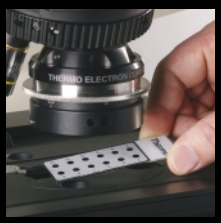

Complement your FT-IR microscope with specialized accessories that enhance the capabilities of your system. Thermo offers a wide array of microsampling accessories and supplies ranging from KBr windows to needle probes to diamond ATR objectives.

Contents

Thermo
ELECTRON CORPORATION

IR Microscopy Accessories

Over 20 years of expertise is incorporated into Thermo's infrared microscopes and accessories. Developed to increase the performance quality of our infrared microscope products, these accessories enhance both infrared and visible microscopy that is applicable in research, analytical, and QC laboratory environments. Microscopic sampling approaches, such as attenuated total reflectance (ATR), grazing angle reflection, differential interference contrast (DIC) and fluorescence illumination, provide you with the tools to quickly identify materials. In addition to microscope accessories, Thermo is the one source for microscopy sample preparation tools, sampling accessories, and supplies.

Accessories are available for the microscopes listed below:

- Nicolet Continuμm™ XL
- Nicolet Continuμm
- Nicolet Centaurμs™
- ImageMax
- Momentμm
- IR-Plan™ Research
- IR-Plan Analytical
- IR-Plan Laboratory
- Nic-Plan™
- IRμs™

For more information on our full range of IR microscopes and accessories, please contact Thermo.

Infinity Corrected Glass Objectives

Extends the utility of light microscopy and photomicroscopy

S L G Microsampling

Infinity Corrected Glass Objectives are available to extend the utility of the infrared microscope for light microscopy and photomicrography. These objectives are available in 4X, 10X, 20X and 40X magnification.

Applications

- Photomicrography
- Light microscopy

Features

- Excellent image quality
- Infinity corrected
- Standard RMS thread

Product Configuration	Part Number
40X Infinity Corrected Glass Objective	0045-458
20X Infinity Corrected Glass Objective	0045-457
10X Infinity Corrected Glass Objective	0045-456
4X Infinity Corrected Glass Objective	0045-455
18 mm spacer (required for each objective)	4004-027

15X Cassegrain Objectives (Fixed Compensation)

Optimized measurements for various windows above the sample

Solids Liquids G Microsampling

The 0.58 N.A. 15X Fixed Cassegrain Objective has a working distance of 15 mm. Objectives are available with three compensation configurations: zero, 1 mm and 2 mm compensation. The zero compensation objective is optimized for transmission/reflectance measurements when no window material is above the sample; the 1 mm compensation objective is optimized for measurements when a 1 mm thick window is above the sample; and the 2 mm compensation objective is optimized for a 2 mm window above the sample.

Applications

- Forensics
- Pharmaceuticals
- Polymers
- Packaging

Features

- Prealigned
- Unique design for low cost and durability
- Easily purged

Product Configuration	Part Number
15X Infinity Corrected Cassegrain Objective with fixed, zero compensation for Nicolet Continuμm and Momentμm (shown above)	0045-400
15X Cassegrain Objective with fixed, zero compensation for IRμs, Nic-Plan, and IR-Plan	0047-410
15X Cassegrain Objective with fixed, 1 mm compensation for IRμs, Nic-Plan, and IR-Plan	0047-411
15X Infinity Corrected Cassegrain Objective with fixed, 2 mm compensation for Nicolet Continuμm and Momentμm	0045-435
15X Cassegrain Objective with fixed, 2 mm compensation for IRμs, Nic-Plan, and IR-Plan	0047-412

Corrects for spherical aberration caused by window/compression cell above sample

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Variable Compensation Objectives

Two Reflachromat™ Variable Compensation Objectives are available. The unique variable compensation feature corrects for spherical aberration caused when infrared windows are placed above the sample (up to 3 mm in thickness), or when the Micro Compression Cell is used.

Applications

- Forensics
- Pharmaceuticals
- Polymers
- Packaging

Features

- Unique design for optimal viewing and collection
- Accommodates the Slide-On ATR Attachment
- Easily purged

15X Reflachromat Objective

The 0.58 N.A. 15X Reflachromat Objective has a working distance of up to 15 mm (with the purge baffle removed). It can also be used for ATR microscopy when used with the Slide-On ATR Attachment, purchased separately (see page 73)

32X Reflachromat Objective

The 0.65 N.A. 32X Reflachromat objective has an 8 mm working distance. The increased magnification makes it easier to define small sample areas.

Product Configuration	Part Number
15X Infinity Corrected Reflachromat Objective with variable compensation for Nicolet Continuμm and Momentμm (shown above)	0045-402
15X Reflachromat Objective with variable compensation for IRμs, Nic-Plan, and IR-Plan	0042-506
32X Infinity Corrected Reflachromat Objective with variable compensation for Nicolet Continuμm and Momentμm	0045-404
32X Reflachromat Objective with variable compensation for IRμs, Nic-Plan, and IR-Plan	0042-401

Optimized measurements for windows beneath the sample

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15X Cassegrain Condensers (Fixed Compensation)

The 0.58 N.A. 15X Fixed Cassegrain Condensers are available in three different compensation configurations. The zero compensation configuration is optimized for transmission measurements when no window material is beneath the sample; the 1 mm compensation version is optimized for when a 1 mm window is placed below the sample; and the 2 mm compensation version is for when a 2 mm window is used.

Applications

- Textiles
- Forensics
- Polymers
- Pharmaceuticals

Features

- Unique design for low cost and durability
- Easily purged

Product Configuration	Part Number
15X Infinity Corrected Cassegrain Condenser with fixed, zero compensation for Nicolet Continuμm and Momentμm (shown above)	0045-401
15X Cassegrain Condenser with fixed, zero compensation for IRμs, Nic-Plan, and IR-Plan	0047-415
15X Cassegrain Condenser with fixed, 1 mm compensation for IRμs, Nic-Plan, and IR-Plan	0047-411
15X Infinity Corrected Cassegrain Condenser with fixed, 2 mm compensation for Nicolet Continuμm and Momentμm	0045-436
15X Cassegrain Condenser with fixed, 2 mm compensation for IRμs, Nic-Plan, and IR-Plan	0047-417

Variable Compensation Condensers

Corrects for spherical aberration caused by windows beneath the sample

Three Reflachromat variable compensation condensers are available. The variable compensation feature corrects for spherical aberration caused by infrared windows beneath the sample (up to 3 mm in thickness).

Applications

- Textiles
- Polymers
- Pharmaceuticals
- Packaging
- Forensics

Features

- Variable compensation
- Easily purged

10X Reflachromat Condenser

The 0.71 N.A. 10X Reflachromat Condenser is the standard condenser for all IRμs, Nic-Plan, and IR-Plan Research Microscopes (not available for any other microscopes).

15X Reflachromat Condenser

The variable compensation of the 0.58 N.A. 15X Reflachromat Condenser corrects for spherical aberration caused by infrared windows beneath the sample (up to 3 mm in thickness).

32X Reflachromat Condenser

The increased magnification of the 0.65 N.A. 32X Reflachromat Condenser allows it to be matched to the objective.

Product Configuration	Part Number
10X Reflachromat Condenser with variable compensation for IRμs, Nic-Plan, IR-Plan Research	0042-507
15X Infinity Corrected Reflachromat Condenser with variable compensation for Nicolet Continuμm and Momentμm	0045-403
15X Reflachromat Condenser with variable compensation for IRμs, Nic-Plan, and IR-Plan	0047-418
32X Infinity Corrected Reflachromat Condenser with variable compensation for Nicolet Continuμm and Momentμm (shown above)	0045-405
32X Reflachromat Condenser with variable compensation for IRμs, Nic-Plan, and IR-Plan	0047-419

ATR Objective Microscope Accessory

The ATR Objective Microscope Accessory permits nondestructive microscopic surface analyses of strong IR absorbing materials, including organic and inorganic materials. It allows analysis of microsamples with little or no sample preparation, often in-situ. Micro-ATR is useful in materials characterization of samples such as polymers, soft rubbers, coatings, coated papers, and biomaterials.

The standard ATR Objective uses a high refractive index ZnSe internal reflecting element (IRE), commonly referred to as the ATR crystal. Ge, Si and diamond crystals are also available to allow customization of penetration depth and hardness appropriate to the application. The ATR Objective Microscope Accessory includes two ZnSe crystals in its standard configuration.

The ATR Objective's innovative design features three viewing modes: Survey, which allows direct viewing of the sample (through the ZnSe and diamond crystals only) for proper positioning; Contact, to ensure contact of the area of analytical interest; and ATR, for the collection of ATR spectra.

The ATR Objective is available for Nicolet Continuμm, Momentμm, IRμs, Nic-Plan, IR-Plan Research, IR-Plan Advantage, Analytical, and IR-Plan Laboratory microscopes. Use of the ATR Objective with the IR-Plan Laboratory microscope requires the purchase a four-place nosepiece.

Applications

- Qualitative analysis
- Polymers
- Microsamples
- Forensic samples
- Micro-contaminant characterization
- Corrosive liquids and aqueous solutions
- Coatings on nonreflecting substrates

Features

- Depth of penetration ranges from 0.6 μm to 2.0 μm at 1,000 cm^{-1}, depending upon crystal selection and refractive index of the sample
- Nondestructive, analyzes samples in-situ
- Operates in three different modes – Survey, Contact, and ATR
- Fixed pathlength
- Easily interchangeable crystals without the need for alignment

Product Configuration	Nicolet Continuμm/ Momentμm	Other Microscopes
ATR Objective Microscope accessory with ZnSe crystal (shown above)	0045-406	0049-450
ATR Objective Microscope accessory with diamond crystal	0045-408	0049-485

Options/Replacements	Nicolet Continuμm/ Momentμm	Other Microscopes
Four-place nosepiece for IR-Plan Laboratory microscopes	N/A	4004-109
ZnSe crystal in holder (shown above)	0045-424	0049-456
Diamond crystal in holder (shown above)	0045-427	0049-480
Si crystal in holder (shown above)	0045-426	0049-458
Ge crystal in holder (shown above)	0045-425	0049-457

All ATR Objective microscope accessories require installation and training by trained personnel. Please call for details.

Slide-On ATR Microscope Accessory

Extends capability of 15X Reflachromat Objective for micro-ATR measurements

The Slide-On ATR Microscope Accessory is exclusively available for the 15X Reflachromat Objective. This cost-effective option extends the capability of the 15X Reflachromat Objective to include micro-ATR measurements while still permitting visual, transmission, and external reflection measurements. The high refractive indices of the Ge (4.0) and Si (3.4) crystals are ideal for micro ATR analysis of carbon-filled polymers, Si wafers, and glass materials. The sample depth of penetration is approximately 0.66 µm with the Ge crystal and 0.85 µm with the Si crystal.

The Slide-On ATR has two modes of operation: View and IR. The View mode is used to observe and position the sample while the IR mode is used for data collection. A Contact Alert™ system, which provides a visible indication of when sample-to-crystal contact is made, then signals when optimal/repeatable contact pressure is achieved, is built into the Nicolet Continuµm and Nicolet Centaurµs microscopes. Slide-On ATR Microscope Accessory for all other microscopes include the Contact Alert system consisting of the Contact Alert Sensor Plate and an external controller.

Applications

- Microscopic surface contamination
- Coatings on nonreflective surfaces
- Qualitative analysis of highly absorbing materials
- Liquids and aqueous solutions
- Polymers

Features

- ATR crystals are easily removed and replaced
- Particle size as small as 10 µm x 10 µm
- Customer installable
- Extends capabilities of 15X Reflachromat Objective to include ATR measurements
- Depth of penetration as low as 0.66 µm at 1000 cm^{-1}, depending on the refractive index of the sample
- Contact Alert system provides an alarm to protect the crystal and ensure optimal/repeatable sample-to-crystal contact pressure

Product Configuration	Nicolet Continuµm/ Momentµm	Nicolet Centaurµs	All Other Microscopes
Slide-On ATR Microscope accessory with Si crystal, includes Contact Alert system (shown above)	0045-419	N/A	0042-481
Slide-On ATR Microscope accessory with Ge crystal, includes Contact Alert system	0045-420	N/A	0042-482

Options/Replacements	Nicolet Continuµm/ Momentµm	Nicolet Centaurµs	All Other Microscopes
Si crystal in holder	0045-312	0041-451	0042-493
Ge crystal in holder	0045-313	0041-452	0042-494
ZnSe crystal in holder	N/A	0041-450	N/A
Si replacement crystal	0045-421	N/A	0042-491
Ge replacement crystal	0045-422	N/A	0042-492
Circular Contact Alert	0041-429	0041-429	N/A
Contact Alert for Manual Stage with Clip	0045-561	N/A	085-8498
External Contact Alert	0045-423	0045-423	0049-490

Analysis of ultra-thin coatings on metallic substrates

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Grazing Angle Objective

The Grazing Angle Objective provides infrared radiation at grazing incidence (from 65° to 85°) for the analysis of ultra-thin (sub-micron) coatings on metallic substrates. The Grazing Angle Objective is the only way to perform infrared analysis of microscopic areas (nominal 50 µm x 50 µm spot sizes) at grazing incidence. This easy-to-use objective has two modes of operation: View Mode and Grazing Mode. The area of interest is first observed using the View Mode, then switched to Grazing Mode for data collection.

The Grazing Angle Objective is available for Nicolet Continuµm, Momentµm, IRµs, Nic-Plan, IR-Plan Research, IR-Plan Advantage, Analytical, and Laboratory microscopes, and must be installed onto a microscope with a Four-Place Nosepiece.

An optional IR Polarizer for microscopes is available for measuring the in-plane (p) and out-of-plane (s) components of reflectivity. See page 80 for ordering information.

Applications

- Contaminants on reflective surfaces
- Lubricants on hard disks
- Coating imperfections on metallic surfaces
- Molecular orientation studies

Features

- Analyzes monomolecular layers
- Angle of incidence is 65° to 85°
- Operates in two modes – View Mode and Grazing Mode
- Optional Gimbal Stage for ensuring flatness (see page 78)

Product Configuration	Part Number
Grazing Angle Objective for Nicolet Continuµm and Momentµm (shown above)	0045-407
Grazing Angle Objective for IR-Plan Research (SN 1028 and higher)	0049-351
Grazing Angle Objective for IR-Plan Research (SN 981 – 1027)	0049-352
Grazing Angle Objective for IR-Plan Research (SN 840 – 980)	0049-353
Grazing Angle Objective for IR-Plan Research (SN 839 and lower)	0049-354
Grazing Angle Objective for all other microscopes	0049-350

Reflectance and ATR measurements of large samples

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Side Port Reflectance Accessory (SPRA)

The Side Port Reflectance Accessory (SPRA) permits external reflectance and ATR measurements of samples too large to fit under the microscope stage.

Applications

- Textiles
- Pharmaceuticals
- Polymers
- Forensics
- Packaging

Features

- Extension arm permits external reflection measurement of bulky objects
- Rotatable interface allows orientation of accessory for sampling convenience

Product Configuration	Part Number
SPRA for Nicolet Continuµm and Momentµm (shown above)	0045-445
SPRA for IRµs, Nic-Plan, IR-Plan	0049-220

Fluorescence Illuminator for Nicolet Continuμm

Facilitates observing the sample under intense fluorescence excitation

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Microsampling

The Fluorescence Illuminator for the Nicolet Continuμm microscope facilitates observing the sample under intense fluorescence excitation illumination. This illuminator features a high-pressure mercury burner with a 12V 100 watt halogen bulb. Four interchangeable wide-band fluorescence cubes, which provide different excitation wavelengths, are available and are ordered separately. At least one cube must be ordered and each is mounted in a turret, included with the illuminator. Only three cubes may be installed in the turret at one time.

Applications

- Semiconductors
- Pharmaceuticals
- Biological
- Biomedical
- Polymers

Features

- 12V, 100 watt halogen bulb
- Four-place turret
- Power supply

Product Configuration	Part Number
Fluorescence Illuminator for Nicolet Continuμm microscope (shown above)	0045-322
Wide-band Blue Fluorescence Cube exciter filter band pass 450 – 480 nm	4009-700
Wide-band Green Fluorescence Cube exciter filter band pass 510 – 550 nm	4009-701
Wide-band UV Fluorescence Cube exciter filter band pass 330 – 385 nm	4009-702
Wide-band Blue/Violet Fluorescence Cube exciter filter band pass 400 – 440 nm	4009-703

Requirements (needed to mount Fluorescence Illuminator to Nicolet Continuμm microscope)	
Enhanced Reflectance Illumination Interface	0045-335

Options/Replacements	Part Number
Halogen replacement bulb 12V, 100 watt	4009-644

Microscope Viewing Attachments

Binocular and trinocular viewers

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Microsampling

Several viewing attachment options are available for Thermo's infrared microscopes.

Applications

- Visual observation
- Photomicrography
- Video viewing

Features

- Standard 10X eyepieces included
- Adjustment of interocular distance from 53 mm to 75 mm

Binocular Viewer

The binocular viewer is available for the Nicolet Centaurμs and Nicolet Continuμm microscopes.

Trinocular Viewer

This viewer accommodates photomicrographic or video equipment while permitting simultaneous visual observation. The viewing selector allows optimization of light for observation only, observation and photo (20%/80% respectively) or photo only. It is rotatable, and has a 30° inclination.

Product Configuration	Part Number
Binocular Viewer for Nicolet Continuμm	0045-411
Binocular Viewer for Nicolet Centaurμs	0041-470
Trinocular Viewer for Nicolet Continuμm and Momentμm (shown above)	0045-412

Capture, control, display and store video images

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µView Video Software

µView™ Video software allows the user to capture images from the microscope camera and display them on the computer monitor.

Applications

- Video viewing

Features

- Video capture
- Image annotation
- Objective calibration
- Measure sample size
- Image storing
- Control of Nicolet Continuµm automated apertures, focus, and ATR contact

Product Configuration	Part Number
µView Video software (software requires a video camera and video capture card)	834-035401

Facilitates microscopic automation

S L G MICROSAMPLING

OMNIC Atlµs Software

OMNIC Atlµs™ software gives an unprecedented level of microscope automation. The software contains fully automated mapping support in addition to all of the features contained in µView software. Control of the mapping stage is fully integrated, which enables sample navigation and automated mapping. Maps can be stored, displayed, and manipulated on the computer.

Applications

- Contaminants on surfaces
- Inclusions
- Coating homogeneity
- Paint layer identification

Features

- Point-and-click stage control
- Unattended data acquisition
- Video viewing
- Control of Nicolet Continuµm automated apertures, focus, and ATR contact
- Objective calibration
- Sample size measurement
- Display of contour maps
- Operations can be performed on entire map data sets

Product Configuration	Part Number
OMNIC Atlµs software for microscopes	834-035301

Provides video input for µView and OMNIC Atlµs software

S L G MICROSAMPLING

Video Camera Performance Packages

Video cameras can be used to capture and display images. The video image card provides video input to PC which is necessary for µView or OMNIC Atlµs software operation.

Applications

- Video microscopy

Features

- C-mount
- MTV-3 video adapter
- 12V DC power supply

Product Configuration	Part Number
Color Video Camera with Mount and Optics	0045-337
G-XT Video Image Card	840-096500
Adapter Kit for Customer Supplied Video Cameras Kit includes 5 mm extension tube, MTV-3 video adapter, 2.5X photo eyepiece, and cable.	0045-454

Note: Trinocular viewer is required for optional video microscopy. Video camera includes 5 mm extension tube, MTV-3 video adapter, 2.5X photo eyepiece, cables, and power supply. Video image projection and image capture on your PC requires selection of the camera, video board, and µView or Atlµs software. Contact your Thermo sales representative for minimum PC requirements for video. Other video cameras are not warranted to operate with auto focus.

Apertures

Variable and full field apertures

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Rectangular Variable Aperture

The Rectangular Variable Aperture has four independently controlled knife-edge blades to remotely mask the sample. This aperture is for use on the following microscopes: Nicolet Centaurμs, IRμs, Nic-Plan, IR-Plan Research, Analytical, and Advantage microscopes

Full-Field Aperture

The Full-Field Aperture allows the simultaneous viewing of the complete magnified imaged area. This is done through the use of a proprietary coating on the glass aperture blades that reflects the infrared and transmits the visible light. This facilitates moving from one analysis area to another without removing the aperture. For use with the Nicolet Centaurμs, Nic-Plan, IRμs, and IR-Plan Advantage microscopes.

Product Configuration	Part Number
Rectangular Variable Aperture for Nicolet Centaurμs, IRμs, Nic-Plan, IR-Plan Research	0047-532
Full Field Aperture for Nic-Plan, IRμs, IR-Plan Advantage	0047-455
Full-Field Variable Aperture for Nicolet Centaurμs	0041-475

DIC (Differential Interference Contrast) Package for the Nicolet Continuμm Microscope

Enhances image contrast by creating contrasting colors or 3-D images

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DIC (Differential Interference Contrast) is a visible-light technique that enhances image contrast by creating contrasting colors or by making images appear as three-dimensional with shaded edges. In any part of the specimen in which adjacent regions differ in refractive index, the two beams are delayed or refracted differently. When the beams are recombined by a second prism in the objective lens, there are differences in brightness corresponding to differences in refractive index or thickness in the specimen. A DIC Package for use with the Nicolet Continuμm microscope consists of a visible polarizer, analyzer, and two DIC prisms.

Applications

- Polymers
- Biological samples
- Pharmaceuticals

Features

- Enhances contrast in low contrast specimens
- Makes images appear as three-dimensional

Product Configuration	Part Number
DIC Package for Nicolet Continuμm	0045-446

Enables unattended multi-point sampling

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Automation Packages for the Nicolet Continuμm Microscope

The Nicolet Continuμm microscope is designed to be fully automated. The automation packages are available as field upgrades for systems that were purchased without automation initially. Automation is useful for unattended analysis of samples with multiple points. ATR mapping is much easier and safer with the auto ATR contact feature that works in conjunction with the contact alert plate. The purchase of automation packages requires μView or OMNIC Atlμs software.

Applications

- Forensics
- Pharmaceuticals
- Pulp and paper
- Textiles
- Semiconductors

Features

- X and Y control of mapping stage
- Software control of aperture
- Auto focus
- Auto ATR contact

Product Configuration	Part Number
Automation Package X, Y stage control Auto aperture Auto ATR Contact	840-148700
Automation Package with Autofocus X, Y stage control Auto aperture Auto ATR Contact Auto Focus	840-148800

Sample positioning through stage travel, rotation, or angular movement

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Manual Stages

Several stages are available for use with Thermo's infrared microscopes. The stages facilitate sample positioning through different amounts of X-Y travel, rotational travel or angular movement in a manual configuration.

Applications

- Biological samples
- Multi-layered laminates
- Surface defect analysis

Features

- Manual positioning and repositioning of samples
- Stage movement by user defined increments

2" x 3" Travel Stage

This stage is available for the Nicolet Continuμm and the Nicolet Centaurμs microscopes. The stage provides 2" x 3" of travel along the x and y planes.

Circular Rotatable Stage

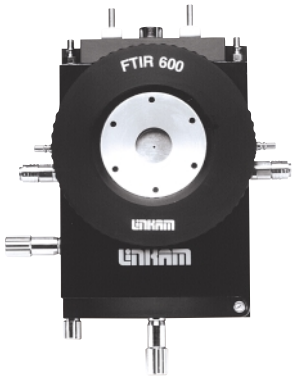
The Circular Rotatable Stage is for use specifically with the Nicolet Continuμm microscope, and is designed to support applications such as polarization studies or other applications where precise rotation about a central axis is required.

Gimbal Stage for 2" x 3" Travel Stage

This stage is useful for microscope applications requiring critical sample flatness such as grazing angle incidence and ATR measurements. It features a + 1° range of angular movement. It is used in conjunction with the 2" x 3" Travel Stage.

Product Configuration	Part Number
2" x 3" Travel Stage for Nicolet Continuμm (shown above)	840-148500
2" x 3" Travel Stage for Nicolet Centaurμs	840-148500
Circular Rotatable Stage for Nicolet Continuμm	0045-340
Gimbal Stage for 2" x 3" Travel Stage	0042-470

Heat/Cool Stage



Enables studies over a temperature range of -196°C to 600°C

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Microsampling

The Heat/Cool Stage allows samples to be studied over a temperature range from -196°C to 600°C. This stage comes standard with a heating temperature controller that will hold temperature within 2°C up to 600°C. The stage can incorporate an optional diamond window for transmission studies and a silver platen for reflection studies. An optional liquid nitrogen cooling system includes a liquid nitrogen dewar with a temperature monitoring system. The Heat/Cool Stage is available for all Thermo's infrared microscopes, excluding the InspectIR. The stage in not compatible with 32X objectives.

Applications

- Phase transition
- Polymorphism
- Liquid crystals

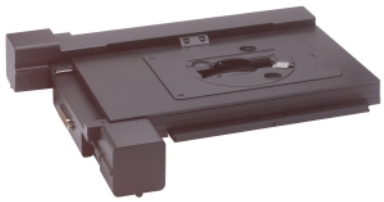
Features

- High-temperature hot stage
- Programmable controller heatable up to 600°C
- Optional cooling system with liquid nitrogen dewar

Product Configuration	Part Number
Heat/Cool Stage with temperature controller	0045-375

Options/Replacements	Part Number
Liquid nitrogen cooling system	0042-476

Motorized Stage



Precise and accurate sample positioning for FT-IR mapping or sampling sequences

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Microsampling

The Motorized Stage is available for most Thermo infrared microscopes (not available for the IR-Plan Analytical, Advantage, or Laboratory microscopes). This stage is ideal for mapping or planned sampling sequences in FT-IR microscopy and provides precise and accurate positioning of samples for microanalysis. The system employs either an external controller or the internal power supply and controller built into the Nicolet Continuμm microscope. Optional software packages interface the stage with the computer further extending preprogramming capabilities. This system allows acquisition of compositional maps from either a linear or rectangular map collection sequence.

Applications

- Surface defects
- Polymers
- Multi-layers laminates
- Biological samples
- Quality control

Features

- Automatic positioning and repositioning
- Stage movement by user defined increments
- Repeatability: ± 0.3 micrometer
- Minimum step size: 1.0 micrometer
- Stage travel: 2" x 5" for the IR-Plan Research and InspectIR microscopes; 1" x 5" for the IRμs and Nic-Plan microscopes 3" x 5" for the Nicolet Continuμm microscopes; 2.5" x 5" for the Nicolet Centaurμs microscopes
- Package includes stage, controller with joystick, and an insert plate

** A motorized stage for Nicolet Continuμm and Nicolet Centaurμs requires Atlμs 2.6b or greater. Autofocus for Centaurμs requires Atlμs 7.1 or greater.*

Product Configuration	Part Number
Motorized Stage for Irμs, InspectIR, NicPlan and IR-Plan Research	0049-440
Nicolet Continuμm Motorized Stage	840-147800
Nicolet Centaurμs Motorized Stage	840-148600
Nicolet Centaurμs Motorized Stage with z-axis control and autofocus	840-14900
Universal Stage insert for motorized stage. Holds microscope slides and compression cells	470-223900

Note: OMNIC Atlμs Software is required for mapping. See page 76 for further details.

Improve visual contrast enhancement and birefringence observations

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Visible Polarizer

Visible polarizers are used to improve visual contrast enhancement and in birefringence observations.

Applications

- Contrast enhancement
- Birefringence observation

Features

- Works in transmission or reflectance applications

Product Configuration	Part Number
Visible Polarizer for Nicolet Continuμm and Momentμm (shown above)	0045-448
Visible Polarizer for IRμs and Nic-Plan	0047-433
Visible Polarizer for IR-Plan Research	0042-529
Visible Polarizer for IR-Plan Advantage and Analytical	0047-400

For the study of metal surfaces and molecular symmetry in single crystals

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MICROSAMPLING

IR Polarizer for Microscopes

The IR Polarizer for microscopes is useful in the study of metal surfaces and molecular symmetry in single crystals. The polarizer includes a 360° rotary holder calibrated with 2° scale divisions. The IR Polarizer can be used with all microscopes and is also available for use with many FT-IR accessories. See page 44 for more information.

Applications

- Polymers
- Pharmaceuticals

Features

- 5,000 cm^{-1} to 500 cm^{-1}
- 4,000 lines/inch
- 360° rotation

Product Configuration	Part Number
IR Polarizer for Nicolet Continuμm, Momentμm (shown above)	0045-347
IR Polarizer for IRμs, Nic-Plan	0047-444
IR Polarizer for IR-Plan Advantage, and Analytical	0047-421

Micro Compression Cell and Micro Compression Diamond Cell Kit

Flattens and crushes samples for transmission analysis

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Microsampling

The Micro Compression Cell and Micro Compression Diamond Cell are sample holders used to flatten and crush samples for transmission analysis. The Micro Compression Diamond Cell is useful for crushing hard samples such as rigid polymers and minerals; the kit comes with two diamond windows mounted in holders 13 mm in diameter and a window insertion tool. The Micro Compression Cell, used for soft, elastomeric samples, requires the purchase of two 13 mm diameter windows. A variety of infrared-transmitting materials (such as NaCl, KBr, and BaF_2) is available to accommodate specific application requirements. The windows for the Micro Compression Cell can also be used in the Micro Compression Diamond Cell.

Applications

- Soft and hard polymers
- Rubbers
- Minerals
- Multilayered laminates
- Plastics

Features

- Uniform pressure across sample
- Piston action design
- 1.8 mm diameter working area
- Both cells can use standard 13 mm diameter windows (multiple types of material)
- Fits securely on all microscope stages
- Compatible with 15X or 32X Reflachromat Objectives
- Diamond windows are flat, parallel, type IIA diamonds with no facets

Product Configuration	Part Number
Micro Compression Diamond Cell Kit, includes 2 mounted diamond windows and insertion tool (shown above)	0045-344
Micro Compression Cell, without windows	0045-434
Windows, 2 required	
KBr window, 13 mm x 2 mm, 1	7000-302
KBr window, 13 mm x 4 mm, 1	7000-332
BaF_2 window, 13 mm x 1 mm, 1	7000-499
BaF_2 window, 13 mm x 2 mm, 1	7000-304
ZnSe window, 13 mm x 1 mm, 1	7000-508
ZnSe window, 13 mm x 2 mm, 1	7000-313
NaCl window, 13 mm x 2 mm, 1	7000-301
NaCl window, 13 mm x 4 mm, 1	7000-331
Diamond windows, 2 mm, (2) in stainless steel mount, 13 mm diameter, includes insertion tool	0042-448
Diamond window, 2 mm, (1) in stainless steel mount, 13 mm diameter	0042-458

Micro Plane

For peeling thin layers of hard materials for transmission microscopy

Solids

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Microsampling

The Micro Plane is a versatile tool that makes easy work of peeling thin layers of polymers or other hard materials for analysis via transmission microscopy. Adjusting the blade depth can control the thickness of the peel, providing excellent reproducibility of sample thickness. The Micro Plane is available in two configurations depending on the sample hardness. The carbide steel blade version is useful for planing thin sections from most polymers, tissue samples, and coated materials. The single-crystal diamond blade version is ideal for cutting hard polymers, inorganic materials and coatings from metallic surfaces. The single-crystal diamond Micro Plane will produce the cleanest, most uniform thin films from most materials.

Applications

- Polymer analysis
- Coatings analysis
- Multi-layer materials
- Inorganic materials
- Tissue samples

Product Configuration	Part Number
Micro Plane with single-crystal diamond blade	4004-676
Micro Plane with carbide steel blade	4004-657
Replacement single-crystal diamond blade	4004-686
Replacement carbide steel blade	4004-669

Features

- Comfortable wooden handle provides ultimate control of blade
- Variable depth shoe allows precise depth control
- Replaceable blades save cost and adds versatility

Microscopy Sample Preparation Tools

Many tools are available for the preparation and handling of samples used in infrared micro spectroscopy.

Diamond Cleaving Knives

These sample preparation tools incorporate a knife with either a reinforced 60° or parallel diamond cutting edge. These are useful for scraping and shaving off sections of samples. The straight, parallel edge is recommended for scraping hard polymers. The angled edge has a reinforced beveled tip and is recommended for fiber cuts and slicing.

Roller Knife

The Roller Knife is a dual-function tool that incorporates a razor knife and a roller wheel. This tool is useful for cutting, sectioning, and flattening samples such as fibers, hairs, and crystals.

Tweezers

Tweezers are available to manipulate small samples such as fibers, fabric, film, and paper and to eliminate sample contamination caused by fingerprints. Tweezers are available with rounded tips or narrow needle tips.

Vacuum Tweezers Kit

This kit consists of a small vacuum pump (110V), tubing, and a hollow needle and is used to handle small pieces of sample, such as plastic film, without pinching, breaking, scratching or marring them. Several needle diameters are included to accommodate various sample sizes.

Micro Sample Preparation Tool Kit

This kit includes a Roller Knife and 5 replacement blades, one stainless steel tweezers, a pin vise with 10 straight needle replacements, one straight probe, and one angled probe.

Microscopic Particle Separation Kit

The Microscopic Particle Separation Kit is used to separate traces of suspended solids from a liquid for their direct analysis by reflection-absorption micro spectroscopy. The mirrors with holes are used in a syringe holder (included in the kit). A primary application of this product is the isolation of trace contaminants in injectable drugs.

Product Configuration	Part Number
Diamond Cleaving Knife with parallel edge	4004-659
Diamond Cleaving Knife with reinforced 60° edge	4004-658
Roller Knife	0036-521
Replacement blades for Roller Knife, 25	870-0052
Rounded tip tweezers	4004-651
Narrow needle tip tweezers	4004-652
Vacuum Tweezers Kit, 110V	4004-650
Micro Sample Preparation Tool Kit (shown above)	0036-507
Microscopic Particle Separation Kit	0042-435
Replacement filters for Microscopic Particle Separation Kit	0042-436

Alignment, Reference, and Sample Slides

Thermo offers special-purpose slides and windows used for reference and alignment or as centering targets for its infrared microscopes. Also available is a variety of standard sample slides and specially designed sample slides for micro sampling.

100 µm Pinhole and 13 mm Gold Mirror in Slide Mount

The 100 µm diameter pinhole and 13 mm diameter gold mirror are mounted in a standard 1" x 3" slide mount, which is used for infrared transmission alignment and as a centering target. For use with Nicolet Centaurµs, Nicolet Continuµm, Momentµm, IRµs, Nic-Plan and IR-Plan Research, Advantage, and Analytical microscopes.

100 µm Pinhole in BaF_2 Window

This 100 µm diameter pinhole is mounted on a 13 mm x 2 mm BaF_2 window that fits in a standard 1" x 3" slide mount (purchased separately). It is used for alignment of the IR-Plan Analytical and Advantage microscopes when configured with a 2 mm compensated condenser.

3-Hole Metal Sample Slide

This metal slide is 1" x 3" and has three 13 mm diameter holes to accommodate windows or the 100 µm pinhole in BaF_2 window.

EZ-Spot™ Micro Mount Sample Slides

EZ-Spot Micro Mounts are 1" x 3" sample slides with 12 sample wells, useful for micro-reflection spectroscopy of multiple samples on the same slide. The wells are numbered, which is convenient for cataloging samples, and the slides are available coated in aluminum or gold.

Glass Sample Slides

These standard 1" x 3" glass sample slides are used for visible microscopy.

Aluminum Coated Sample Slides

Standard 1" x 3" glass sample slides are available with aluminum coating (vacuum deposited). These slides are useful for reflection-absorption measurements and for visualizing the sample as well.

Gold-Coated Sample Slide

This 1" x 3" glass sample slide is coated with 24K gold. It is ideal for reflection-absorption measurements and grazing angle measurements.

Product Configuration	Part Number
100 µm pinhole and 13 mm gold mirror in slide mount (shown above)	0047-432
100 µm pinhole in BaF_2 window	0047-408
3-hole metal sample slide	4006-713
Aluminum EZ-Spot Micro Mount sample slide, 5	0042-545
Gold EZ-Spot Micro Mount sample slide, 5	0042-555
Glass sample slides, 72	0042-536
Aluminum-coated sample slides, 5	0042-544
Gold-coated sample slides, 5	0042-554

For various transmission and reflection modes

S L G MICROSAMPLING

Replacement Illumination Light Bulbs

Replacement illumination light bulbs are for visual transmission and reflection modes.

Replacement Bulbs	Transmission	Reflection	Transmission/Reflection
IRμs	4004-526	4004-526	N/A
Nic-Plan	4004-526	4004-526	N/A
IR-Plan Research (S/N 1029 & higher)	4004-526	4004-526	N/A
IR-Plan Research (S/N lower than 1029)	4004-526	4004-586	N/A
IR-Plan Analytical/Advantage	N/A	N/A	4004-526
IR-Plan Laboratory	N/A	N/A	4004-526
InspectIR	N/A	4004-526	N/A
EZ-Scope	4004-586	N/A	4004-526
Nicolet Continuμm, Momentμm	4004-526	4004-526	N/A
Nicolet Centaurμs	4004-526	4004-526	N/A

Replacement fuses for various IR microscopes

S L G MICROSAMPLING

Replacement Fuses

Replacement fuses, 110V and 220V, are for infrared microscopes as indicated.

Replacement Fuses	110V	220V
IR-Plan Research	890-1071	890-1072
IR-Plan Advantage, Analytical, Laboratory	890-0013	890-1070
InspectIR	890-0481	890-0482
Nicolet Continuμm and Momentμm	890-0531	890-0533