

Increasing Capacity through Automation

Hamilton VANTAGE



Increased Demand

The demand for DNA testing is increasing due to new legislation, importance to criminal investigations, and the impact that DNA evidence is having to resolve criminal cases. Bode has worked hard to develop testing programs to meet our clients' needs including:

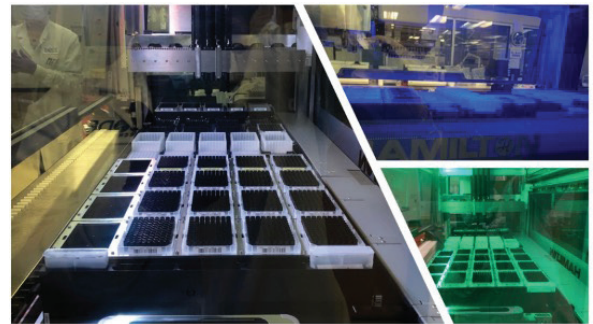
- High-throughput sexual assault testing/ backlog reduction
- Property crime back-log reduction
- DNA Databasing solutions
- Real-time, fast turnaround sexual assault kit testing

Growing Capacity through Automation

Automation is a key element in increasing capacity while maintain quality, as it decreases the number of manual transfers, thereby decreasing the possibility for human error.

Multiple extraction methods have been validated for use at Bode to allow the most appropriate method for the case type and sample quality. Along with optimized sampling techniques, Bode has also optimized magnetic bead extraction technologies for improved recovery of touch DNA. For most extractions, Bode has combined the power of QIAGEN's extraction chemistry with Hamilton's newest and most advanced high-throughput robotic platform. The majority of extractions are currently performed robotically using:

- QIAGEN DNA Investigator kit on the QIAGEN EZ1 BioRobots; or
- QIAGEN Lyse & Prep kit on the Hamilton Vantage



Images of the Hamilton VANTAGE deck

Bode has two (2) Hamilton Vantage robots and five (5) EZ1xl robots available for extraction which allow for an extraction capacity of over 1,500 samples per day.

Automated Differential Extractions: Use of DNase

In an effort to improve the quality and efficiency of sexual assault kit testing, Bode validated and implemented an automated enzyme based differential extraction using DNase. This procedure allows for cleaner differential extractions and more single source sperm fractions and greatly reduces the time required to test and technically review a sexual assault kit. This method allowed Bode to triple its monthly sexual assault kit capacity while at the same time saving approximately one hour per case in technical review time which benefits both Bode and our clients. Bode has tested over 60,000 sexual assault kits using this automated method.

THIS METHOD
ALLOWED BODE TO
**TRIPLE ITS MONTHLY
SEXUAL ASSAULT KIT
CAPACITY**

For obtaining DNA profiles from difficult samples, Bode utilizes several measures that may be determined by the analyst and based on sample quality. These methods include concentrating the extract to maximize the total input DNA and/or attempting other validated procedures for problematic samples.

Automation throughout the Lab

Bode continues to seek ways to improve laboratory efficiency through automation. As the demand for DNA increases, Bode's team regularly supports our clients by developing new technologies internally and externally through new workflows, as well as validation and consulting services.

Process	Equipment/Technologies
Extraction	Hamilton VANTAGE
Quantification Set-up	Hamilton STARlet
DNA Normalization and Amplification Set-up	Hamilton STARlet
Capillary Electrophoresis Set-up	Tecan EVO2
Confirmation/ Rush Testing	RapidHIT ID

Validation Services

Bode Technology offers independent consulting and validation services to support capacity enhancement in laboratories worldwide. Bode has provided more than 100 unbiased validations and reviews of equipment, chemistries, and processes for our clients.

Validating New Technologies: Rapid DNA and Probabilistic Genotyping

Bode provides implementation and validation of new technologies including rapid DNA, modified rapid DNA analysis and probabilistic genotyping software.

Automation and Workflow Improvement

Bode's laboratory is designed to handle high-volume databasing, property crime casework, and sexual assault casework samples. Let us help implement the following solutions into your laboratory:

- Evaluation and implementation of improved sexual assault kit testing workflows
- Introducing automation into your processes
- Batch and rush processing

Bode's Validation Service Includes:

- Validation design
- Script development
- Validation lab work
- Data analysis
- Validation binder
- Training

