

# Bulk Reagent Dispenser Trends 2010



March 2010

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## Executive Summary

- This market report summarizes the results of HTStec's industry-wide global web-based benchmarking survey on bulk reagent dispensers (BRDs) carried out in February 2010.
- The study was initiated by HTStec as part of its ongoing tracking of emerging life science technologies and marketplaces. The main objectives of this study were to comprehensively document current end user experiences, practices, and opinions obtained using BRDs and to understand future requirements. An additional objective was to estimate the market size for BRDs and future market growth potential.
- The survey looked at the following aspects of BR dispensing as practiced to date (2010) and in many cases as predicted/wanted for the future (2013): current use of BRDs; makeup of vendor BRDs in respondent's lab and which BRDs they make greatest use of today; how many BRDs they have in their lab; % of BR dispensing done in plate/racked tube formats; BR dispensing volume ranges they make most use of in various formats; batch sizes processed and throughput requirements in various formats; main purpose and application areas of BR dispensing; volume range requirements of key applications; satisfaction with existing commercial BRDs; aspect of BR dispensing that is most problematic; reliability of existing commercial BRDs; types of liquids dispensed; the need for multiple reagent inputs and automatic switching; what is an acceptable dead volume; importance of technical features and the impact of factors related to supplier-customer relationship on purchasing a BRD; importance of device-related factors in purchasing BRDs and the vendors most associated with these factors; BRD purchasing frequency; purchasing related to the need to replace old dispensers; importance of price since the economic downturn; 2010 CAPEX BRD budget allocation; future purchasing probability; vendor's BRD system most likely to purchase; and breakdown of total liquid handling CAPEX budget. In addition, feedback on the following was obtained: 1) where new dispensing technologies have created application opportunities; 2) technical features they would like to see added to a new BRD; and 3) unmet needs in BR dispensing today.
- The main questionnaire consisted of 27 multi-choice questions and 3 open-ended questions. In addition, there were 5 questions related solely to the administration of survey.
- The survey collected 264 validated responses.
- Survey responses were geographically split: 59% North America; 29% Europe; 8% Asia (Excluding Japan); 2% Rest of World; and 2% Japan.
- Respondents came from 132 University/Research Institute/Government Labs & Not-for-Profit Facilities; 46 Biotech: 31 Large Pharma; 21 Small/Medium Pharma; 15 Hospitals/Clinics; 9 Others; 4 Agrochemical Companies; 4 Fee-For-Service Providers/CROs; and 2 Diagnostics Companies.
- Most survey respondents had a senior job role or position which was in descending order: 66 Research Scientists; 29 Principal Investigators; 29 Professors/Assistant Professors; 29 Other Roles; 24 Lab Managers; 21 Senior Scientists/Researchers; 17 Post-docs; 17 Directors; 9 Department Heads; and 3 Vice Presidents.
- Respondents represented: 80 Life Science Research Labs; 52 Basic Research Labs; 37 Primary Screening (HTS) Labs; 28 Assay Development Labs; 25 Other Labs; 18 Labs with a Combination of Drug Discovery Roles; 7 Therapeutic Areas (Target Identification/Validation) Labs; 6 Leads-To-Candidate (ADME Tox /Preclinical Research) Labs; 5 Hits-To-Leads (Lead Optimization) Labs; 4 Compound Profiling Labs; and 1 Secondary Screening Lab.
- Survey results were expressed as an average of all survey respondents. In addition, where appropriate the data was reanalyzed after sub-division into the following 5 survey groups: 1) Large Pharma; 2) Medium/Small Pharma & All Biotech; 3) University/Research Institute/Government Labs & Not-For-Profit; 4) Europe; and 5) North America.
- The current level of use of BRDs by the majority of survey respondents was medium.
- BRDs from Thermo Fisher Scientific were the most prevalent in respondent's labs today.
- Greatest use was made of Thermo Fisher Scientific BRDs relative to all other manufacturers.
- The median number of BRDs per lab was 2, with a median functional lifetime of 5 years.
- The majority of BR dispensing today (2010) was done into 96-well plates. The main changes in BR dispensing formats required over the coming years are decreases in the use of 96-well plates and increases in the use of 384-well regular & low volume plates and 1536-well plates.
- The BR dispensing volume ranges most used were 50µL-500µL in 96-well plates and 5µL-50µL in 384-well regular volume plates.

- The median number of plates processed per batch when BR dispensing was: 5–10 plates for 96–well plates and 10–15 plates for 384–well regular volume plates.
- The median throughput (number of plates processed per 8h day) when BR dispensing was: 5–10 plates for 96–well plates and 15–20 plates for 384–well regular volume plates.
- Basic microplate filling was ranked the main purpose (irrespective of the application area) of BR dispensing.
- Primary screening (HTS) was rated the application area where BRD's are most used.
- The most used BR dispensing volume range for all application areas was 5 $\mu$ L–50 $\mu$ L.
- The majority of respondents were satisfied that existing BRD systems meet most of their current needs.
- Tip clogging, particularly on small orifice devices was ranked the most problematic aspect of BR dispensing today.
- The median reliability of respondents BRDs was rated as >90% fully operational.
- The majority of BR dispensing today involves aqueous solutions, followed by media with cells.
- The majority see the need for multiple reagent inputs & automated switching on a BRD system, with a median of 3 reagents to be switched automatically.
- The median acceptable dead volume associated with a BRD was <1 mL.
- Wide dynamic dispensing volume range was considered the technical feature most essential in a BRD purchasing decision.
- Past experience or existing business relationship with vendor was ranked as the factor in the supplier–customer relationship that most impacted a BRD purchasing decision.
- Good reliability and robustness was ranked most important from a list of desirable characteristics or attributes in their decision to purchase a new BRD instrument, and Thermo Fisher Scientific was chosen as the BRD instrument vendor respondents most associated with the majority of these desirable characteristics or attributes.
- The median purchasing frequency for a new BRD was every 4–5 years.
- Only 25% of all new BRD purchases were to directly replace an old/existing BRD.
- Price and running (consumable) costs appear to be having a greater impact on BRD purchasing decisions today (2010) than prior to the economic downturn (2008).
- Future interest in purchasing BRDs was highest overall for the Thermo Scientific's Multidrop Combi, followed equally by Beckman Coulter's BioRAPTR FRD and Thermo Scientific's Multidrop Combi nL; and then BioTek's MicroFill Microplate Dispenser.
- Overall the majority of future (up to 2013) purchasing preferences were for BRD's from Thermo Fisher Scientific, the next most popular vendor was BioTek, followed by Beckman Coulter and then PerkinElmer.
- The median CAPEX budget in 2010 for BRD purchases was \$15K–\$20K.
- The median probability of purchasing a new BRD over the coming years (2011–2013) was moderate (25–75% probability).
- As a proportion of respondent's total liquid handling CAPEX budget today (2010) BRD purchases represented 25%.
- The main expected changes in the breakdown of respondent's total liquid handling CAPEX budget for the future (2013) were budget increases for BRDs, automated liquid handling workstations and acoustic dispensers; and budget decreases for stand–alone multi–channel dispensers, serial dilution devices, plate washers and handheld pipettors.
- A bottom–up model was developed around respondent's budget and purchasing plans, identified in this survey, to estimate the global Pharma, Biotech and Research market for BRD instruments. The total market was estimated to be around \$30Million in 2010, equivalent to sales of at least 1,100 units per year. This market was segmented between Large Pharma: Small Medium Pharma & All Biotech; and University/Research Institute/Government Labs & Not–For–Profit. CAGR estimates were made for the market segments.
- The full report provides the data, details of the breakdown of the responses for each question, its segmentation and the estimates for the future (2013). It also highlights some interesting differences, particularly between Large Pharma versus the other survey groups.

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## General Information on HTStec and HTStec's Trends Market Reports

- HTStec Limited an independent market research consultancy founded in September 2003 whose focus is on assisting clients delivering novel enabling platform technologies (liquid handling, laboratory automation, detection instrumentation and assay reagent technologies) to drug discovery. Over the past 7 years HTStec has published more than 50 market reports on drug discovery technologies and authored over 30 review articles in Drug Discovery World.
- HTStec's Trends reports owe their origins to the need by developers and vendors of new enabling technologies in drug discovery to get up-to-date relevant market metrics on which to base informed business decisions.
- Typically focused on a specific market niche or segment, in many cases overlooked or frequently misunderstood by broader market studies.
- Investigations are mainly initiated in response to a sponsor's specific requests.
- HTStec's extensive experience of the market, both as a Pharma End-User and working for a major Life Science Tool Provider ensures the industry relevance of the market research collected.
- Based entirely on web-based feedback from potential customers drawn mainly from Pharma and Biotechs, although increasingly University and Research Institute labs are also being researched.
- Produced extremely rapidly and typically published within 3 weeks of starting the collection phase.
- Reports are short, concise and focused on giving readers the basic data, analyzed in several different ways.
- Limited to reporting the main findings alone, without exhaustive discussion on the relevance of the results.
- Market estimates are mainly based on bottom-up calculations and usually avoid attempts to forecast widely beyond the next 2-3 years. Full details on the derivation of market estimates are given so readers can apply their own factors and easily make alternative estimates if they prefer.
- Owing to the sensitivity of some of the data collected, all reference to the origin of participating companies is removed, data is pooled to get an industry average and the anonymity of all respondents fully preserved and guaranteed.
- Critically HTStec's Trends reports have generated much interest and acclaim amongst survey respondents, to whom they are made available free of charge (subject to acceptance of HTStec's copyright terms) so they can benchmark their internal processes.
- Unlike alternatives HTStec's Market Surveys and Report are aimed at giving readers, information they want and can rely on, not information they don't need, cannot easily discern or is of dubious authenticity.
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