

Robotic Sample Preparation for Chromatography

Accurate, Affordable and Adaptable Automation



ePrep® Sample Preparation Workstation



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Designed to automate analytical syringe operation for ultimate precision and accuracy.

ePrep will achieve:



GREATER EFFICIENCY AND PRODUCTIVITY

Take 5-15 minutes to program your workflow and ePrep will do the rest for you



SIMPLE METHOD OPTIMIZATION AND VALIDATION

ePrep's highly adaptable software allows you to test different variables to find the best performing method



IMPROVED RESULTS

Eliminate human error and variability in sample preparation skill to easily validate your methodology



GREENER PROCESSES

Automate with syringes allows you to accurately use smaller volumes of reagents and solvents resulting in less wastage

ePrep Capabilities

Off-Line Operation

One ePrep can prepare samples for multiple analytical instruments to maximise efficiency with unattended day and night operation.

Direct to Output Vials in Autosampler Rack

ePrep prepares samples directly to a sealed chromatography vial in an autosampler rack ready for analysis to maintain sample integrity and safety.

Suitable for Chromatography Solvents

Unlike Pipettors, ePrep can be used with common chromatography organic solvents and samples. Using syringes and sealed vials it's also ideal for volatile, high density, viscous and "toxic" samples

Include Filtering, SPE, MicroSPE and LLE

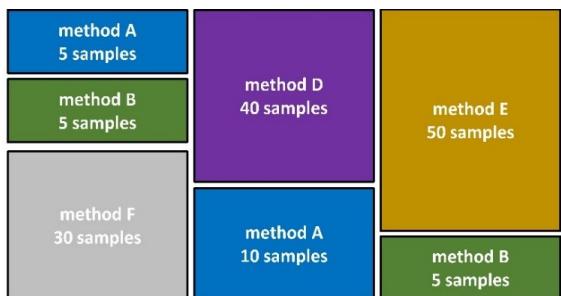
ePrep accessories can be added for the inclusion of techniques such as microSPE, filtering, Syringe Push-Thru SPE and LLE

Robotic Syringe Change

Syringes can be changed automatically within a Workflow to reduce dispense error and improve efficiency. ePrep's XCHANGE, tool change technology is simple and does not require costly "tool changer" mechanisms.



Designed for Chromatography Sample Preparation



The Dilemma of Sample Preparation in Analytical Chromatography Laboratories

Typically, an analytical laboratory has different sample preparation workflows [type (A) – (F) with varying sample batch sizes (5 – 185 samples) analysed on different instruments.

ePrep helps analytical laboratories by providing a flexible automation solution capable of switching rapidly between different methods even if for a small number of samples.

Flexible and Adaptable

- Rapid programming and modular configuration allow the ePrep to be setup and operational within minutes
- Independent operation allows a single ePrep to feed multiple analytical instruments uninterrupted, maximising efficiency

Simple to Use

- ePrep's proprietary touch screen software is designed to be used independent of user skill. Workflows are created and executed in just minutes using 'drag-and-drop' style operation
- Features workflow validation checking, error feedback, and tool identification

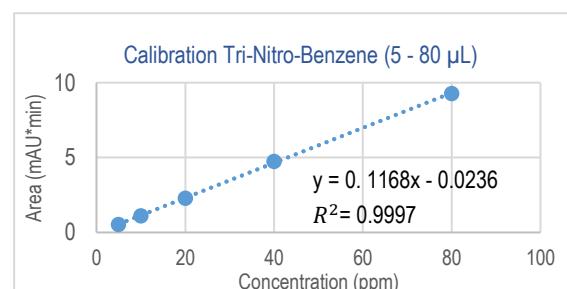
Complete Prep Workflow

Using analytical syringes rather than pipettes, ePrep can precisely control micro volumes and flowrates at high pressure allowing separation, filtering, and membrane tasks to be used in a workflow sequence

Validated Results

ePrep allows samples to be prepared the same way every time eliminating errors, saving time, and avoiding repeat:

- With typical volume accuracy and reproducibility of $\leq 0.5\%$, the improved data quality produced using the ePrep eliminates the need for duplicate and triplicate samples
- Predefined wash and purge routines minimise carry over eliminating errors



Calibration curve of Tri-nitrobenzene from an ePrep 5µL-80µL serial dispense. $R^2 = 0.9997$

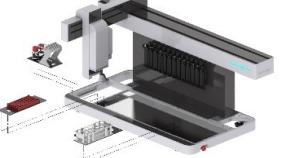
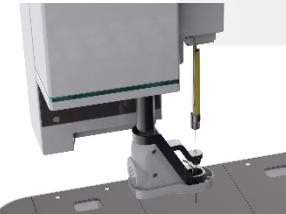
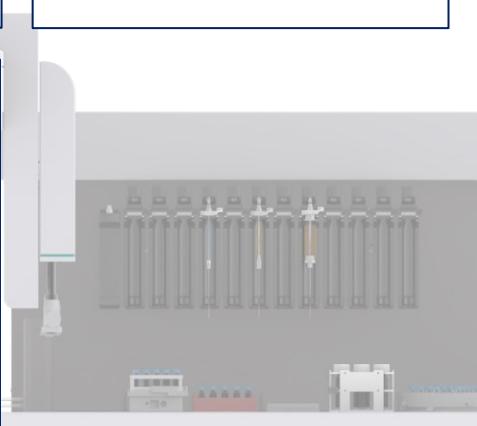
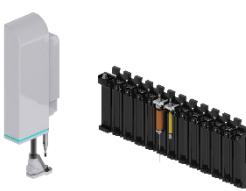
Target Applications

- Ideal for preparing samples of small-to-medium batch sizes, typically found in chromatography laboratories
- **Application Areas:** Especially suited for critical environmental, clinical, biotechnology, and food sample preparation using small volumes, sealed vials, and pressure applications with analytical syringes
- **Calibration Standard:** Excellent for preparation of samples with standard additions according to their associated reference calibration standards

Simple Setup

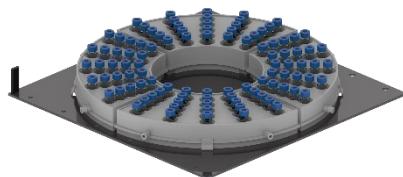


Key Features

COMPLETE AUTOMATION  <p>Dilution, sample aliquot, standard addition, filtering, microSPE...and more. A range of add-on accessories are available for complete workflow automation</p>	FLEXIBLE CONFIGURATION  <p>Rapid configuration of vial racks, accessories and elements to perform a range of sample preparation tasks</p>	WORKFLOW AND CONFIGURATION DEPOSITORY  <p>Sample preparation methods and calibration standards can be stored for repeated use and sharing with other laboratories</p>
ROTATING FOOT  <p>Enables syringe interchange, filter, and SPE cartridge handling</p>		
ANALYTICAL SYRINGES  <p>Analytical syringes enable high precision and accuracy dispensing down to 0.5µL</p>		
ROBOTIC SYRINGE CHANGE  <p>XCHANGE® technology enables automated and timely exchange of the necessary syringes and tools in a Workflow</p>	SYRINGE WASH STATION  <p>Syringe wash station for “zero” carryover, clean sample processing, and waste disposal</p>	AUTOMATED SPE, MICROSPE & FILTERING  <p>µSPEed cartridges enable high Resolution SPE for clean, low volume, no blowdown prep. Standard Disk Filters automate Sample filtering</p>

Vial Rack Adapter Plates for ePrep

To allow the processing of samples from sample vials directly into autosampler racks, ePrep has a range of deck Adapter Plates for most common sample and instrument rack designs. These include **BelArt, Supelco, Wheaton, 96 Well Plates, Agilent, Shimadzu, Waters and CTC-PAL**. Each Adapter Plate has a corresponding software profile for simple programming of vial identification and position within an ePrep Workflow



Syringe and Tool Options for ePrep



ePrep Std Needle Syringes

10µL, 100µL, 1mL & 10mL

80mm Needle for liquid dispensing



ePrep LongReach Needle Syringes

100µL, 1mL & 10mL

103mm Needle for liquid dispensing



ePrep eZy-Connect™ Syringes

100µL, 500µL & 1mL

for µSPEed cartridges

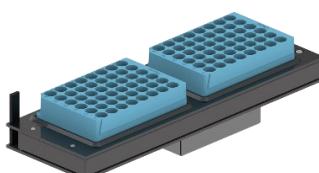


ePrep Luer Syringes

2.mL and 10mL

for filtering and SPE

Popular Accessory Options for ePrep



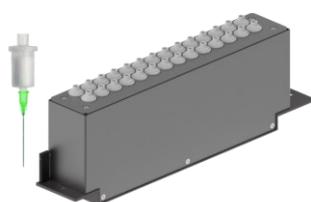
Vial Vortex Mixer



50mL Reagent Jar Kit



Syringe Filter Rack Kit



SPE Cartridge Rack Kit
(Syringe Push-Thru)



µSPEed Cartridge Rack Kit



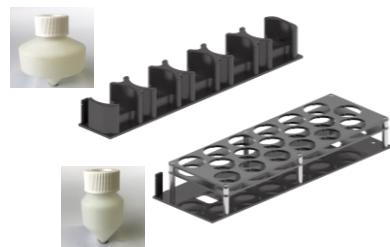
Bulk Solvent Manifold
(3 versions)



Reagent Probe Dispenser



60 Position Magnetic Stirrer



20mL and 50mL High Recovery Vials for LLE

Technical Specifications

Model

GL950X, P/N 01-01000, ePrep Sample Preparation Workstation

LIQUID HANDLING AND SAMPLE PREPARATION

Liquid Handling Precision

Liquid: 1% RSD dispensed volume at 10% syringe volume position.
Mechanical: $\pm 50\mu\text{m}$ plunger displacement precision.

Liquid Handling Accuracy

$< \pm 1\%$ dispensed volume at 10% syringe volume position with an uncalibrated syringe. Syringes can be calibrated for greater accuracy.

Carry-over

For multi-use liquid handling tools an integrated wash station is used to control and eliminate carry-over. The carry-over actually achieved depends on the syringe type, sample characteristics, and user set parameters in the software.

Volume Range

Minimum volume: 1 μL (10 μL syringe).
Maximum volume: 10mL per dispense with unlimited volume achievable using multiple aspirate/dispense cycles
Also Probe Dispenser with unlimited rapid refill of 5mL external syringe pump.

Flow Rates (Dispense)

10 μL syringe: 1 - 30 $\mu\text{L}/\text{sec}$
100 μL syringe: 1 - 300 $\mu\text{L}/\text{min}$
1mL syringe: 1 - 600 $\mu\text{L}/\text{min}$
10mL syringe: 5 - 750 $\mu\text{L}/\text{min}$

OPERATIONAL INFORMATION

Sample Capacity

Samples/Reagents can be contained in a wide variety of vial sizes and racks depending on deck configuration and application. Typical dispense volumes are between 1 μL to 10mL.

Total 880mm x 330mm deck space.

Supports a wide range of vials from 96 well microtiter plates through typical 1.5mL vials to 50mL bottles.

Laboratory

Sealed vial operation means a cover is not required. It is suggested well ventilated and climate-controlled environment is used. If using toxic materials, take appropriate safety precautions.

Safety

A rapid emergency stop is activated when the ePrep system detects the presence of personnel and obstructions in the work area.

Tablet Controller and Software

Touch Computer (Supplied) including ePrep's Axis rapid Workflow development software (English only) and lifetime updates.

Connectivity Tablet-to-Instrument

USB

Data Security

Multi-level rights controlled by user login.
Software logs Date/Time, Output ID, Workflow ID, Processes. Log report formats in TXT.

Wash Station

Deck mounted syringe Wash Station. Pump driven with active waste removal. External solvent and waste reservoirs (reservoirs not supplied).

Asset Identification

RFID identification on syringes, tools and racks. Optional 1D and 2D bar code identification on vials.

Available Accessories (Optional)

Shaker, Gripper, Multiport Reagent Manifold, μ SPEed Cartridge Rack

SYSTEM INFORMATION

Instrument Dimensions (L x W x H)

1370mm x 694mm x 743mm

Weight

65kg

Voltage

24V, 221W, 9.2A DC Power Pack; 100-240 Volt AC input; Requires country-specific IEC C13 power cable (not supplied). Battery backup for continuous operation even with a power interruption.

ePrep Connection Ports

3 x Serial Comm Ports, 4 x Digital Output, 4 x Digital Input, 4 x Relay

Operating Temperature

10-35°C, 0-80% relative humidity

Operating Sound Level

Typical 80dB

Compliance

CE, FCC, IC, RCM, RoHS, Safety EN 61010, EMC 61326

Warranty

12 months

Specifications are subject to change without notice

Ordering Information

ePrep Workstation

Image	Part No	Description
	01-01000	ePrep Sample Preparation WorkStation Supplied with: Wash Station, Power Supply, Surface Pro Control Tablet, Cabling and Starter Kit including Adapter Plates, Vial Racks, Vials, ePrep Syringes and Spares

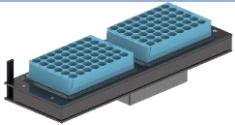
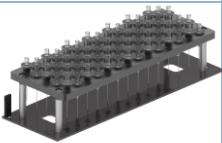
Vial Rack Adapter Plates for ePrep

See Website (www.eprep-analytical.com/accessories) for Sample and Autosampler Rack Adapter Plates

Syringes and Tools for ePrep

See Website (www.eprep-analytical.com/syringes-tools) for Syringes and Tools

Sample Preparation Accessories for ePrep

Image	Part No	Description
Vortex Mixer 	01-04100	Add vial vortex shaking to ensure homogeneity during the workflow. Deck allows up to three vortex shakers to be configured.
50mL Reagent Jar Kit 	01-03085	Reagent Jar Adapter Plate with 50 mL Reagent Jars Holds 5 x Reagent Jar Rack Capacity: 5 bottles Bottle volume: 50 mL
Syringe Filter Rack Kit 	01-04162	This kit enables standard laboratory 12mm to 30mm Luer syringe disk filters to be added to the workflow. It is fully compatible with Agilent, Thermo and Millipore chromatography filters.
μSPEed Cartridge Rack 	01-04161	MicroSPE (μSPEed cartridges) can be used with ePrep Workflow by including the μSPEed Cartridge Rack. The rack allows the ePrep to pick up and drop off the cartridges from the deck.
pdSPE Cartridge Rack Kit 	01-04180	Suitable for use with of pressure displacement (eg. Agilent Junior) SPE cartridges , the pdSPE rack enables automation on the ePrep.
Bulk Solvent Manifold Kit 	01-04205 SYRINGE 01-04207 LUER 01-04210 uSPEed	If a large volume solvent reservoir is required for a workflow, the Solvent Manifolds allows liquid to be drawn from bulk solvent bottles. Three configuration options: Syringe, Luer and uSPEed connections.

Reagent Probe Dispenser Kit		01-04300	The Probe Dispenser can be used for preparation tasks requiring large volume addition of diluent or reagent. It has all the benefits of liquid positive displacement while being able to automatically dispense large liquid volumes quickly and efficiently direct to vial on the ePrep deck.
60 Position Magnetic Stirrer Kit		01-04510	Magnetic stirrer is ideal for solid-liquid extraction applications such as environmental soils or food applications. The unit is designed to handle up to 60 x 20mL Enviro Vials depending on amount and type of solid to be extracted.
Rack for 20mL High Recovery LLE Vials		01-03120	Adapter plate and rack for ePrep PP 20mL high recovery vials for LLE applications
Rack for 50mL High Recovery LLE Vials		01-03122	Adapter plate and rack for ePrep PP 50mL high recovery vials for LLE applications



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Publication No.98-15000-07 Feb 2023
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