

Smart Sample Loading System (SSLS)

Holderless sample handling for WDXRF

High-throughput, high-efficiency WDXRF



Smart Sample Loading System

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Rigaku's new Smart Sample Loading System (SSLS) adds a new dimension of flexibility to the ZSX Primus WDXRF spectrometer. For sample types that are amenable to such a process, a vacuum chuck can be used to load samples into pre-loaded sample holders. This sample loading system has two important consequences: time is saved by the operator since they are no longer required to manually load each sample in a sample cup and the number of samples that can be held on the sample deck is increased significantly.



The Smart Sample Loading System is an optional configuration for the ZSX Primus spectrometer

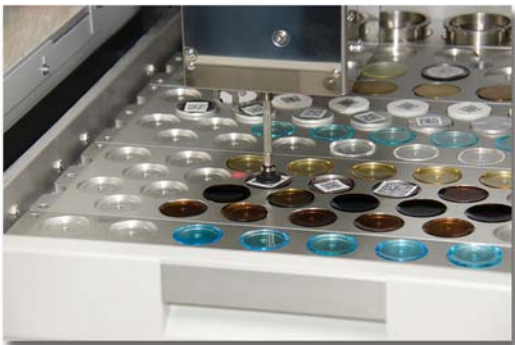


The sample deck can be configured to handle different sample sizes

Permissible sample types

Rigaku's SSLS can handle samples up to 50 grams in weight and the modular sample deck racks have been designed for different sample diameters. Samples with a diameter of 35 mm can be stored 32 samples to a rack with three such racks sitting on the deck. Samples with a diameter of 40 mm can be stored 24 samples to a rack with a possibility of three of these racks on the deck. In addition, the racks can be mixed so that different sample sizes are easily accommodated on the deck at the same time.

Sample types that are amenable to this type of loading procedure include fused glass beads and pressed powders. Both plastic and metal pressed powder holders are permitted.



Vacuum chuck retrieving sample from deck

Sample handling

A precision vacuum chuck is used to safely and reproducibly pick up the samples and place them in the measurement sample holder. Each sample type has a specific sizing ring positioned in the measurement sample holders to assure that the sample is properly positioned for measurement, and the analytical reading surface is never compromised.



Improve sample handling efficiency and throughput



The first two samples are loaded into sample holders stored on the deck

Sample loading protocol

The first two samples are loaded into sample holders that are stored at the back of the deck. Once the sample holders are inserted into the instrument, they remain and after measurement the holderless sample is returned to its position on the deck. Samples three and on are picked up and loaded directly into the sample holder that is already in the pre-evacuation chamber.



A two-dimensional barcode can be affixed to the non-analysis side of the sample

Sample tracking

Keeping track of samples has never been easier. A two-dimensional barcode can be attached to the non-analysis surface of each sample. Before the sample is lowered into the pre-evacuation chamber through the input port, the barcode is scanned and the sample information is loaded into the control software.



The barcode reader is positioned above the pre-evacuation chamber

Improve efficiency and throughput

Rigaku's new SSSL is an easy way to improve efficiency and throughput. Operators will spend less time loading sample holders and greatly increase the capacity of the deck, allowing for longer uninterrupted operation.

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Automated analysis

Coupling of SSLS with sample preparation devices through external automation

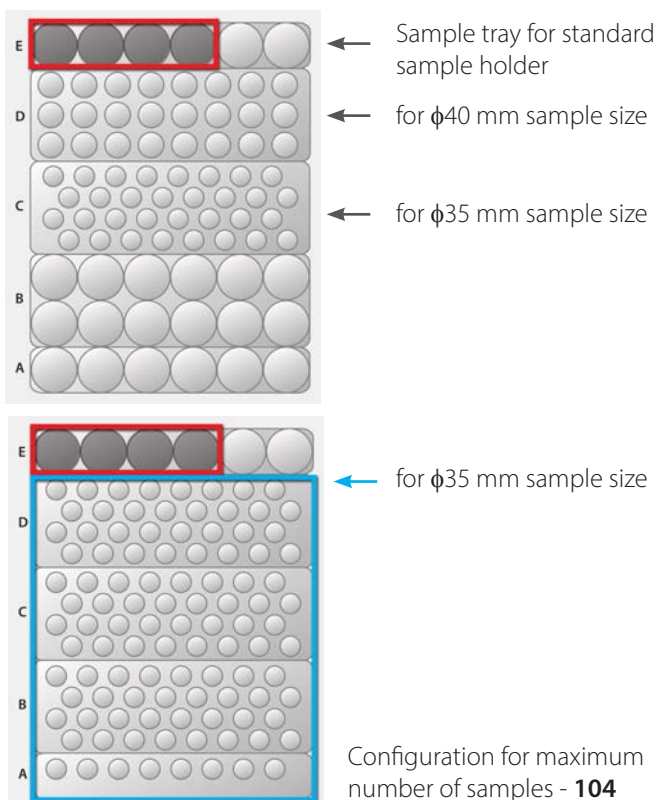
- The automation software can communicate with the external automation system computer for full automation from sample preparation to X-ray analysis.
- The SSLS achieves automated sample transportation between sample preparation machines and the ZSX Primus, and it can be customized for specific sample handling configurations such as robotic or conveyer belt systems.



Automatic sample preparation cell provided by third party vendor, coupled to ZSX Primus via collaborative software.

Combination of the sample trays

Combination of holderless trays and holder trays enables the continuous analysis of various types of samples including liquid, loose powder, thin film samples and even odd shaped samples.



SSLS Specifications

Tray options	Position diameters (mm)
8 position	35
32 position	35
8 position	40
24 position	40
6 position for sample holders	51
12 position for sample holders	51

Holderless specification

Sample types	Fusion bead, pressed pellet, metal
Sample weight	< 50 grams
Sample height	< 10 mm
Sample outer diameter size	35 mm, 40 mm Other sizes available upon request

Sample tray

for 35 mm sample	Small (8 samples) or large (32 samples)
for 40 mm sample	Small (8 samples) or large (24 samples)
Combination of trays	3 large size trays (maximum)
	1 small size tray (35 mm or 40 mm)
	1 sample holder tray

Barcode reader system for SSLS (optional)

2 dimensional encoding format QR or Data Matrix (ECC200)

NOTE: Measuring diameter of 27 mm can be selected instead of 30 mm for SSLS.



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