Liquid Handling System Market - Global Outlook & Forecast 2022-2027

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Report description:

The global liquid handling system market is expected to grow at a CAGR of 6.79% during 2022-2027.

INDUSTRY INSIGHTS

Liquid handling involves the movement of liquid reagents through various laboratories' diverse range of large-scale analyzers, instruments, and platforms. The liquid handling tools are used in various laboratory applications ranging from research to clinical applications to handle various samples with accurate measurements.
Growth in the global liquid handling system market is driven primarily by the growth of the pharmaceutical biotechnology sector, increased R&D spending by biopharmaceutical companies, and growth in life sciences research backed by favorable funding scenarios.

The research associations and other medical institutions are conducting various clinical trials to develop suitable anti-COVID drugs and testing devices. They are expected to support the global liquid handling system market growth. For example, in 2020, Hamilton announced a test job for the automated COVID-19 testing workstations and high-speed priority tracking of all orders related to fighting virus pandemics.

KEY HIGHLIGHTS

a) R&D is the lifeline of the pharmaceutical industry. The success of large pharmaceutical companies depends almost entirely on the discovery and development of new drugs, and their capital spending (fixed investment) allocation reflects this fact. Average spending is over 25% of revenue, but some companies spend significantly more.
b) Biopharmaceutical research and development continued at a record pace in 2021, despite the COVID-19 pandemic. According to the data, 5,500 newly planned clinical trials launched last year have increased by 14% since 2020.
c) Approval and launch of new drugs continued to accelerate in 2021, with 84 new drugs entering the market. This is twice as much as it was five years ago. With more than 6,000 product pipelines under active development, up 68% compared to 2016, the

pace of pharma R&D will be maintained over the next few years.

MARKET TRENDS AND DRIVERS

A Surge in Demand for Liquid Handling Workstations

-In today's research and clinical genomics labs, sample preparation is an experimental bottleneck, especially for high-throughput next-generation sequencing (NGS). More and more genomics labs are looking to automate liquid processing to make sequence workflows more efficient and cost-effective. The industrial-scale genomics lab also employs automation to increase productivity. For example, screening genes that encode many proteins to determine the structure of a protein requires several experiments under different conditions. Integrating microarray experiments and automation has enabled high-throughput analysis of sequences and simultaneous monitoring of thousands of genes in large biotechnology companies.
-The liquid processing workstation must meet standard requirements such as high throughput, high precision, and high precision, especially in small quantities for use in life science labs. In addition, such robots on the market have a variety of characteristics that suit specific laboratory requirements.
-The liquid processing robots on the market meet NGS's wide range of automation needs. Some, such as PerkinElmer's Sciclone NGSxiQ workstation, take this one step further by offering on-deck thermal cycling and chip box storage for full automation of the NGS protocol. Agilent's Bravo NGS, unlike many other robots, has an advanced microplate management system that can include a microplate thermal sealer, a centrifuge, and a plate barcode labeler.

Diversified Applications of Liquid Handling Systems in the Lifesciences Industry

-Over the past century, life science research has helped scientists discover the biological basis of life and develop ways to overcome illness. Modern Life Science Institutes often require high-throughput liquid processing for efficiency reasons. For example, the number of genes encoding species of proteins involved in protein structure determination is enormous, somewhere between 20,000 and 25,000.
-Liquid handling plays a central role in the Life Science Institute. Experiments such as gene sequencing, protein crystallization, antibody testing, and drug screening require liquid biosamples to be moved between different-sized containers and dispensed into different types of substrates.
-Kevin Rosovsky, CEO of Caliper Life Sciences, said laboratory automation had received great attention in recent years. The robotic technology that has long been found in factory automation is being used for automated liquid handling. In addition, new application-specific devices are constantly being developed for this purpose. "Getting 500,000 test points a day opens up a new strategy in drug discovery."

Surge in Demand for Liquid Handling to Manage Large Volume of Samples During Covid-19

-The pharmaceutical and healthcare industry's response to the COVID-19 pandemic has led to the development of over 1000 vaccine and therapeutic candidates, with nearly 5,000 clinical trials underway. This revolutionary explosion, coupled with a shift to more outsourcing by pharmaceutical and biotechnology companies, has created a surge in demand for liquid handling systems.
-The range of bioanalysis required is overwhelming. New therapies require pharmacokinetic, immunogenicity, and biomarker assays. Nucleic acid amplification test (NAAT) and antigen test are needed for the diagnosis of COVID-19 and registration of clinical trials. Apart from the development of therapeutics and vaccines for COVID19, millions of tests are performed every day globally.
-As of June 2, 2022, the U.S. conducted more than one billion tests for COVID-19. The U.S. is the most abundant country in the world. Russia has conducted more than 273 million tests. The COVID-19 pandemic puts a heavy burden on healthcare systems around the world. Thus, during COVID-19, the laboratories are under strain with a large volume of samples of COVID-19 vaccines, therapeutics drugs, and COVID-19 tests. The laboratories need large numbers of liquid handling equipment to accelerate the

growth of the sample's performance. The millions of COVID-19 testing are required for the automated system to manage the large scale of samples during COVID-19. Such factors of the pandemic have boosted the growth of the global automated liquid handling system market.

SEGMENTATION ANALYSIS

INSIGHTS BY PRODUCT

Among all product segments in the global liquid handling system market, the pipettes segment reported a significant share of around 28.41% in 2021. The pipette segment is estimated to be higher because there are both fixed volume pipettes and adjustable volume pipettes on the market. The former is more accurate and precise, while the latter has a broader scope, so the operator can choose different volumes depending on the experiment's needs. Electronic pipettes are considered more accurate because they are user experience independent and can achieve self-calibration with visual feedback. After all, users can get the wrong volume, even if it requires thousands of trials each day.

Segmentation by Product
-Pipettes
-Automated Liquid Handling System (ALHS)
-Microplate Reagent Dispensers (MRD)
-Burettes
-Others

INSIGHTS BY METHOD

The method segment is divided into electronic, automated, and manual. The electronic segment reported a major share in 2021 and is estimated to be higher because electronic pipettes are an efficient approach to boost sample throughput without using a robot and are an excellent ergonomic alternative to manual pipettes. Electronic pipettes frequently allow the user to write unique programs on the device, allowing the pipettes to be customized to meet various application demands. Electronic pipettes, like manual pipettes, come in various configurations, including single channel, multi-channel, 96-well, and 364-well.

Segmentation by Method
-Electronic
-Automated
-Manual

Advantages of Electronic Micropipettes
-User-friendly, effortless, and efficient
-Precise and accurate
-Simplifying complex pipetting
-Time-saving

INSIGHTS BY APPLICATION

The global liquid handling system market on the basics of application is dominated by the drug discovery & development segment in 2021. The growth can be attributed to the segment as drug discovery has largely undergone a revolution over the last two decades due to the widespread adoption of automated liquid handling. Automated liquid handling systems have been implemented across the whole pharmaceutical and biotechnology pipeline due to a competitive necessity to enhance throughput

and increase production while assuring the highest accuracy and repeatability standards. Laboratory automation, which is available on the market, is one solution for this set of issues. High-throughput screening allows researchers to quickly analyze the activity of many chemicals against a specific biological target, which is made possible by automated robots and workstations.

Segmentation by Application
- Drug Discovery & Development (DDD)
- Clinical Diagnostics
- Proteomics & Genomics
- Others

INSIGHTS BY END-USERS

Among all end-users, the pharma & biotech companies segment reported a significant share of 31.01% in 2021 in the global liquid handling system market. The pharma & biotech companies market segment is estimated to be higher because, as an industry, pharma & biotech companies research, develop, and commercialize drugs primarily made from artificial sources. Drug development can take years to go through the R&D phase before reaching the market. Part of the long R&D process is approval by the Food and Drug Administration (FDA). As the pharma companies are investing billions of dollars in R&D of the drug product, they require sophisticated liquid handling systems to rapidly perform the task such as drug sample screening, analysis, etc.

Segmentation by End User
- Pharma & Biotech Companies (PBC)
- Academic & Research Labs/Centers (ARLC)
- Clinical Diagnostics Labs (CDL)
- Others End Users (OEU)Tankers

GEOGRAPHICAL ANALYSIS

Among all geography, the North American segment reported a significant share of around 31.01% in 2021 in the global liquid handling system market. The North America segment is estimated to be higher because the liquid handling system market in North America has been improving alongside the growth in drug research & development, genomics & proteomics, and growth in the R&D activities in research and academic laboratory. The North American liquid handling system market is well established with prominent laboratory equipment companies. The rise in drug development has greatly increased the demand for ALHS in this region. The U.S. is the major revenue contributor in North America mainly due to an increase in the high demand for cell and gene therapy development, demand for genomics, and proteomics, reflecting the growth in awareness of personalized medicines and their benefits against chronic diseases.

Europe accounted for the second-highest share in the global liquid handling system market in 2021. Europe has developed healthcare infrastructure and has significantly contributed to research and development. Their research labs are equipped with advanced infrastructure to perform complex research. These laboratories use different types of liquid handling, such as electronic pipettes and ALHS, which are significant tools to cater to lab research needs.

Segmentation by Geography
- APAC
  - China
  - Japan
  - India
  - South Korea

o Australia
- North America
o US
o Canada
- Europe
o Germany
o France
o UK
o Italy
o Spain
- Latin America
o Brazil
o Mexico
o Argentina
- Middle East & Africa
o Turkey
o Saudi Arabia
o South Africa
o UAE

COMPETITIVE ANALYSIS

The liquid handling system market is highly dynamic, with several global and local players offering a diverse range of LHS and associated software. The market is consolidated with the global players accounting for high shares. In 2021, Thermo Fisher Scientific, Danaher, METTLER TOLEDO, Eppendorf, Agilent Technologies, Tecan, and Corning Incorporated were the leading players that accounted for significant shares in the global liquid handling system market.

The global players focus on developing innovative products and expanding their product portfolio to remain competitive in the market. They are investing extensively in R&D and product development activities to expand their product portfolio. Manufacturers such as Thermo Fisher Scientific, Danaher, METTLER TOLEDO, and Eppendorf continuously focus on product development and offer sophisticated liquid handling systems with new technology to increase their market presence.

Key Vendors
- Thermo Fisher Scientific
- Agilent Technologies
- METTLER TOLEDO
- Tecan
- Danaher
- Eppendorf
- Corning Incorporated

Other Prominent Vendors
- BrandTech Scientific
- Borosil
- BIOTEC
- CELLINK
- CooperSurgical Fertility Solutions

-FORMULATRIX
-Flow Robotics
-Gilson
-Greiner Bio-One International
-HiTec Zang
-Hudson Robotics
-Hamilton Company
-Ingersoll Rand
-Metrohm
-Orochem Technologies
-PerkinElmer
-HighRes Biosolutions
-Sartorius
-SPT Labtech
-TOMTEC IMAGING SYSTEMS
-Tianlong
-Vitrolife
-Wuhan Bonnin Technology
-Waters Corporation
-Integra Biosciences
-Peak Analysis and Automation
-Synchron Lab Automation

KEY QUESTIONS ANSWERED
1.What is the size of the global liquid handling system market?
2.What is the growth rate of the global liquid handling system market?
3.What are the key driving factors in the liquid handling system market?
4.Who are the key vendors in the global liquid handling system market?
5.Which region holds the largest global liquid handling system market share?
6.What is the expected growth rate of the electronic method segment in the liquid handling system market by 2027?

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