

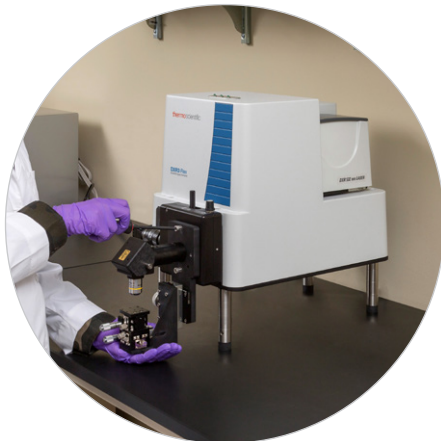
DXR3 Flex Raman Spectrometer

Research-grade Raman spectroscopy “engine” developed to meet your experimental needs. Use it as a standalone spectrometer for macro-, micro-, and process analysis, or integrated with other analytical tools.

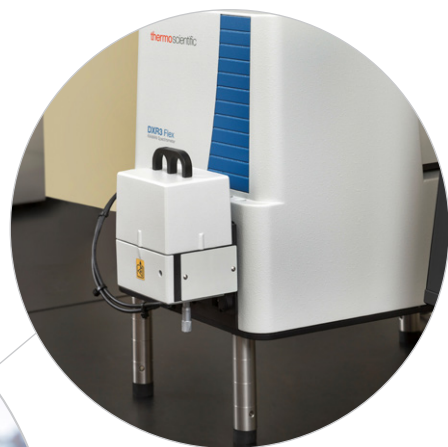
DXR3 Flex Raman Spectrometer

A research-grade Raman “engine” that easily adjusts to your analysis

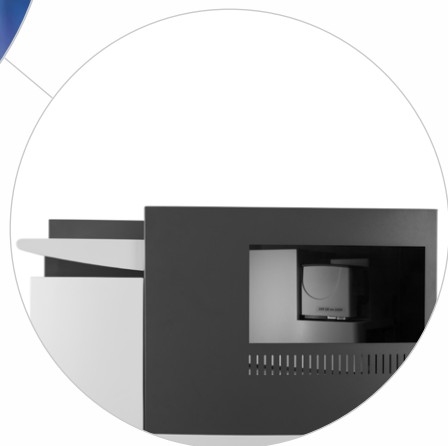
Use it as micro-Raman analyzer with the accessory for analysis of contaminants, impurities and layers in samples such as large paintings, polymers and pharmaceutical tablets.



Use it as macro-Raman analyzer with the accessory for analysis of solid samples and samples in vials, bottles and cuvettes.



Combined rheology and Raman analysis.



Combine XPS with Raman analysis.



Optic-fiber-based analysis for easy measurements, as well as laboratory-process and reaction monitoring.



Obtain excellent Raman signal for multimodal analysis with free-space coupling. Combine your own instrument, such as a light microscope, custom-made sample holders and stages, AFM, rheometer and XPS to add simultaneous Raman capabilities to your setup.

The needs of each laboratory and workflow are unique. That's why the Thermo Scientific™ DXR3 Flex Raman Spectrometer gives you the ability to meet those needs; drive your work with the power of research-grade Raman analysis.

Swappable accessories are available for micro- and large-sample analysis, while laboratory-process analysis is enabled by a novel optical fiber probe—the DXR3 Flex Raman Spectrometer is ready for your specific workflow within minutes. Additionally, the open-beam configuration allows you to easily add your own custom accessories or integrate the DXR3 Flex Raman Spectrometer with other devices.

Why Raman spectroscopy?

- Provides unique spectral fingerprint for chemical identification
- Reveals morphology and changes including phase transformations of a matrix
- Highly sensitive to carbon nanomaterials including physical states and chemical functionalization
- An essential analytical tool for materials research



DXR3 Flex Raman spectrometer equipped with a microscope accessory for art authentication analysis.



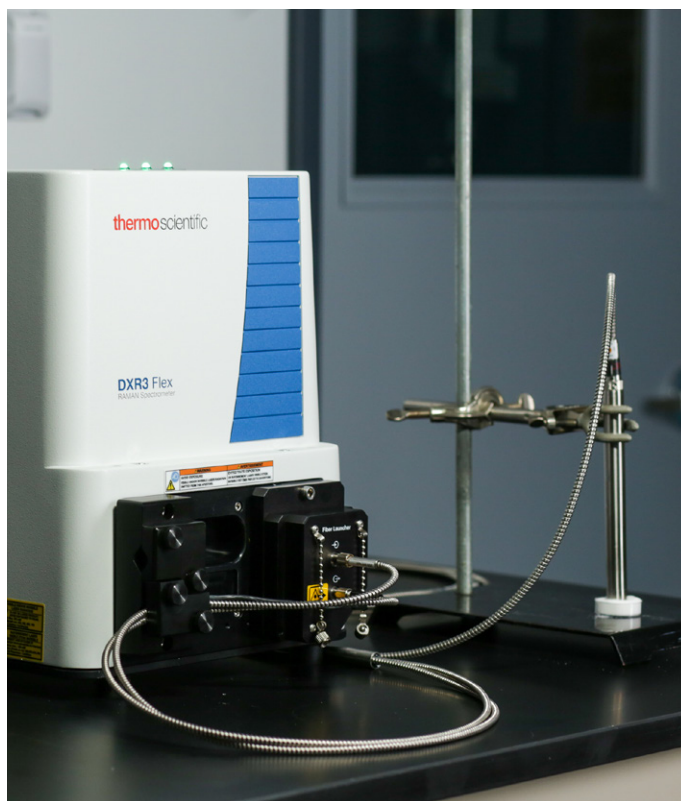
DXR3 Flex Raman Spectrometer and accessories packed in a travel case.



DXR3 Flex Raman spectrometer being outfitted with a user-replaceable macro sample measurement accessory.



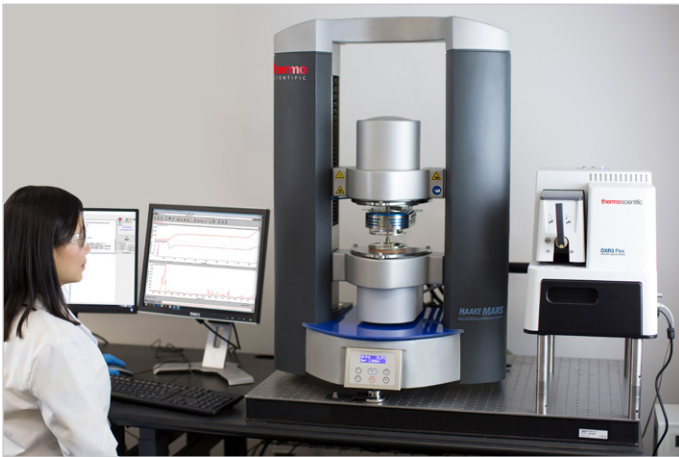
DXR3 Flex Raman spectrometer equipped with micro-stage sampling accessory for point-and-shoot measurement.



Analysis of powder sample using the optical fiber probe on DXR3 Flex Raman spectrometer.

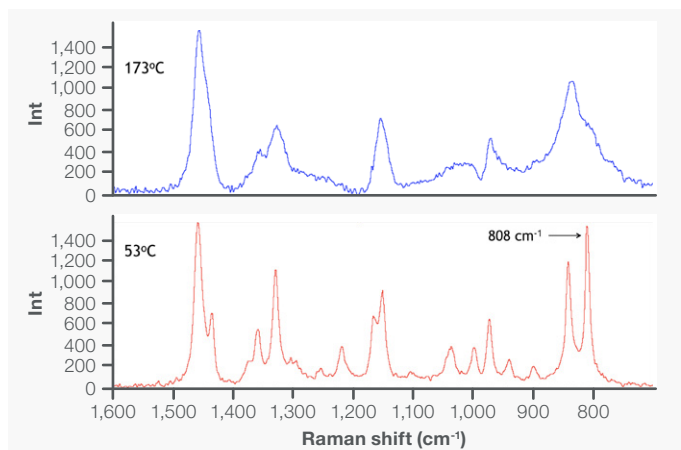
Welcome to the world of multi-modal Raman analysis

The rate of advanced material development is accelerating, and holistic characterization can be critical in order to reveal relationships between a material's chemical and physical properties. Such characterization is enabled by multi-modal analysis in which multiple analytical tools are used to study a sample within a single experiment.



DXR3 Flex Raman Spectrometer combined with a rheometer.

The DXR3 Flex Raman Spectrometer is designed for multi-modal analysis through seamless integration with other analytical techniques. Enhance your understanding of materials with detailed molecular-level information. With performance comparable to research-grade Raman spectrometers, the DXR3 Flex Raman Spectrometer is suitable for demanding research, product development, and manufacturing.



Raman spectrum of the molten (top) and crystalline (bottom) states of polypropylene, measured on the MARS Rheo-Raman system during a rheological measurement. The band at 808 cm⁻¹ is due to the skeletal deformation of helical chains within the crystal, and its intensity can be used as a measure of crystallinity of polypropylene.

Couple the DXR3 Flex Raman Spectrometer to:

- Rheometers
- Hot melt extruders
- Lab- and manufacturing-scale processing equipment

Improve your understanding of:

- Polymers, pharmaceuticals, and personal products



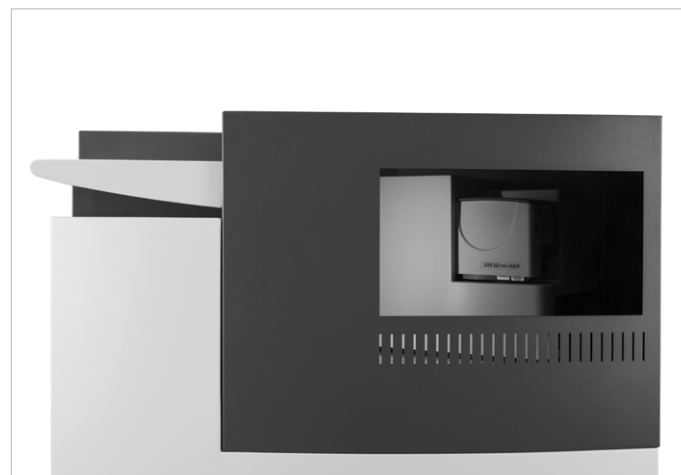
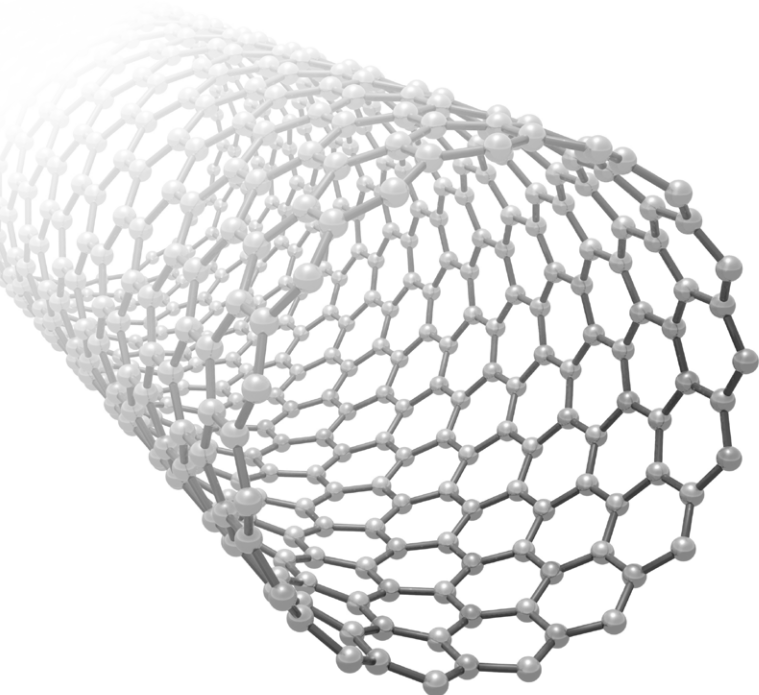
DXR3 Flex Raman Spectrometer integrated with a Thermo Scientific HAAKE™ MARS™ Rheometer.

Combine chemistry with elemental and physical insights

DXR3 Flex Raman Spectrometer for materials science and advanced materials

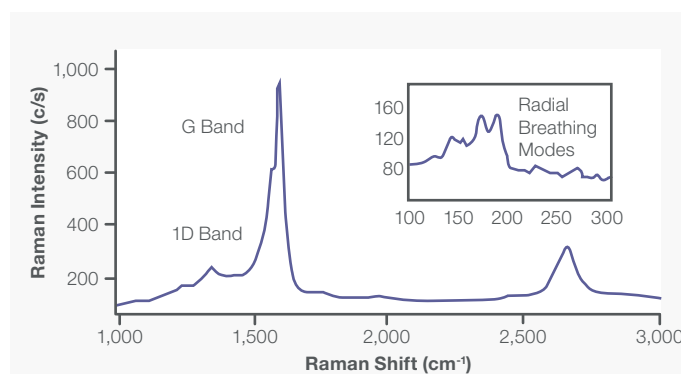
As the state of materials science and characterization advances, both industrial and academic researchers need to understand more about their materials in less time. Many analytical tools offer a fundamental view of the primary physical characteristics of a material, but may not provide accompanying chemical information. Surface techniques, for instance, can offer elemental insights, topography, or reveal mechanical/thermal/electrical/magnetic properties.

Even so, molecular-level understanding is still an essential piece of information that is often missing or difficult to measure. Raman spectroscopy has become an essential technique for the characterization of pure carbon nanomaterials such as graphene and nanotubes. It is easily coupled to established techniques used in the study of solid materials.

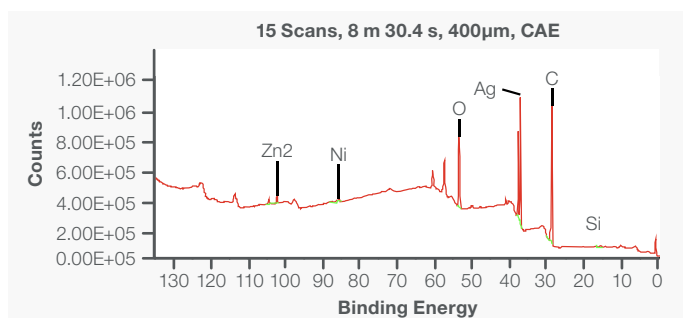


Thermo Scientific™ Nexsa G2 X-Ray Photoelectron Spectrometer (XPS) System with DXR3 Flex Raman Spectrometer installed.

Name	Atomic %
C	76.0
O	16.8
Ag	4.9
Si	1.3
Zn	0.5
Ni	0.4



The Raman spectrum. The position and intensities of the G and D bands in the Raman spectrum inform the materials scientist on the diameter, number of carbon layers, and purity of the SWCNT, simultaneous to collection of the XPS data, to assure the scientist that the same sample in the same chemical state is being measured by the two techniques.



XPS spectrum of single wall carbon nanotubes (SWCNT), showing the elemental composition and elemental electronic states.

Research-grade Raman spectroscopy where you need it



Exchangeable lasers, filters, and gratings adapt the instrument to a wide range of material types

Free-space optical coupling to maximize throughput and sensitivity

Open architecture allows custom coupling to almost any equipment in any position

Fully automatic alignment and calibration ensure consistent performance and data fidelity

Proven technology for polymers, pharmaceuticals, and materials science research

Platform design offers component, software, and data compatibility with the rest of the Thermo Scientific DXR3 Raman family

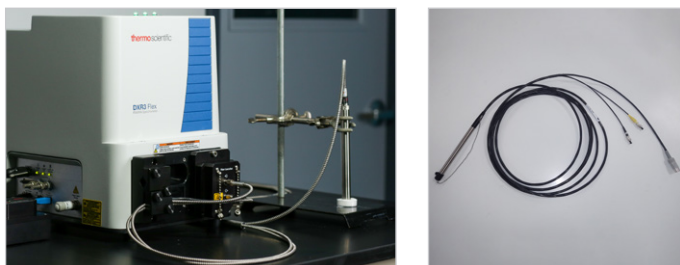
Sampling Accessories

Dedicated sampling accessories for the DXR3 Flex Raman Spectrometer



Fiber optic launcher

Kit to couple optical fiber probes to the DXR3 Flex. Fiber probes are available for 785 nm and 532 nm configurations.



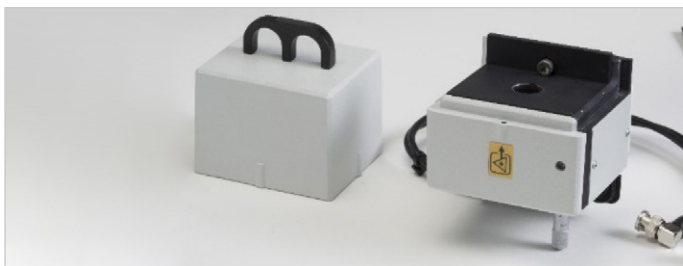
Fiber optic probes

Optical fiber probes allow you to analyze samples outside of traditional sample holders while also enabling laboratory-reaction and process monitoring. Available probe options include proximal, immersion, and reaction monitoring. Fiber probes are available for 785 nm and 532 nm configurations.



Adjustable side or down turning sampling accessory

Kit of adjustable beam-routing tools for measuring a wide range of samples too big for a typical microscope setup.



Macro compartment sampling accessory

Platform for sampling bags, vials, and other bulk materials.
Tight-fitting cover rejects ambient light.



Micro stage sampling accessory

Micro-sampling capabilities for the Flex. Manual XYZ stage for straightforward sample positioning and manipulation.
Use with any magnification of microscope objective.



Camera accessory

Visible camera for sample inspection. Can be used in conjunction with other sampling accessories.

DXR3 Flex opto-mechanical interface parts for customizable free space coupling



Lens tubes

6", 3", 2", 1", 0.5" and 0.3" left to right.



90° flat mirror

Coated for maximum reflectivity.

Thermo Scientific software options for routine or advanced control and analysis

- **Thermo Scientific™ OMNIC™ Software:** Full featured molecular spectroscopy acquisition and analysis software
- **OMNIC Series Software:** Supports time-evolved data collection
- **OMNIC Macros/Pro Software:** Interface to advanced Visual Basic programming

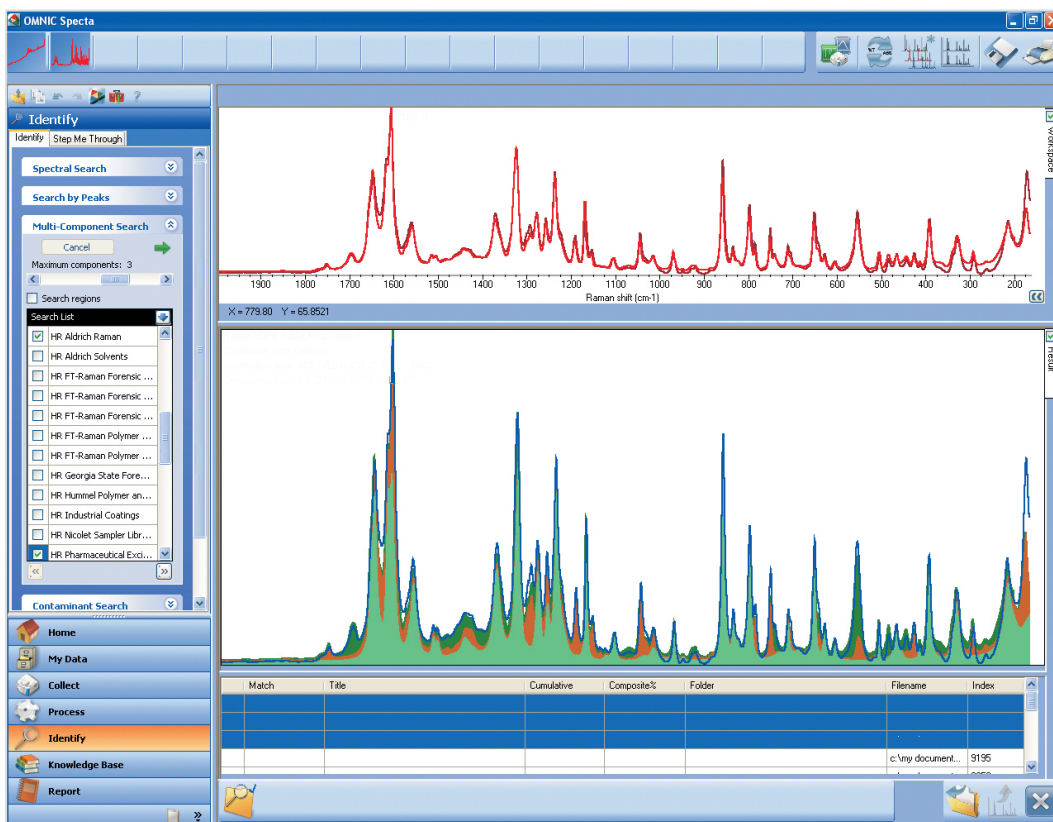


DXR3 Raman platform

Increase productivity with shared technology for your organization

The DXR3 Flex Raman Spectrometer is designed to interface with other instruments and equipment, complementing measurements or processes with high-quality, real-time molecular information. The platform design also offers hardware, software, and data compatibility with the rest of the DXR3 Raman family. We've designed our Raman products from a common platform of optical/detection components and software to create high compatibility between different instruments, labs, departments, and products.

- **Shareable wavelength and resolution components** allow configurations to be shared across instruments, reducing costs and increasing research flexibility.
- **Global support** from a team of world-class service engineers and application scientists ensures that you will be supported no matter where you are in the world.
- **Thermo Scientific OMNIC™ Software** supports both DXR3 Raman and Thermo Scientific Nicolet™ FTIR Spectrometer product portfolios, making it easy for users, methods, and data to move from one instrument to the other.



Multi-component search with OMNIC Spectra Software can identify unknown materials, even in mixtures.

The DXR3 Flex Raman Spectrometer is a class 3B laser product.

Learn more at thermofisher.com/flex