

# Genie De-ion Water Purification & Dispensing Kit

Provides ultrapure water for trace and ultra-trace element analyses

The rapid increase of detection capabilities of modern analytical techniques, including ICP-MS, nano UHPLC and nano LC-MS, greatly simplifies the quantification of trace and ultra-trace elements in diversified scientific and industrial fields. With their extreme sensitivity, low detection limits, high throughput and lots of other advantages, these analytical techniques project rigorous requirements for the control of contamination, in which, purity of the water substantially used during the analytical process is a key to a meaningful analysis.

Genie De-ion is an essential addition to the RephiLe Genie water purification system portfolio. The bi-functional kit not only further purifies upstream ultrapure water, but also can provide secure delivery of elemental controlled purified water for critical applications, elemental contaminants down to ppt and sub-ppt levels.



You have multiple choices to withdraw product water, through the control console, the built-in touchscreen on the kit, or the foot-switch.

## Key Features

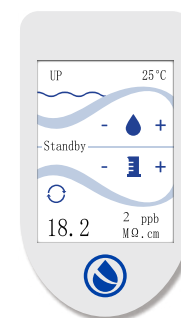


### Powerful ICP ultra-purification cartridge

- ◆ In-depth removal of ultra-trace ions to extremely low levels, commonly ppt and even sub-ppt
- ◆ Improved water quality stability and processing efficiency due to an optimized flow scheme
- ◆ High pressure rated housings, proprietary sealing, and double O-ring designs ensuring operational confidence
- ◆ RFID tracking and monitoring for optimal system performance and real-time operational intelligence
- ◆ Easy access through the front door. Installation and maintenance require no tools or experience

### 2.4" built-in color capacitive touchscreen

- ◆ Display of adequate product water information, such as quality, flow rate and other key parameters for real-time monitoring
- ◆ Manual and volumetric dispensing and dispensing rate adjustment
- ◆ Highly responsive, water-proof and latex glove friendly. Perfect for wet labs
- ◆ Easy to clean & resistant to scratches



### Easy integration into a laboratory space and simple to use

- ◆ Metallic-free water tubing support is easily adaptable to a laminar flow hood
- ◆ The foot-switch allows hands-free water delivery with no cross-contamination.



A Genie water system can be

- mounted on the bench
- under the sink
- on the wall

for optimal usage of laboratory space

## Main Components

Materials used for making Genie De-ion kit undergo careful selection and evaluation. All components (ion-exchange resin, ICP cartridge, O-rings, and solenoid valves, etc.) that are in direct contact with purified water are made of low-extractable metal-free materials because they need to be ultra-clean to avoid any elemental contamination.

### Transparent plastic tubing support



- ◆ Placement flexibility. Separate installation in a laminar flow hood or any other clean and controlled environments
- ◆ Metallic-free and extremely low extractable. Contaminant-free
- ◆ Seamless design with exceptionally smooth surface to prevent the growth of microorganisms and collection of particles from surroundings. Easy to clean and maintain
- ◆ Durable. Chemicals and solvents resistant and high environmental stability
- ◆ Lightweight. Easy to handle

### Internal 0.1µm filter

- ◆ Capable of filtering off any particles or other contaminants bigger than 0.1 µm in purified water
- ◆ To ensure that no particles are released into the delivery, thus to prevent particles from entering and clogging the pumps, the capillary tubing, or other equipment components.



\* It is recommended that the 0.1 µm filter and the Genie ICP Pack replace at the same time to maintain the required water quality.

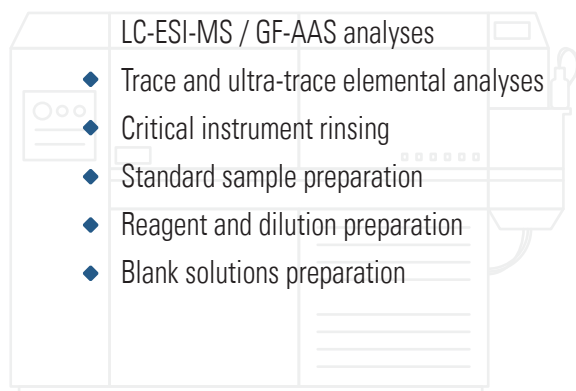
### Footswitch

- ◆ Touch-free operation to reduce the risk of cross-infection from hands, gloves, or breathing
- ◆ Added work efficiency since it gives users ability to multitask with full use of both hands
- ◆ In compliance with GLP (Good Laboratory Practice) and other standards and specifications for clean environments



## Main Applications

- ◆ ICP-MS / nano UHPLC / nano LC-MS /



- ◆ LC-ESI-MS / GF-AAS analyses
- ◆ Trace and ultra-trace elemental analyses
- ◆ Critical instrument rinsing
- ◆ Standard sample preparation
- ◆ Reagent and dilution preparation
- ◆ Blank solutions preparation

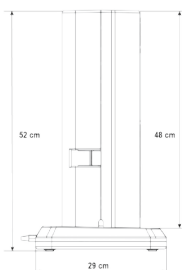
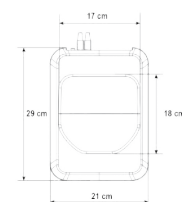
## Ordering Information

| Description                         | Cat. No.  |
|-------------------------------------|-----------|
| Genie De-ion kit                    | RG0P0U005 |
| Genie ICP pack                      | RR700QICP |
| 0.1 um PES Capsule Filter, 2.5 inch | RAFC02101 |
| Footswitch                          | RAPRE0221 |

\*Genie De-ion is an accessory of Genie G or Genie PURIST systems. Please contact RephiLe sales staff or refer to RephiLe website: [www.rephile.com](http://www.rephile.com) for further information.

# Specifications

| Description                                                               | Value or range        |
|---------------------------------------------------------------------------|-----------------------|
| <b>Feed Water Requirement</b>                                             |                       |
| Ultrapure water (with resistivity of 18.2 MΩ·cm at 25 °C and TOC < 5 ppb) |                       |
| <b>Product Water Quality</b>                                              |                       |
| Flow Rate                                                                 | 0 - 1.5 L/min         |
| Footswitch Flow Rate                                                      | Up to 1.5 L/min       |
| Resistivity (@25°C)                                                       | 18.2 MΩ·cm            |
| TOC                                                                       | ≤ 2 ppb               |
| <b>Dimensions &amp; Weight</b>                                            |                       |
| System Dimensions (W x D x H)                                             | 21 cm x 29 cm x 52 cm |
| Weight                                                                    | 8 kg                  |
| Holder tubing length                                                      | 3 m                   |



## Analysis Report (Excerpt part)

The results presented in the table below are excerpts from ICP-MS analysis of purified water from the Genie De-ion purification unit & dispensing kit connected with a Genie PURIST water purification system.

| Isotope | Element    | Symbol | Sample (ng/L) | DL* (ng/L) |
|---------|------------|--------|---------------|------------|
| 7       | Lithium    | Li     | < DL          | 0.1        |
| 9       | Beryllium  | Be     | < DL          | 0.1        |
| 11      | Boron      | B      | 0.2           | 0.1        |
| 31      | Phosphorus | P      | 2.4           | 0.1        |
| 47      | Titanium   | Ti     | 0.8           | 0.1        |
| 51      | Vanadium   | V      | < DL          | 0.1        |
| 52      | Chromium   | Cr     | < DL          | 0.1        |
| 55      | Manganese  | Mn     | < DL          | 0.1        |
| 56      | Iron       | Fe     | 0.8           | 0.1        |
| 59      | Cobalt     | Co     | 0.2           | 0.1        |
| 60      | Nickel     | Ni     | 0.3           | 0.1        |
| 63      | Copper     | Cu     | < DL          | 0.1        |
| 66      | Zinc       | Zn     | < DL          | 0.1        |
| 69      | Gallium    | Ga     | < DL          | 0.1        |
| 70      | Germanium  | Ge     | < DL          | 0.1        |
| 75      | Arsenic    | As     | < DL          | 0.1        |
| 78      | Selenium   | Se     | 0.3           | 0.1        |
| 85      | Bromine    | Rb     | < DL          | 0.1        |
| 88      | Strontium  | Sr     | 0.3           | 0.1        |
| 95      | Molybdenum | Mo     | < DL          | 0.1        |

| Isotope | Element   | Symbol | Sample (ng/L) | DL (ng/L) |
|---------|-----------|--------|---------------|-----------|
| 101     | Ruthenium | Ru     | < DL          | 0.1       |
| 105     | Palladium | Pd     | < DL          | 0.1       |
| 107     | Silver    | Ag     | < DL          | 0.1       |
| 111     | Cadmium   | Cd     | < DL          | 0.1       |
| 115     | Indium    | In     | < DL          | 0.1       |
| 118     | Tin       | Sn     | < DL          | 0.1       |
| 121     | Antimony  | Sb     | 0.2           | 0.1       |
| 137     | Barium    | Ba     | < DL          | 0.1       |
| 178     | Hafnium   | Hf     | < DL          | 0.1       |
| 181     | Tantalum  | Ta     | < DL          | 0.1       |
| 182     | Tungsten  | W      | < DL          | 0.1       |
| 185     | Rhenium   | Re     | 0.2           | 0.1       |
| 193     | Iridium   | Ir     | < DL          | 0.1       |
| 195     | Platinum  | Pt     | < DL          | 0.1       |
| 197     | Gold      | Au     | < DL          | 0.1       |
| 202     | Mercury   | Hg     | < DL          | 0.1       |
| 208     | Lead      | Pb     | < DL          | 0.1       |
| 209     | Bismuth   | Bi     | < DL          | 0.1       |
| 238     | Uranium   | U      | < DL          | 0.1       |

\*DL: Detection Limit

\*\*Data is based on a report from a third-party inspection organization.

Instrument: Thermo Element 2 ICP-MS

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