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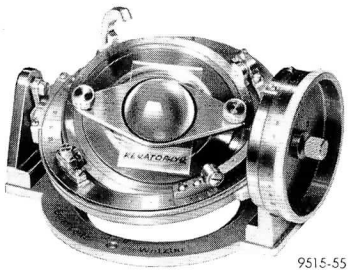
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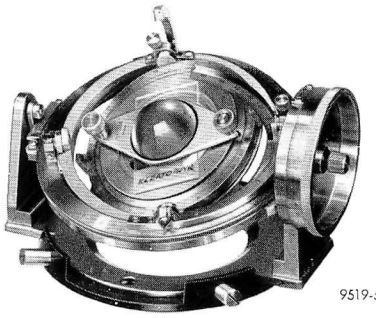
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LEITZ Universal Rotating Stages and Accessories



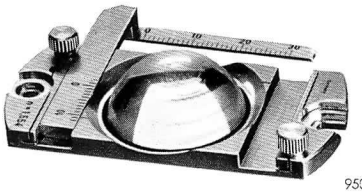
9515-55

Universal rotating stage UT 4



9519-55

Universal rotating stage UT 5 with centring base



9508-55

Schmidt parallel slide



9558-55

Auxiliary objective



9511-55



9512-55

Supplementary condenser

Our universal rotating stages are available in two versions, differing in the number of axes or directions of rotation and known as UT4 and UT5. The figure indicates the number of axes.

In conjunction with supplementary equipment, our rotating stages may be employed for index measurements of grains in accordance with various methods, e. g. the λ or λ, t variation, or, with the aid of the Waldmann hollow glass sphere, they may serve to carry out morphological and crystaloptical measurements on crystals.

For the optical investigation of crystals after the Fedorow method, the UT 4 and UT 5 stages fulfil all the requirements. The latter surpasses the former in that it allows of setting the second plane of symmetry immediately after the first one has been found thus facilitating the measuring process.

All universal rotating stages have a practical device for exchanging and mounting the thin sections and allow of a simple and rapid adjustment of the section surface into the intersection of the axes of rotation. For the analysis of specimen structures it is advantageous to equip the stages UT 4 and UT 5 with the auxiliary angular slide (FEGFU) for parallel movement of the specimen which, however, necessitates a special mount of the upper segment (FEGSE).

For the demonstration of the principle underlying the construction and use of the universal rotating stages, indicatrix models of optically uniaxial and biaxial crystals can be accommodated on all types of UT stages where they take the place of the inner stage plate.

The application of the universal rotating stage methods necessitates the use of special UM objectives which are corrected for a uniform working distance (1.5 mm.) in relation to the UT stage segment and supplied with built-in iris diaphragm. The objectives of higher numerical aperture, UM 20/0.33 and UM 32/0.30 call for a special condenser cap and are ideal for the determination of directions of reference in crystallographic work.

Outfits

Universal rotating stage UT 5, with centring device, without segments	FEDEX
Auxiliary objective	PEHOJ
	FEFIZ
Universal rotating stage UT 4, with centring device, without segments	FEDOZ
Auxiliary objective	PEHOJ
	FEFOB
Upper segment n_D 1.554	KOSUG
Lower segment n_D 1.554	KOSAB
Pair of segments n_D 1.554	KOSID
Upper segment n_D 1.516	KOTAC
Lower segment n_D 1.516	KORUF
Pair of segments n_D 1.516	FEGMA
Upper segment n_D 1.649	KOTED
Lower segment n_D 1.649	KOSEC
Pair of segments n_D 1.649	FEGNO
Required for structural analysis with the UT 4 or UT 5 stage: –	
Schmidt **parallel slide** with mm scale, for displacing the section under the segment	FEGFU
The use of the parallel slide requires a modification of the mount of the upper segment	
Upper segment n_D 1.554 suitable for FEGFU	KOVOH
Lower segment n_D 1.554	KOSAB
Pair of segments n_D 1.554 suitable for FEGFU	KOVUJ
Upper segment n_D 1.516, suitable for FEGFU	KOWAF
Lower segment n_D 1.516	KORUF
Pair of segments n_D 1.516, suitable for FEGFU	KOWEG
Upper segment n_D 1.649, suitable for FEGFU	KOWIH
Lower segment n_D 1.649	KOSEC
Pair of segments n_D 1.649	KOWOJ
Supplementary condensers	
(to be screwed in to replace the swing-out condenser top)	
for UT 5 with polarizing condensers No. 50, 54, 58 and 59	IITLC
for UT 4 with polarizing condensers No. 50, 54, 58 and 59	IITNG
UT 5 and UT 4 with polarizing condensers No. 500, 580 and 590	FEDUB
Auxiliary clamp	
necessary for work without upper segment	FEKLE



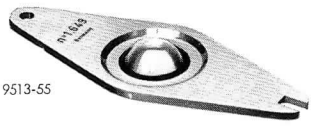
9510-55

UMK objective



9504-55

Condenser for universal stage conoscopy



9513-55

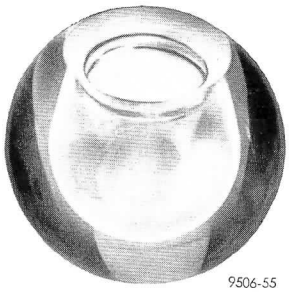
Upper segment for universal stage conoscope

LEITZ Universal Stage Conoscope

Special equipment has been designed to supplement any model of the universal rotating stage for conoscopic work. The following items are required to build up a universal stage conoscope:

Condenser on dovetail slide with sleeve for the polarizer	KOVAD
Objective UMK 32/0.60	IIWUS
	KOSOF
Objective changing ring	PIZUT
	KOVIG
Objective UMK 50/0.60	PEHIH
(special objective for the conoscopical observation of small objects)	
Upper segment K n_D 1.554	KORIC
Lower segment n_D 1.554	KOSAB
Pair of segments K n_D 1.554	KOTIF
Upper segment K n_D 1.516	KOREB
Lower segment n_D 1.516	KORUF
Pair of segments K n_D 1.516	KOTOG
Upper segment K n_D 1.649	KOROD
Lower segment n_D 1.649	KOSEG
Pair of segments n_D 1.649	KOTUH

The Waldmann Hollow Glass Sphere



9506-55

The Waldmann hollow glass sphere



11535-55

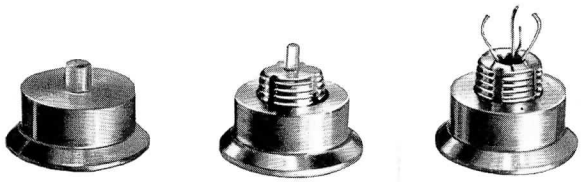


Waldmann hollow glass sphere inserted in the Universal Rotating Stage. Case with complete accessories on the right.

This accessory to the universal rotating stages which can be mounted on our polarizing microscopes is for the morphological and crystal-optical examination of crystals ranging in diameter from 1 to 11 mm. It consists of a hollow sphere of optical glass, 27 mm. in diameter and with a 12 mm. bore. The space inside this sphere is filled up free from air bubbles with a suitable immersion fluid. The closure cap, with the object holder in place, seals the sphere without extending beyond its surface at any point. This renders the sphere capable of being turned under the microscope without limination in every direction.

Advantages of the hollow glass sphere:

- *Transparent crystals up to the stated maximum size can easily be brought into the centre of the sphere, where they can be examined without the risk of damage, and without preparatory measures.*
- *In the examination of thin sections, as has hitherto been customary, an initial position unfavourable for many components of the section is given by the plane of the section. By contrast, the sphere with its unlimited range of rotation allows a favourable initial position of the grain to be chosen, in addition to which the object can also be transposed on its holder.*
- *The angular space remaining accessible for observation in a plane of symmetry of the cap (about 26°), is considerably larger than in ordinary segments, in which a spherical belt of less than 90° only can be fully utilized for transmitted light microscopy.*
- *The conoscopic examination method can also be employed at any time.*



9507-55

Left: closure cap with fixed glass pin

Centre: closure cap with radially movable glass pin

Right: closure cap with cross pincers

Three different types of closure caps are available for the Waldmann hollow glass sphere:

1. Closure cap with fixed glass pin on which the object to be examined is cemented.
2. Closure cap with radially movable glass pin allowing the object to be brought into the centre of the hollow sphere.
3. Closure cap with cross pincers for crystals of 5–11 mm. dia. The pincers are opened and closed by means of a key.

Specification:

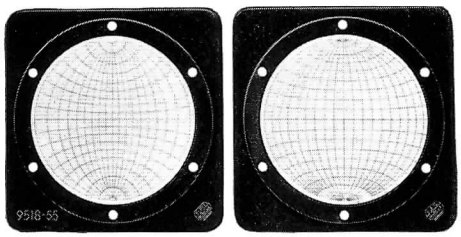
Waldmann hollow glass sphere, with tongs, adapter ring, and holder for use on UT stage, key for vertical adjustment of closure caps. 2 wooden rings as supports for the sphere, centring gauge, and 3 closure caps, in case IIRUX



Emmons circulation cell

Emmons Circulation Cell

with lower segment PEJAG
Upper segment n_D 1.554 KOSUG



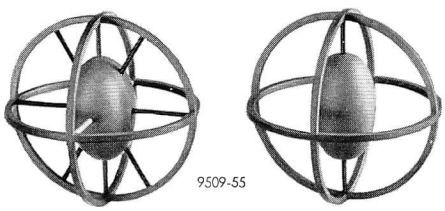
9518-55

Angle-true net ruling **Surface-true net ruling**

Accessories for Universal Stage Methods

For the evaluation of the measurements obtained with the aid of the universal stages the following accessories are available:

Angle-true stereographic net ruling (according to Wulff) with rotating device (according to M. Reinhard) for the tracing paper IVWXI
Angle-true stereographic net ruling, single sheet IZWLI
Surface-true net ruling (according to Lambert) with rotating device (according to M. Reinhard) for the tracing paper IVXZI
Surface-true net ruling, single sheet IZMYI
Indicatrix model of a uniaxial crystal ICSHI
Inicatrix model of a biaxial crystal ICTKI
Attachment with clamp for raising the FS 45 tube (necessary for ORTHOLUX-POL and PANPHOT-POL) KOVEF

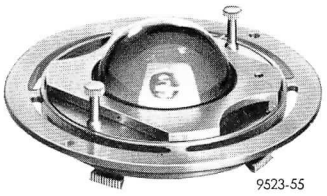


9509-55

Indicatrix model of a biaxial crystal **Indicatrix model of a uniaxial crystal**

Objectives for the UT methods.

Objective UM 5/0.10 ICNXI
Objective UM 10/0.22 ICOZI
Objective UM 20/0.33 ICPBI
Objective UM 32/0.30 ICQDI
Changing ring PIZUT



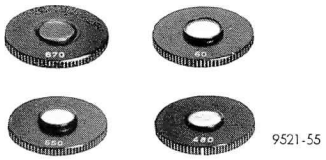
9523-55

Auxiliary arrangement INDEX



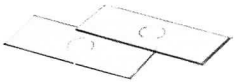
9520-55

Heating ring for the hemisphere

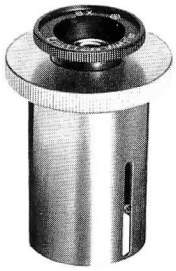


9521-55

Colour filter



Plano-parallel cover plates



9522-55

special eyepiece INDEX 8 x

Universal Stage Refractometer

This equipment, also known as the Berek microscope refractometer, is designed for the determination of the refractive index of grain preparations after the embedding method and with the aid of a universal stage.
The refractive index of the immersion is adapted to that of the grain by varying the temperature. After a changeover from transmitted to diffused incident light the refractive index results from the setting of total reflection on the UT-stage.

Outfit

Accessory "Index" consisting of lower segment, upper hemisphere with cavity and 3 plane-parallel cover plates, heating ring for the hemisphere with cable	IDCBI
Regulating transformer for 110/220v mains	REGAH
Special eyepiece "Index", 8x, with helical focusing mount, crosslines, and adjustable eyelens (diameter 30mm)	IDEFI
Objective UM 20/0.33	ICPBI
Illuminating stand, with opal glass plate, for insertion in the foot of the microscope	PEJEH
Orange filter 580m μ	IDKQI
Colour filter 670m μ	IDESI
Colour filter 550m μ	IDUMI
Colour filter 480m μ	IDNWI

Design subject to alterations without notice

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