



MiniFlex

High performance and simple operation in a compact configuration
Rigaku benchtop x-ray diffractometer



Rigaku

Benchtop X-ray diffractometer

With total dimensions slightly larger than a personal computer, the MiniFlex, is a benchtop diffractometer which incorporates technology usually reserved for much larger, much more expensive systems. Its compact size and exceptional price-to-performance ratio enable MiniFlex users to incorporate XRD analysis into scientific programs where it had previously been considered infeasible due to budgetary or physical location constraints.

The MiniFlex is a compact, portable X-ray diffraction system that can be used both in the laboratory and out in the field. Its unique hermetically sealed console enables trouble-free transportation and simple installation. The MiniFlex's portability and minimal utility requirements make it ideal for use at remote sampling sites in the oil and gas, mining, and construction industries.

For the laboratory, the MiniFlex packs a big instrument punch in a simple, easy-to-use package. A high precision, built in goniometer is factory aligned, simplifying installation and training. Novices can become proficient operators in a short period of time. Outstanding cost to performance ratio ensures exceptional return on investment.

Radiation enclosure and safety:

When the radiation enclosure door is opened, the X-ray shutter will automatically close. This function completely protects the user from exposure.

Display of instrument status:

Instrument status is available on demand to monitor the functions of the components.

Continuously variable slit:

The continuously variable slit is linked to the θ -axis, widening to maintain a constant irradiated area as θ becomes larger. This improves the peak-to-background ratio at low 2θ angles, and increases the X-ray intensity at high 2θ angles. These improvements are important for the analysis of soils, concretes, and other materials requiring the measurement of large d-spacings and low intensity high angle peaks.



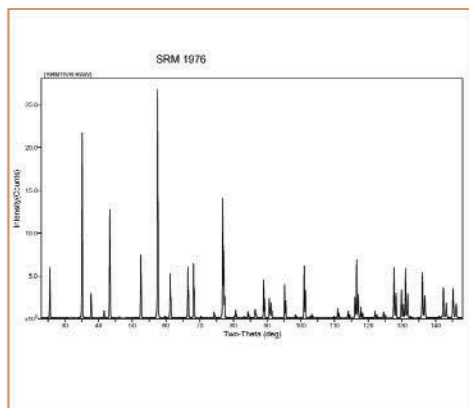
MiniFlex with single holder



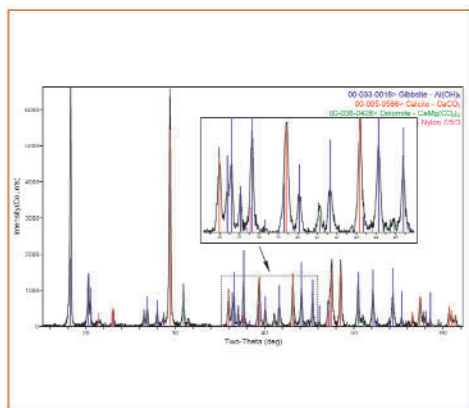
MiniFlex with 6-position sample changer



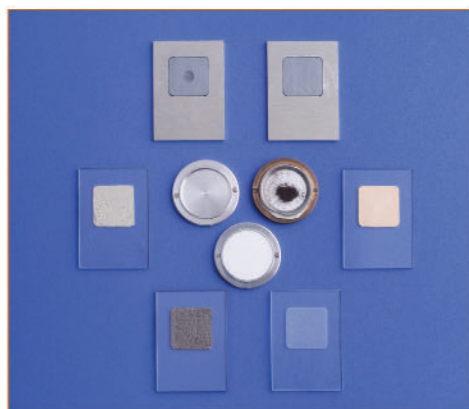
6-position sample changer



Data collection



Phase identification



Sample holders

Qualitative analysis software (optional):

Identification of phases is achieved through accessing the ICDD databases. This is accomplished through the primary search/match to ICDD card information, a secondary search/match that compares the d-spacings and intensities with the measured data, and a residual search/match that is performed after excluding the major components.

Standard measurement software:

The MiniFlex software with multiple functions is easy to use.

The measurement condition set-up includes the following:

- Sample name
- Scanning range
- Measurement mode (continuous, step scan, integral measurement, skip scan)
- Sampling width (step size)
- Scanning speed

Standard data processing software includes the following:

- Profile smoothing
- $K\alpha_2$ removal
- Calculation of integrated intensity
- Background subtraction
- Peak search

Sample holders:

Two types of holders, for powder and bulk samples, are available for use with the MiniFlex's vertical goniometer.

Specimen rotation attachment (optional):

For precision analysis of geological samples, and asbestos dust.

Automatic sample changer (ASC) with 6 positions (optional):

Up to six samples can be mounted and measured with the automatic sample changer. Each sample can be made to spin to enhance data precision for qualitative and quantitative analyses.

Application examples:

- Quantitative analysis of asbestos and free silica
- Quantitative analysis of cristobalite contained in concrete
- Quality control of pharmaceuticals
- Experimental tool for high school and college students
- General qualitative and quantitative powder diffraction

Specifications

Standard configuration		
X-ray generator	Output	30 kV, 15 mA (fixed)
	High voltage generation	High frequency method
	Stability	Within $\pm 0.05\%$ (for within $\pm 10\%$ input powder variations)
	X-ray tube	Optional: Cu, Co, Fe, Cr tubes with 1 x 10 mm ² focus
Detector	Scintillation counter	Scintillator: NaI (TI)
	Geometry	Vertical, para-focusing
Goniometer	Goniometer radius	150 mm
	Slit	DS: 0-axis interlocked variable slit RS: 0.3 mm (fixed)
	Scanning range	-3° ~ -150° (2 θ)
	Scanning speed	0.01° ~ 100° /min (2 θ)
	Slewing speed	1000° /min
Computer* (recommended by Rigaku)	CPU	Intel P4 2.8 GHz microprocessor, on-board video and sound, integrated network connection, keyboard, mouse and pad
	OS	Microsoft Windows® XP Professional†
	Main memory	512 MB SDRAM
	Hard disk	80 GB hard drive
	Removable media	3.5" 1.44 MB diskette drive with internal CD R+W
	Display	17" CRT color monitor, minimum of 2 serial ports required
Software	Standard software	System condition setting
		Manual measurement
		Standard measurement
		Integrated intensity calculation
		Peak search

† Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.
‡ If you already own a computer which can meet the above specifications, it may be utilized. For details, contact the nearest Rigaku representative.

Option

Application software	Multiple recording
	Qualitative analysis
	Clay mineral analysis (construction materials analysis)
	ICDD database management
	ICDD database (PDF-1, PDF-2)
	Environmental particle dust quantitation (asbestos quantitation)
Components and attachments	Specimen rotation attachment
	Auto sample changer with 6 positions
	Variable humidity

Specifications subject to change without notice

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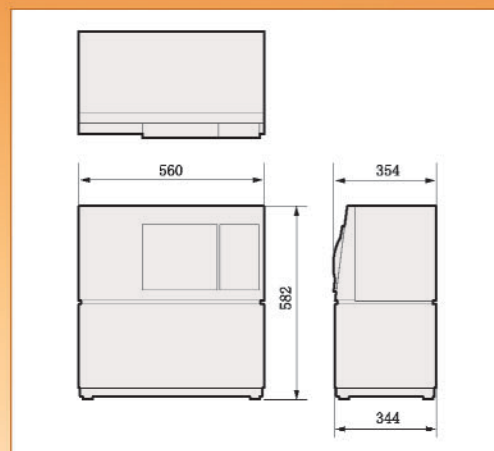
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Installation requirements

Power supply - single phase, grounded outlet	
Basic unit	220 VAC 1 phase 50 Hz 110 VAC 1 phase 60 Hz or
Grounding	
Ground resistance: 100 Ω or less	
Cooling water	
Feed water	3 lit/min or more (1 ~ 3 kg/cm ²) ... (30° or less) 1 unit (hose I.D.: 10 mm diameter)
Drain	Drain port: 200 mm high or less from the floor level
Environmental conditions	
Temperature	10 ~ 30°C
Humidity	40 ~ 70%Rh
Pollution degree	3
Installation category	2

(Note) The power cable, grounding cable and feed water and drain hoses provide as standard are 5 meters long, respectively.



Basic unit
 Dimensions: 560 mm W x 354 mm D x 582 mm H
 Weight: approx. 68 kg