

Liquid Handling Market- Global Industry Size, Share, Trends, Competition, Opportunities and Forecast, 2018-2028F Segmented by Type (Manual Liquid Handling, Automated Liquid Handling, Semi-Automated Liquid Handling), Product (Automated Workstations, Pipettes, Dispensers, Burettes, Others), Application (Drug Discovery, Cancer and Genomics Research, Clinical Diagnostics, Others), End-User (Pharmaceutical and Biotechnology Industry, Contract Research Organization, Academic Institutes, and Others), By Region

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Abstracts

Liquid Handling Market is estimated to grow during the forecast year owing to the advancement in liquid handling systems. Liquid handling designs are mostly used in clinical analysis, high-throughput screening, and delicate sampling. The capacity to screen large collections of chemicals at a faster rate with better reliability and efficiency has been greatly expanded due to the significant advancements in the modification and designing of liquid handling systems. These developments tend toward miniaturization, largely in an effort to lower costs and boost throughput. With the approaching modernization, a variety of fluid handlers that use various technologies for specific purposes have been created for each step of the drug development process.

Many different types of liquid handlers can be used as stand-alone parts by operating separately from any other machinery. These liquid handling devices are typically built into bigger stations, which simplify regular activities, minimize human involvement, and

enable multitasking in a single run. These liquid handling systems can be small workstations with specialized functions or completely automated robotic decks with the ability to carry out an endless variety of operations. In recent years, academic research in the United States has become significantly more interested in high-throughput screening technology. The Society for Biomolecular Sciences in the US maintains an extensive listing of academic screening facilities. It not only gives the academic community high-throughput screening (HTS) materials but also aids in the search for probes and leads for drug discovery.

In the pharmaceutical sector, high-throughput screening techniques are widely employed to quickly examine the biological or biochemical activity of many compounds, typically pharmaceuticals. The liquid handling techniques make use of robotics and automation because they speed up target analysis since vast compound libraries can be swiftly and affordably screened. High-throughput screening (HTS) is a helpful tool for evaluating things like pharmacological targets, agonists, antagonists' receptors (such as GPCRs), and enzymes.

Liquid Handling in Clinical Research and Drug Development will Support the Global Liquid Handling Market.

Basically, the use of liquid handling technology is done to precisely dispense small volumes for miniaturized drug screens. A simple pipet to a sophisticated workstation is an example of liquid handling equipment used in the development of pharmaceuticals. Micropipettes, pipettes, dispensers, and burettes are among the more suitable and efficient liquid-handling tools for drug research. These are essential because instruments used for handling liquids are very flexible. They can help in the movement of cells, proteins, oligonucleotides, or other biological components and are utilized for a range of purposes, including pipetting, transferring, diluting, dosing, and dispensing. The equipment's high throughput, capacity, and dynamic volume range enable this tremendous flexibility.

Earlier, liquid handling equipment was proven inefficient at lowering the cost of quality control procedures due to the lack of appropriate technology. But now, the high precision capabilities of liquid handling instruments are helping to ensure the reliability of clinical research results' accuracy.

Automated Liquid Handling with Integration of Artificial Intelligence

The implementation of artificial intelligence to manage various phases of the procedure

and to fully utilize internet connectivity to communicate with users remotely are the next steps for liquid handling systems. The majority of the sampling, combining, and mixing of liquid samples can be done automatically with the help of multipurpose liquid handling automated workstations. The in-built software in the automated liquid handling system is able to provide high degrees of error management and adapt the instrument's activity to novel conditions that may arise during sample processing by relying on machine learning (e.g., compensating for nozzle clogging or reacting to a defect in a disposable tip). These workstations are self-managed and represent efficient walk-away solutions for the optimization of laboratory resources by reporting problems in real-time to remote operators and outlining their reaction to the issue. Some of the widely used software in liquid handling systems include Biomek Software in Biomek Automated Workstations and Echo Software Applications which can create liquid handling protocols for specific applications with a minimum requirement of training.

The creation of self-learning software will also make it easier to integrate various components, enabling labs to add or delete particularly functional components from an automated workflow. Modularity will, thus, boost the system's overall versatility and enable a wider range of applications for automated liquid handling equipment in biomedical laboratories.

Increasing Investments in the Drug Development by Companies

Liquid handlers are used to put pharmacological substances through ADMET assays, which are useful for determining features of absorption, distribution, metabolism, excretion, and toxicity. In-depth knowledge about how drugs interact with the human body is provided by ADMET testing, and this data profile is crucial in the decision-making process to carry out or halt any future medication research.

Companies like Tecan Group AG have been in the business of manufacturing liquid handling systems since the 1980s, which is now also enhancing its technology by providing a new modified liquid handling system that has a movable liquid handler arm with multiple dispense tips to ease the work and enhance accuracy. To enhance ADME (Absorption, Distribution, Metabolism, and Excretion) screening in the early stages of drug discovery, Tecan has developed a variety of automated screening methods. These platforms, for automated cell permeability, drug solubility, in vitro drug metabolism, protein binding tests, and compound characterization operations, are based on adaptable and scalable liquid handling platforms. By this, the Tecan multimode readers can be integrated to enable walkaway processing with complete sample tracking.

Growing Adoption of Liquid Handling by Industry and Academics

It may be easier to conduct experiments if liquid handling devices are more widely used. The method was initially embraced by companies and industry-based laboratories, but it has since spread to academic settings where a wide range of unconventional/unusual experiments can be conducted. According to current procedures or laboratory tests, researchers transfer liquids for the purpose of dilution, mixing, or inoculation to carry out the experimentation further. By operating the liquid handling systems remotely, operations can be performed more robustly and in a resilient way against outside influences which can hamper the work or can increase the chances of contamination; it can also help in carrying out more tests at a time which was seen during the time of COVID-19 pandemic for rapid antigen testing thus, liquid handling system can make laboratories more efficient.

Market Segmentation

The Global Liquid Handling Market is segmented based on Type, Product, Application, End User, Region, and Company. Based on Type, the market is trifurcated into Manual Liquid Handling, Automated Liquid Handling, and Semi-Automated Liquid Handling. Based on the Product, the market is segmented among Automated Workstations, Pipettes, Dispensers, Burettes, and Others. Based on the Application, the market is divided among Drug Discovery, Cancer and Genomics Research, Clinical Diagnostics, and Others. Based on the End User, the market is divided into the Pharmaceutical and Biotechnology Industry, Contract Research Organizations, Academic Institutes, and Others.

Company Profiles

Agilent Technologies, Aurora Biomed, Inc., AUTOGEN, INC., Danaher Corporation, BioTek Instruments, Inc., Analytik Jena AG, Corning Incorporated, Eppendorf AG, Formulatrix, Inc., Gilson, Inc. are among the major market players operating in the Global Liquid Handling market.

Report Scope:

In this report, Global Liquid Handling Market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Liquid Handling Market, By Type:

Manual Liquid Handling

Automated Liquid Handling

Semi-Automated Liquid Handling

Liquid Handling Market, By Product:

Automated Workstations

Pipettes

Dispensers

Burettes

Others

Liquid Handling Market, By Application:

Drug Discovery

Cancer and Genomics Research

Clinical Diagnostics

Others

Liquid Handling Market, By End User:

Pharmaceutical and Biotechnology Industry

Contract Research Organization

Academic Institutes

Others

Liquid Handling, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Asia-Pacific

China

Japan

India

South Korea

Australia

Middle East & Africa

UAE

Saudi Arabia

South Africa

South America

Brazil

Argentina

Colombia

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in Global Liquid Handling.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

- 1. Product Overview
 - 1.1. Market Definition
 - 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. VOICE OF CUSTOMER

5. GLOBAL LIQUID HANDLING MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Type (Manual Liquid Handling, Automated Liquid Handling, Semi-Automated Liquid Handling)
 - 5.2.2. By Product (Automated Workstations, Pipettes, Dispensers, Burettes, Others)
 - 5.2.3. By Application (Drug Discovery, Cancer and Genomics Research, Clinical Diagnostics, Others)

5.2.4. By End User (Pharmaceutical and Biotechnology Industry, Contract Research Organization, Academic Institutes, Others)

5.2.5. By Region

5.2.6. By Company (2022)

5.3. Market Map

5.3.1. By Type

5.3.2. By Product

5.3.3. By Application

5.3.4. By End User

5.3.5. By Region

6. NORTH AMERICA LIQUID HANDLING MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Type

6.2.2. By Product

6.2.3. By Application

6.2.4. By End User

6.2.5. By Country

6.3. North America: Country Analysis

6.3.1. United States Liquid Handling Market Outlook

6.3.1.1. Market Size & Forecast

6.3.1.1.1. By Value

6.3.1.2. Market Share & Forecast

6.3.1.2.1. By Type

6.3.1.2.2. By Product

6.3.1.2.3. By Application

6.3.1.2.4. By End User

6.3.2. Canada Liquid Handling Market Outlook

6.3.2.1. Market Size & Forecast

6.3.2.1.1. By Value

6.3.2.2. Market Share & Forecast

6.3.2.2.1. By Type

6.3.2.2.2. By Product

6.3.2.2.3. By Application

6.3.2.2.4. By End User

6.3.3. Mexico Liquid Handling Market Outlook

- 6.3.3.1. Market Size & Forecast
 - 6.3.3.1.1. By Value
- 6.3.3.2. Market Share & Forecast
 - 6.3.3.2.1. By Type
 - 6.3.3.2.2. By Product
 - 6.3.3.2.3. By Application
 - 6.3.3.2.4. By End User

7. EUROPE LIQUID HANDLING MARKET OUTLOOK

- 7.1. Market Size & Forecast
 - 7.1.1. By Value
- 7.2. Market Share & Forecast
 - 7.2.1. By Type
 - 7.2.2. By Product
 - 7.2.3. By Application
 - 7.2.4. By End User
 - 7.2.5. By Country
- 7.3. Europe: Country Analysis
 - 7.3.1. Germany Liquid Handling Market Outlook
 - 7.3.1.1. Market Size & Forecast
 - 7.3.1.1.1. By Value
 - 7.3.1.2. Market Share & Forecast
 - 7.3.1.2.1. By Type
 - 7.3.1.2.2. By Product
 - 7.3.1.2.3. By Application
 - 7.3.1.2.4. By End User
 - 7.3.2. France Liquid Handling Market Outlook
 - 7.3.2.1. Market Size & Forecast
 - 7.3.2.1.1. By Value
 - 7.3.2.2. Market Share & Forecast
 - 7.3.2.2.1. By Type
 - 7.3.2.2.2. By Product
 - 7.3.2.2.3. By Application
 - 7.3.2.2.4. By End User
 - 7.3.3. United Kingdom Liquid Handling Market Outlook
 - 7.3.3.1. Market Size & Forecast
 - 7.3.3.1.1. By Value
 - 7.3.3.2. Market Share & Forecast

- 7.3.3.2.1. By Type
- 7.3.3.2.2. By Product
- 7.3.3.2.3. By Application
- 7.3.3.2.4. By End User
- 7.3.4. Italy Liquid Handling Market Outlook
 - 7.3.4.1. Market Size & Forecast
 - 7.3.4.1.1. By Value
 - 7.3.4.2. Market Share & Forecast
 - 7.3.4.2.1. By Type
 - 7.3.4.2.2. By Product
 - 7.3.4.2.3. By Application
 - 7.3.4.2.4. By End User
- 7.3.5. Spain Liquid Handling Market Outlook
 - 7.3.5.1. Market Size & Forecast
 - 7.3.5.1.1. By Value
 - 7.3.5.2. Market Share & Forecast
 - 7.3.5.2.1. By Type
 - 7.3.5.2.2. By Product
 - 7.3.5.2.3. By Application
 - 7.3.5.2.4. By End User

8. ASIA-PACIFIC LIQUID HANDLING MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Type
 - 8.2.2. By Product
 - 8.2.3. By Application
 - 8.2.4. By End User
 - 8.2.5. By Country
- 8.3. Asia-Pacific: Country Analysis
 - 8.3.1. China Liquid Handling Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Type
 - 8.3.1.2.2. By Product
 - 8.3.1.2.3. By Application

- 8.3.1.2.4. By End User
- 8.3.2. Japan Liquid Handling Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Type
 - 8.3.2.2.2. By Product
 - 8.3.2.2.3. By Application
 - 8.3.2.2.4. By End User
- 8.3.3. India Liquid Handling Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Type
 - 8.3.3.2.2. By Product
 - 8.3.3.2.3. By Application
 - 8.3.3.2.4. By End User
- 8.3.4. South Korea Liquid Handling Market Outlook
 - 8.3.4.1. Market Size & Forecast
 - 8.3.4.1.1. By Value
 - 8.3.4.2. Market Share & Forecast
 - 8.3.4.2.1. By Type
 - 8.3.4.2.2. By Product
 - 8.3.4.2.3. By Application
 - 8.3.4.2.4. By End User
- 8.3.5. Australia Liquid Handling Market Outlook
 - 8.3.5.1. Market Size & Forecast
 - 8.3.5.1.1. By Value
 - 8.3.5.2. Market Share & Forecast
 - 8.3.5.2.1. By Type
 - 8.3.5.2.2. By Product
 - 8.3.5.2.3. By Application
 - 8.3.5.2.4. By End User

9. SOUTH AMERICA LIQUID HANDLING MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast

- 9.2.1. By Type
- 9.2.2. By Product
- 9.2.3. By Application
- 9.2.4. By End User
- 9.2.5. By Country
- 9.3. South America: Country Analysis
 - 9.3.1. Brazil Liquid Handling Market Outlook
 - 9.3.1.1. Market Size & Forecast
 - 9.3.1.1.1. By Value
 - 9.3.1.2. Market Share & Forecast
 - 9.3.1.2.1. By Type
 - 9.3.1.2.2. By Product
 - 9.3.1.2.3. By Application
 - 9.3.1.2.4. By End User
 - 9.3.2. Argentina Liquid Handling Market Outlook
 - 9.3.2.1. Market Size & Forecast
 - 9.3.2.1.1. By Value
 - 9.3.2.2. Market Share & Forecast
 - 9.3.2.2.1. By Type
 - 9.3.2.2.2. By Product
 - 9.3.2.2.3. By Application
 - 9.3.2.2.4. By End User
 - 9.3.3. Colombia Liquid Handling Market Outlook
 - 9.3.3.1. Market Size & Forecast
 - 9.3.3.1.1. By Value
 - 9.3.3.2. Market Share & Forecast
 - 9.3.3.2.1. By Type
 - 9.3.3.2.2. By Product
 - 9.3.3.2.3. By Application
 - 9.3.3.2.4. By End User

10. MIDDLE EAST AND AFRICA LIQUID HANDLING MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value
- 10.2. Market Share & Forecast
 - 10.2.1. By Type
 - 10.2.2. By Product
 - 10.2.3. By Application

- 10.2.4. By End User
- 10.2.5. By Country
- 10.3. MEA: Country Analysis
 - 10.3.1. UAE Liquid Handling Market Outlook
 - 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
 - 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Type
 - 10.3.1.2.2. By Product
 - 10.3.1.2.3. By Application
 - 10.3.1.2.4. By End User
 - 10.3.2. Saudi Arabia Liquid Handling Market Outlook
 - 10.3.2.1. Market Size & Forecast
 - 10.3.2.1.1. By Value
 - 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Type
 - 10.3.2.2.2. By Product
 - 10.3.2.2.3. By Application
 - 10.3.2.2.4. By End User
 - 10.3.3. South Africa Liquid Handling Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Type
 - 10.3.3.2.2. By Product
 - 10.3.3.2.3. By Application
 - 10.3.3.2.4. By End User

11. MARKET DYNAMICS

- 11.1. Drivers
- 11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

13. COMPETITIVE LANDSCAPE

- 13.1. Business Overview
- 13.2. Product Offerings

- 13.3. Recent Developments
- 13.4. Financials (In Case of Listed Companies)
- 13.5. Key Personnel
 - 13.5.1. Agilent Technologies
 - 13.5.2. Aurora Biomed, Inc.
 - 13.5.3. AUTOGEN, INC.
 - 13.5.4. Danaher Corporation
 - 13.5.5. BioTek Instruments, Inc.
 - 13.5.6. Analytik Jena AG
 - 13.5.7. Corning Incorporated
 - 13.5.8. Eppendorf AG
 - 13.5.9. Formulatrix, Inc.
 - 13.5.10. Gilson, Inc.

14. STRATEGIC RECOMMENDATIONS

15. ABOUT US & DISCLAIMER

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