

● VERTEX 70v FT-IR Spectrometer

The VERTEX 70v FT-IR spectrometer offers unmatched performance and versatility for demanding analytical and research applications.

- Near IR, visible and far IR/THz spectral range extensions
- BRUKER FM far and mid IR technology based on unique optical components
- Wear-free RockSolid™ interferometer
- Software selectable up to 5 exit and 2 input beam ports
- Fully evacuable optics
- Easy beamsplitter change without active interferometer alignment
- Automated internal/external sources and detectors switching option
- DigiTect™ parallel 2-channel 24-bit dynamic range ADC
- Automatic optical components recognition

Unmatched FT-IR Performance

The VERTEX 70v is a fully digital FT-IR spectrometer for demanding R&D applications. Its innovative design results in the highest flexibility and highest performance. The data acquisition is based on two channel delta-sigma ADCs with 24-bit dynamic range, which are integrated into the detector preamplifier electronics. This advanced DigiTect™ technology prevents external signal disturbance and guarantees the highest signal-to-noise ratio.

Vacuum Optics

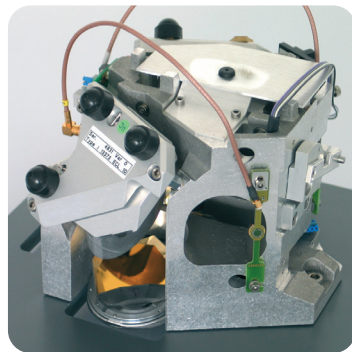
With the evacuable optics bench of the VERTEX 70v vacuum FT-IR spectrometer, PEAK sensitivity in the mid-, near and far IR/THz regions is obtained without the fear of masking very weak spectral features caused by water vapor or CO₂ absorptions. Outstanding results, e.g. in the area of nano-science research down to sub-monolayers, can be obtained with the new VERTEX 70v vacuum FT-IR spectrometer. The dry vacuum pump which is included in the instrument delivery provides a vacuum level of less than 0.2 hPa (mbar) within minutes.

Wide Spectral Range

The VERTEX 70v can be optionally equipped with optical components to cover the spectral ranges from 10 cm⁻¹ in the far IR/THz, through the mid and near IR up to the UV/VIS at 28,000 cm⁻¹. With its pre-aligned optical components and permanently aligned RockSolid™ interferometer, range change is easy and maintenance free.



Big and customizable sample compartment provides sufficient space for bulky accessories.



RockSolid™ interferometer used in the VERTEX 70v FT-IR spectrometer.



VERTEX 70v and HYPERION 2000 IR microscope. Up to five beam exit ports are available for multiple external modules.

BRUKER FM FIR-MIR Technology

The BRUKER FM far and mid IR technology includes the unique ultra wide range beamsplitter and wide range DLaTGS detector. In connection with standard internal IR source the complete far and mid IR spectral range from 6000 cm^{-1} to less than 50 cm^{-1} is accessible in a single step measurement.

Automatic Component Recognition

The sources, detectors and beamsplitters on the VERTEX 70v are electronically coded to be recognized by the instrument and appropriate experimental parameters are automatically loaded. In addition, if two conflicting components are installed at the same time, the VERTEX 70v spectrometer will recognize this and inform about the mismatch.

Plug & Play: Easy Set Up

All over the world, no matter where you are, plug in the power cord and the Ethernet connection, and the VERTEX 70v is ready for operation. The Ethernet connection to the VERTEX 70v also offers the possibility to control the spectrometer via your network or the World Wide Web.

Covered by one or more of the following patents: DE102004025448; DE19940981. Additional patents pending.

Spectral Resolution

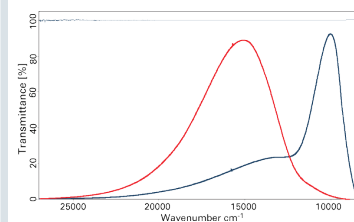
The standard spectral resolution of better than 0.4 cm^{-1} is suitable for most applications for solid, liquid and even gaseous samples. However, should the needs of your application change, the spectrometer can be upgraded to a resolution of 0.16 cm^{-1} .

Versatility

The innovative optics design of the VERTEX 70v results in the most flexible and expandable FT-IR vacuum spectrometer available. With an evacuable optics bench, the highest available sensitivity in the mid-, near- and far IR regions can be obtained on a spectrometer requiring no purge gas or cooling water.

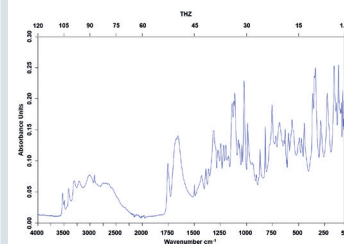
The VERTEX 70v offers outstanding flexibility. Five beam exit ports on the right, front and left side and two beam input ports on the right and rear side of the optics bench are optionally available. This allows simultaneous connection of, for example, a Hg-arc source at the rear side, the RAM II FT-Raman module at the right, a fibre optics coupling at the right front side and the HYPERION IR microscope at the left side. In addition, a liquid He cooled FIR bolometer detector can be attached at the front-left port.

Spectral Range Extension



Background and 100%-line (top) measured in the visible spectral range using 8 cm^{-1} resolution, 30 sec measurement time, 2 mm diameter aperture and tungsten source, visible beamsplitter and Si-diode detector. By using an optical filter the short wavelength efficiency (red curve) can be significantly improved.

BRUKER FM Spectrum



MIR-FIR spectrum of absorbic acid measured in one go from 4000 cm^{-1} to 50 cm^{-1} using Platinum Diamond ATR and VERTEX 70v equipped with the standard MIR source and BRUKER FM optical components at 4 cm^{-1} spectral resolution.

Bruker Optics is ISO 9001 and ISO 13485 certified.

Laser class 2 product.

www.bruker.com/optics

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