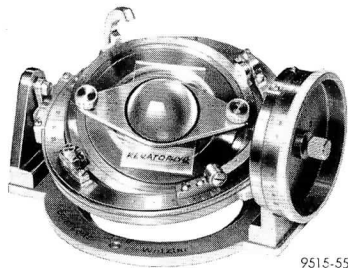


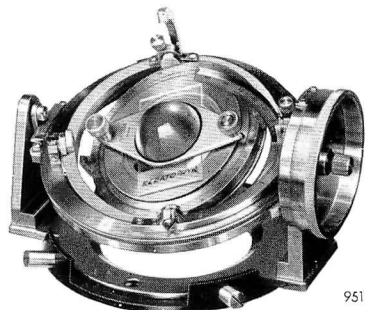


LEITZ Universal Rotating Stages and Accessories



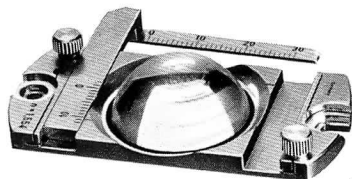
9515-55

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

Supplementary condenser



9512-55

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 crystalloptical measurements on crystals.

For the optical investigation of crystals after the Fedorow method, the UT4 and UT5 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
Auxiliary objective

Universal rotating stage UT 4, with centring device, without segments
Auxiliary objective

Upper segment n_D 1.554
Lower segment n_D 1.554
Pair of segments n_D 1.554
Upper segment n_D 1.516
Lower segment n_D 1.516
Pair of segments n_D 1.516
Upper segment n_D 1.649
Lower segment n_D 1.649
Pair of segments n_D 1.649

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
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
Lower segment n_D 1.554
Pair of segments n_D 1.554 suitable for FEGFU
Upper segment n_D 1.516, suitable for FEGFU
Lower segment n_D 1.516
Pair of segments n_D 1.516, suitable for FEGFU
Upper segment n_D 1.649, suitable for FEGFU
Lower segment n_D 1.649
Pair of segments n_D 1.649

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
for UT 4 with polarizing condensers No. 50, 54, 58 and 59
UT 5 and UT 4 with polarizing condensers No. 500, 580 and 590

Auxiliary clamp

necessary for work without upper segment

FEDEX
PEHOJ
FEFIZ
FEDOZ
PEHOJ
FEFOB
KOSUG
KOSAB
KOSID
KOTAC
KORUF
FEGMA
KOTED
KOSEC
FEGNO

FEGFU

KOVOH
KOSAB
KOVUJ
KOWAF
KORUF
KOWEG
KOWIH
KOSEC
KOWOJ

IITLC
IITNG
FEDUB

FEKLE

LEITZ Universal Stage Conoscope



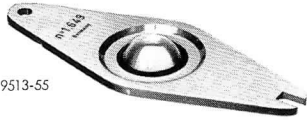
9510-55

UMK objective



9504-55

Condenser for universal stage conoscopy



9513-55

Upper segment for universal stage conoscope

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

Condenser on dovetail slide with sleeve for the polarizer
Objective UMK 32/0.60

Objective changing ring

Objective UMK 50/0.60
(special objective for the conosopical observation of small objects)

Upper segment K n_D 1.554

Lower segment n_D 1.554

Pair of segments K n_D 1.554

Upper segment K n_D 1.516

Lower segment n_D 1.516

Pair of segments K n_D 1.516

Upper segment K n_D 1.649

Lower segment n_D 1.649

Pair of segments n_D 1.649

KOVAD

IIWUS

KOSOF

PIZUT

KOVIG

PEHIH

KORIC

KOSAB

KOTIF

KOREB

KORUF

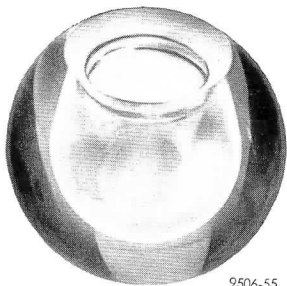
KOTOG

KOROD

KOSEG

KOTUH

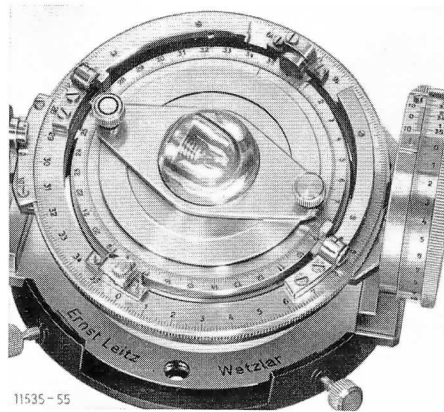
The Waldmann Hollow Glass Sphere



9506-55

The Waldmann hollow glass sphere

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



11535-55

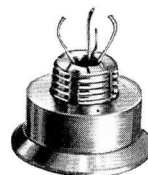
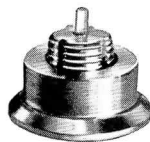


2269-55

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 limitation 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 conosopic examination method can also be employed at any time.*



Left: closure cap with fixed glass pin
 Centre: closure cap with radially movable glass pin
 Right: closure cap with cross pincers

9507-55

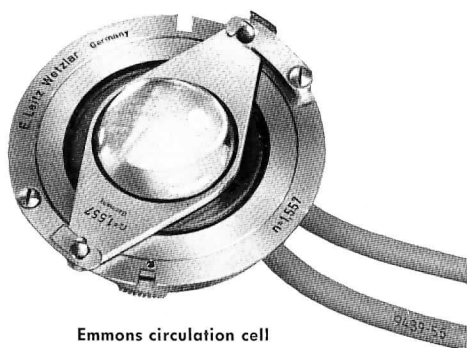
Three different types of closure caps are available for the Waldmann hollow glass sphere:

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

IRUX

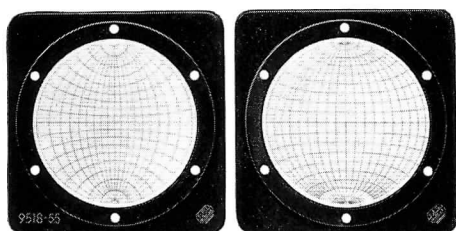


Emmons circulation cell

Emmons Circulation Cell

with lower segment
 Upper segment $n_D 1.554$

PEJAG
 KOSUG



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

IVWXI

IZWLI

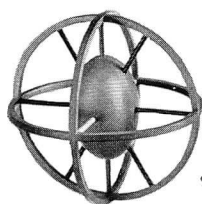
IVXZI

IZMYI

ICSHI

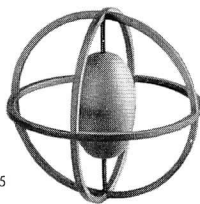
ICTKI

KOVEF



Indicatrix model of a biaxial crystal

9509-55



Indicatrix model of a uniaxial crystal

Objectives for the UT methods.

- Objective UM 5/0.10
- Objective UM 10/0.22
- Objective UM 20/0.33
- Objective UM 32/0.30
- Changing ring

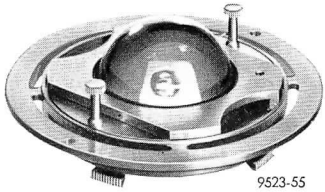
ICNXI

ICOZI

ICPBI

ICQDI

PIZUT



9523-55

Auxiliary arrangement INDEX



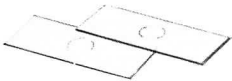
9520-55

Heating ring for the hemisphere

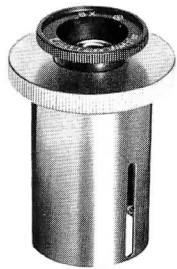


9521-55

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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