
+49 7433 9933-0

Service hotline
+49 7433 9933-199

Online shop
www.kern-sohn.com

E-mail order
info@kern-sohn.com

Fax Order
+49 7433 9933-146

Our team of consultants will assist you
from Monday to Friday from 8:00 am to 5:00 pm

www.kern-sohn.com
Information on current product availability, product data sheets, user instructions, useful knowledge, technical glossary and much for you to download, practical topic areas, which will guide you to the right product in your industry as well as a microscopes and refractometers search engine.
2 Metallurgical microscopes
Metallurgical microscope KERN OKM-1

**Features**

- The KERN OKM is an excellent metallurgical reflected light microscope, e.g., for surface quality testing of raw materials and finished products in industry.
- The strong, continuously dimmable 30 W halogen reflected illumination unit (Philips) ensures excellent, high-contrast images.
- The illumination unit with an integrated 5-slot filter wheel for blue, green, yellow, grey, and blank means that you can quickly change the colour filter for different contrast views.
- A large mechanical stage for reflected illumination applications is configured as standard. The coarse and fine focusing knob on both sides guarantees optimal adjustment and focusing of your sample.

- A simple polarising unit (analyser and polariser) is included with delivery.
- A large selection of different eyepieces, objectives and a polarising unit are also available.
- A protective dust cover, eye cups, as well as multi-lingual user instructions are included in the scope of delivery.
- A C-mount adapter is required to connect a camera to the trinocular version. You can select this adapter from the following model outfit list.

- Please find detailed information in the following model outfit list.

**Scope of application**

- Metallurgy, material testing, quality assurance.

**Applications/Samples**

- Opaque and thick samples, workpieces (surfaces, fold lines, coatings).

**Technical data**

- Infinity optical system.
- Quadplex nosepiece.
- Siedentopf 30° inclined/360° rotatable.
- Diptor adjustment: One-sided.
- Overall dimensions W×D×H 440×200×460 mm.
- Net weight basic configuration approx. 8 kg.

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### Scope of application

- **Metallurgy, material testing, quality assurance**

### Applications/Samples

- Opaque and thick samples, workpieces (surfaces, fold lines, coatings)

### Technical data

- **Infinity optical system**
- **Quadplex nosepiece**
- Siedentopf 30° inclined/360° rotatable
- Diptor adjustment: One-sided
- Overall dimensions W×D×H 440×200×460 mm
- Net weight basic configuration approx. 8 kg

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### Table: Standard configuration

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard configuration</th>
<th>Price excl. of VAT ex works €</th>
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</thead>
<tbody>
<tr>
<td>KERN OKM 172*</td>
<td>Binocular: HWF 10×/∅ 18 mm, Infinity Plan, 5×/10×/ LWD 20×/ LWD40×; 30 W Halogen (incident)</td>
<td>1790,-</td>
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<tr>
<td>KERN OKM 173</td>
<td>Trinocular: HWF 10×/∅ 18 mm, Infinity Plan, 30 W Halogen (incident)</td>
<td>1890,-</td>
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</tbody>
</table>

*ONLY WHILE STOCKS LAST

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**LAB LINE MET**

The metallurgical reflected light microscope for material testing and surface testing, as well as quality assurance in industry.
<table>
<thead>
<tr>
<th>Model outfit</th>
<th>Model KERN</th>
<th>Order number</th>
<th>Price/piece excl. of VAT €</th>
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<tbody>
<tr>
<td>Eyepieces (23.2 mm)</td>
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<tr>
<td>HWF 10×/φ 18 mm</td>
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<td>✓</td>
<td>OKB-A1403</td>
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<td>✓</td>
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<tr>
<td>WF 5×/φ 20 mm</td>
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<td>○</td>
<td>OKB-A1355</td>
</tr>
<tr>
<td>WF 12.5×/φ 14 mm</td>
<td>○</td>
<td>○</td>
<td>OKB-A1353</td>
</tr>
<tr>
<td>WF 16×/φ 13 mm</td>
<td>○</td>
<td>○</td>
<td>OKB-A1354</td>
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<tr>
<td>Infinity Plan achromatic objectives (no cover glass)</td>
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</tr>
<tr>
<td>5×/0.11 W.D. 12.10 mm</td>
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<td>✓</td>
<td>OKB-A1268</td>
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<tr>
<td>10×/0.25 W.D. 4.75 mm</td>
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<td>✓</td>
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<tr>
<td>20×/0.40 (spring-loaded) W.D. 2.14 mm</td>
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<td>○</td>
<td>OKB-A1251</td>
</tr>
<tr>
<td>40×/0.65 (spring-loaded) W.D. 0.45 mm</td>
<td>○</td>
<td>○</td>
<td>OKB-A1258</td>
</tr>
<tr>
<td>Infinity Plan achromatic objectives (no cover glass) for long working distance</td>
<td></td>
<td></td>
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<tr>
<td>20×/0.40 W.D. 8.35 mm</td>
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<td>✓</td>
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<td>40×/0.65 W.D. 3.90 mm</td>
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<td>✓</td>
<td>OKB-A1259</td>
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<td>○</td>
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<tr>
<td>Binocular tube</td>
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<tr>
<td>· Siedentopf 30° inclined/360° rotatable</td>
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<td>○</td>
<td>OKB-A1130</td>
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<tr>
<td>· Interpupillary distance 50 – 75 mm</td>
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<td>· Diopter adjustment: One-sided</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trinocular tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Siedentopf 30° inclined/360° rotatable</td>
<td>○</td>
<td>✓</td>
<td>OKB-A1346</td>
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<tr>
<td>· Interpupillary distance 50 – 75 mm</td>
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<tr>
<td>· Diopter adjustment: One-sided</td>
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<tr>
<td>Mechanical stage</td>
<td></td>
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<tr>
<td>· Stage size W×D 200×140 mm</td>
<td>✓</td>
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<tr>
<td>· Travel 76×52 mm</td>
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<tr>
<td>· Coaxial coarse and fine focusing knobs</td>
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<tr>
<td>Illumination</td>
<td></td>
<td></td>
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<tr>
<td>30 W Halogen spare bulb (incident)</td>
<td>✓</td>
<td>✓</td>
<td>OKB-A1372</td>
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<tr>
<td>Reflected illumination unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-filter unit (Blue, Green, Yellow, Grey, Empty)</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Polarising unit (Incl. analyser and polariser slide)</td>
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<td>✓</td>
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</tr>
<tr>
<td>C-Mount</td>
<td></td>
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<tr>
<td>1×</td>
<td>○</td>
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<td>OKB-A1514</td>
</tr>
<tr>
<td>0.5× (focus adjustable)</td>
<td>○</td>
<td></td>
<td>OKB-A1515</td>
</tr>
</tbody>
</table>

✓ = Included with delivery
○ = Option
The fully-equipped reflected and transmitted light microscope for numerous applications in metallurgy

**Features**

- The KERN OKN and OKO series are professional, versatile, metallurgical microscopes, which are used in testing metals and analysing surfaces.
- You can choose between two reflected illumination units: A 50 W halogen reflected illumination unit or a premium illumination unit with stunning 100 W reflected illumination for powerful performance.
- A height-adjustable 1,25 Abbe condenser which can be centred as well as a field diaphragm are available for the transmitted light variants (KERN OKO series), for complete professional Koehler illumination.
- The KERN OKO transmitted illumination variant is fitted with an open, mechanical stage, as standard. On the other hand, the KERN OKN reflected illumination variant has a closed, mechanical stage, as standard.
- A simple polarising unit (analyser and polariser) is included with delivery.
- A large selection of accessories, such as, for example, a Butterfly tube, eyepieces and further objectives are available for longer working distances.
- A protective dust cover, eye cups, as well as multi-lingual user instructions are included in the scope of delivery.
- A C-Mount adapter is required to connect a camera. You can select this adapter from the following model outfit list.
- Please find detailed information in the following model outfit list.

**Scope of application**

- Metallurgy, material testing, quality assurance.

**Applications/Samples**

- Opaque and thick samples, workpieces (surfaces, fold lines, coatings).

**Technical data**

- Infinity optical system.
- Quintuple nosepiece.
- Siedentopf 30° inclined/360° rotatable.
- Dioptr adjustment: Both-sided.
- Overall dimensions W×D×H 550×200×460 mm.
- Net weight basic configuration approx. 14,5 kg.

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard configuration</th>
<th>Price excl. of VAT ex works €</th>
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<tbody>
<tr>
<td>OKN 175*</td>
<td>Trinocular WF 10×/∅ 18 mm Infinity Plan 5×/10×/LWD20×/LWD40× 50 W Halogen (incident)</td>
<td>2230,—</td>
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<tr>
<td>OKO 176*</td>
<td>Trinocular WF 10×/∅ 18 mm Infinity Plan 5×/10×/LWD20×/LWD40×/100× 50 W Halogen (incident) + 20 W (transmitted)</td>
<td>2770,—</td>
</tr>
<tr>
<td>OKN 177</td>
<td>Trinocular WF 10×/∅ 18 mm Infinity Plan 5×/10×/LWD20×/LWD40× 100 W Halogen (incident)</td>
<td>2450,—</td>
</tr>
<tr>
<td>OKO 178</td>
<td>Trinocular WF 10×/∅ 18 mm Infinity Plan 5×/10×/LWD20×/LWD40×/100× 100 W Halogen (incident) + 20 W (transmitted)</td>
<td>2990,—</td>
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*ONLY WHILE STOCKS LAST*
<table>
<thead>
<tr>
<th>Model outfit</th>
<th>Model KERN</th>
<th>Order number</th>
<th>Price/piece excl. of VAT</th>
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<tbody>
<tr>
<td>Eyepieces (23,2 mm)</td>
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<td></td>
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<tr>
<td>WF 10×/Ø 18 mm</td>
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<td>OBB-A1347</td>
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<td>90,–</td>
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<td>WF 5×/Ø 20 mm</td>
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<td>WF 12,5×/Ø 14 mm</td>
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<td>OBB-A1353</td>
<td>75,–</td>
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<tr>
<td>WF 16×/Ø 13 mm</td>
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<td>OBB-A1354</td>
<td>45,–</td>
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<tr>
<td>Infinity Plan objectives (no cover glass)</td>
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<tr>
<td>5×/0,11 W.D. 6,73 mm</td>
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<td>105,–</td>
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<td>10×/0,25 W.D. 4,19 mm</td>
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<td>195,–</td>
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<tr>
<td>100×/1,25 (oil) (spring-loaded) W.D. 0,12 mm</td>
<td>✓ ✓</td>
<td>OBB-A1241</td>
<td>315,–</td>
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<td>Infinity Plan objectives (no cover glass) for long working distance</td>
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<tr>
<td>20×/0,40 W.D. 8,35 mm</td>
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<td>OBB-A1252</td>
<td>290,–</td>
</tr>
<tr>
<td>40×/0,65 W.D. 3,90 mm</td>
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<td>405,–</td>
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<tr>
<td>50×/0,70 (spring-loaded) W.D. 1,95 mm</td>
<td>○ ○ ○ ○ ○</td>
<td>OBB-A1266</td>
<td>450,–</td>
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<tr>
<td>80×/0,80 (spring-loaded) W.D. 0,85 mm</td>
<td>○ ○ ○ ○</td>
<td>OBB-A1271</td>
<td>500,–</td>
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<tr>
<td>Trinocular tube</td>
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<tr>
<td>- Siedentopf 30° inclined/360° rotatable</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>OBB-A1382</td>
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<tr>
<td>- Interpupillary distance 50 – 75 mm</td>
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<tr>
<td>- Light distribution 100:0</td>
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<tr>
<td>- Diopter adjustment: Both-sided</td>
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<td></td>
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</tr>
<tr>
<td>- Butterfly 30° inclined/360° rotatable</td>
<td>○ ○ ○ ○</td>
<td>OBB-A1382</td>
<td>520,–</td>
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<td>- Interpupillary distance 50 – 75 mm</td>
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<tr>
<td>- Light distribution 100:0</td>
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<tr>
<td>- Diopter adjustment: Both-sided</td>
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<tr>
<td>Mechanical stage for reflection</td>
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<td></td>
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<tr>
<td>- Stage size W×D 200×140 mm</td>
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<tr>
<td>- Stage fast lowering unit</td>
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<td>- Stage Up-Down moving range: max. 50 mm</td>
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<td>Mechanical stage for transmitted illumination</td>
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<tr>
<td>- Travel 78×55 mm</td>
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<tr>
<td>- Coaxial coarse and fine focusing knobs</td>
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<td>Stage plate</td>
<td>Plate for sample placement</td>
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<td>Glass plate</td>
<td>Glass plate</td>
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<tr>
<td>Reflected illumination unit</td>
<td>Polarising unit (Incl. analyser, polariser and blue filter slide)</td>
<td>✓ ✓ ✓ ✓</td>
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<tr>
<td>Condenser</td>
<td>Abbe N.A. 1,25 (aperture diaphragm)</td>
<td>✓ ✓</td>
<td>OBB-A1380</td>
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<td>Illumination</td>
<td>20 W Halogen spare bulb (transmitted)</td>
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<td>OBB-A1370</td>
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<td></td>
<td>50 W Halogen spare bulb (incident)</td>
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<td>Polarising unit</td>
<td>for transmitted illumination</td>
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<td>0,57× (focus adjustable)</td>
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✓ = Included with delivery  ○ = Option

Metallurgical microscopes KERN OKN-1 · OKO-1

www.kern-sohn.com · Order hotline +49 7433 9933-0

Metallurgical microscopes 37
Metallurgical inverted microscope KERN OLM-1

Features
- The KERN OLM range is part of the range of inverted microscopes and stands out through its design which is ergonomic, robust and extremely stable. This range, with its large working distance is, for example, particularly suitable for surface quality testing of raw materials and finished products in industry.
- Strong and continuously adjustable 50W halogen illumination unit ensures the optimum illumination of the materials to be tested.
- As standard, the OLM range is fitted with a trinocular eyepiece tube.
- A simple polarising unit (analyser and polariser) is included with delivery.
- A large mechanical stage is included with delivery as standard. The coarse and fine focusing knob on both sides guarantees optimal adjustment and focusing.
- Further options such as, for example, a large selection of objectives can be integrated as accessories.
- A dust cover as well as user instructions are included with the delivery.
- Please find detailed information in the following model outfit list.

Scope of application
- Metallurgy, material testing, quality assurance.

Applications/Samples
- Opaque and thick samples, workpieces (surfaces, fold lines, coatings).

Technical data
- Infinity optical system.
- Quintuple nosepiece.
- Siedentopf 30° inclined.
- Dioptric adjustment: Both-sided.
- Overall dimensions W×D×H 271×379×747 mm.
- Net weight approx. 12.5 kg.

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**LAB LINE MET**
The inverted metallurgical microscope for professional applications

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**Features**
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  - The KERN OLM range is part of the range of inverted microscopes and stands out through its design which is ergonomic, robust and extremely stable. This range, with its large working distance is, for example, particularly suitable for surface quality testing of raw materials and finished products in industry.
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**STANDARD**

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**Model** | **Standard configuration** | **Price excl. of VAT ex works**
---|---|---
**KERN** | **Tube** | **Eyepiece** | **Objective quality** | **Objectives** | **Illumination** | **€**
**OLM 171** | Trinocular | HWF 10×/22 mm | Infinity Plan | LWD5×/LWD10×/LWD20×/LWD50× | 50 W Halogen (incident) | 3190,–
# Metallurgical inverted microscope KERN OLM-1

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<td>OLM 171</td>
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### Eyepieces (30 mm)
- HWF 10×/Ø 22 mm (adjustable)
- HWF 10×/Ø 22 mm (reticle 0,1 mm) (adjustable)

### Infinity Plan achromatic objectives for long working distance
- 5×/0,13 W.D. 24,23 mm
- 10×/0,25 W.D. 18,48 mm
- 20×/0,40 W.D. 8,35 mm
- 50×/0,70 (spring-loaded) W.D. 1,95 mm
- 80×/0,80 (spring-loaded) W.D. 0,85 mm
- 100×/0,90 (dry) W.D. 1,0 mm

### Trinocular tube
- 30° inclined
- Interpupillary distance 48-76 mm
- Light distribution 100:0
- Diopter adjustment: Both-sided

### Mechanical stage
- Stage size W×D 210×180 mm
- Travel 50×50 mm
- Coaxial coarse and fine focusing knobs

### Illumination
- 50 W Halogen spare bulb (incident)

### Reflected illumination unit
- Polarising unit (Incl. analyser, polariser and colour filter slide)

### Colour filters for transmitted illumination
- Blue
- Green
- Yellow
- Grey

### C-Mount
- 0,5×
- 1×

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1769
Ancestor Johann Jakob Sauter built the Hahn inclination scale out of iron, a foundation stone for weighing for the balance industry in Southern Germany.

1844
KERN is founded – precision balances are produced.

1863
A proud Gottlieb Kern with his staff.

1880
Pharmaceutical balance with Aesculap.

1923
Inflation – KERN wages are paid with self printed currency.

1980
The electronic balance ousts mechanical devices.

1994
Accredited DKD laboratory (ISO 17025).

2000
New premises in Balingen.

2002
Existing QM system certification in accordance with DIN EN ISO 9001:2000 standards.

2007
Approval for the manufacture of medical products (DIN EN 13485 and 93/42/EEC).

2008
Authorisation for initial verification by the manufacturer (2009/23/EC).

2009
Approval for the manufacture and sale of height rods (DIN EN 13485 and 93/42/EEC).

2012
Verification point for non-automatic balances and test weights.

2014
Expansion of the product range to include optical instruments (microscopes and refractometers).

2015
Inauguration of Ziegelei 2.0 with computer-controlled high-bay warehouse.

2017
Come with KERN into the digital future: Expansion of the model ranges compatible with Industry 4.0, as well as the related services.

2019
Significant anniversary year! 25 years of accredited DKD laboratory 175 years of KERN & SOHN 250 years of balance manufacture in the Sauter family-owned company.

2020
Construction of Ziegelei 3.0, extension of administration building.

KERN & SOHN GmbH
Balances, Test weights, Microscopes, DAkkS calibration laboratory
Ziegelei 1
72336 Balingen
Germany

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