Inoculation

Inoculation efficiency is the first step in the bacteriology testing process and is the first opportunity for automation.

**LOAD UP TO 270 SAMPLES ENABLING TIME OPTIMIZATION**

**LOAD UP TO 600 PLATES**

**PROCESSES MULTIPLE MEDIA TYPES**

**UP TO 220 INOCULATIONS PER HOUR**

**UP TO 2HR TRUE WALK-AWAY TIME**

**AUTOMATED PROCESSING OF ALL SAMPLE TYPES**

**55+ SAMPLE CONTAINERS with continuous validation**

**400 cm MAGNETIC BEAD PATH**

**3 TO 5x MORE SINGLE COLONIES**

**BIOSAFETY CABINET**

**ACCURACY IN SAMPLE INOCULATION**

CFU/ml $10^4$, $10^5$, $10^6$, $10^7$, $10^8$
Diagnostic labs today face a variety of challenges in streamlining specimen processing. Turnaround time pressures, coupled with a historically labor-intensive process, have many hospitals and healthcare systems reassessing current processes for the betterment of laboratory efficiency, quality and patient outcomes. Rules and regulations for laboratory and patient safety are increasingly emphasized. BD understands that bacteriology is a complex and challenging environment where quality and throughput are essential for downstream applications affecting patient care.

**THE SOLUTION**

**BD Kiestra™ InoqulA+™ sample processor**

*Advancing the standard of inoculation and culture spreading for all sample types.*

Advancing the standard for specimen processing, BD Kiestra™ InoqulA+™ sample processor automates the processing of both liquid and non-liquid bacteriology samples. This helps streamline workflow, enable standardized processes and ensure consistent and high quality sample streaking with the magnetic rolling bead technology, thereby reducing the need for subculture and shortening time to identification and automated susceptibility testing.

**PROCESS ALL SAMPLE TYPES**

Process both liquid and non-liquid samples on a single specimen processing platform. The BD Kiestra InoqulA+ sample processor automates plate selection, barcoding, streaking and plate sorting for all sample types through semi-automated sample processing. The multiple operation modes allow for continuous processing of all sample types, thereby standardizing lab processes and increasing efficiency.

**BIOSAFETY**

Together, with the Baker Company, BD developed an optional Biosafety Cabinet for the BD Kiestra InoqulA+ processor, which provides safety for the user and the environment. As emphasis increases on biosafety and automation, the BD Kiestra InoqulA+ processor with Biosafety Cabinet, in combination with the closed lid streaking of the magnetic bead, is well positioned to meet this challenge.

**MAGNETIC BEAD QUALITY**

The patented magnetic rolling bead technology generates three to five times more single colonies as compared to manual methods, reducing the subculture need, shortens time to result and improves pathogenic recovery from a variety of samples. Experience the benefits of this innovative approach to sample processing.

**SYSTEM FLEXIBILITY**

Agar plates, broth tubes and microscope slides can be processed in the Full Automation (FA) module, according to user-defined protocols, for complete workflow flexibility. Customize a large capacity agar plate storage to accommodate your workflow. BD Kiestra InoqulA+ flexible sample processing means choosing your optimized operation mode: batch processing to maximize actual walk-away time or continuous processing and loading of all sample types.

**MODULAR AND SCALABLE**

The BD Kiestra InoqulA+ is a modular and scalable solution that can be upgraded, configured and expanded into Work Cell or Total Lab Automation configurations. The unique modular design of the BD Kiestra InoqulA+ processor allows for a standardized workflow of all sample types, thereby standardizing lab processes and increasing efficiency.
Incubation & Digital Imaging

With this second generation incubation and imaging solution, BD Kiestra™ ReadA™ Compact is leveraging our technology in a compact design with high throughput capabilities. High-speed imaging will allow labs to perform growth monitoring and help to manage incubation times.

**BACKGROUNDs**

Improved Contrast = Better Colony Differentiation and Detection

**PARALLEL PROCESSING**

Input → Imaging → Output

Optimizes workflow and increases throughput and incubator utilization

**3 LED LIGHT SOURCES**

3 light sources for colony morphology and recognition

**FULL TRACKING AND TRACEABILITY OVER TIME**

BD Kiestra™ Software enables complete patient overview – multiple samples, plates and timepoints

*Images: 001, 002, 003, 004*
THE CHALLENGE

For many clinical microbiology laboratories, gaining efficiency is one of the key objectives when investing in automation. The initial process in identifying pathogenic bacteria starts with specimen inoculation and plate incubation. Often, this process occurs in batches as plates are held at room temperature after inoculation and again when plates are taken out for review. It can be a timely process requiring technologist interaction at many stages as well as impacting time to results. In addition, the quality of these cultures can be impacted as incubators are continuously opened and plates are taken out of the optimal atmosphere, which can influence bacterial growth and viability.

THE SOLUTION

The BD Kiestra™ ReadA™ Compact incorporates intelligent incubation and imaging integrated by a track with our front-end specimen processing solution, BD Kiestra™ InoquA+, enabling full laboratory automation. This combination ensures that inoculated plates will automatically be transferred to the appropriate incubator in real time. For each specimen type, standard incubation times and conditions per plate are easily defined, allowing bacteria to start growing without delay, reducing over- and under-incubation, which can interfere with colony isolation, quality and time to results. Each plate will follow a specified interval for imaging within the incubator and will be made available for digital plate reading based on the defined protocol. Plates remain in the BD Kiestra ReadA Compact, including for the imaging process, until they are requested by a user for further work-up or discard. This allows plates to remain in the optimal environment, improving quality of growth.1

BD Kiestra ReadA Compact incubation and imaging technologies further streamline processing and enable experienced laboratory staff to focus on higher diagnostic value activities. Technologists will review high-resolution BD Kiestra™ Optis™ images at the bench or alternative locations. As plates are reviewed, suspected pathogens are selected digitally for additional work-up using a series of codes to indicate follow-up testing.

BD Kiestra™ Optis™ IMAGE ACQUISITION

- Image throughput of up to 300 plates per hour
- Calibrated and normalized image acquisition
- High-speed camera, enabling multiple-image capture during acquisition to optimize the signal to noise ratio and contrast
- Three LED light sources (top, bottom and side)
- Two backgrounds (black and white) to optimize contrast
- Configurable protocols for plate imaging based on unique specimen, patient or clinician requirements
- Ready for dynamic growth monitoring due to high throughput of the instrument

DIGITAL READING

- Consistent image quality and standardized incubation protocols
- Complete patient overview, including multiple samples of one patient
- Management of additional testing needs; efficient release of negative cultures
- Enables appropriate skill mix for both reading and follow-up work; educational platform
- Experience in digital reading since 2006
Our solutions are designed to impact patient care, lab productivity and your organization’s bottom line through improved quality, accuracy and turnaround times.

**SECOND GENERATION INCUBATION & IMAGING SYSTEM READY FOR THE FUTURE**

- **ACCURATE INCUBATION TIMES**
- **DYNAMIC IMAGING**
- **RAPID & PARALLEL PLATE PROCESSING**

**150-1,500+ SAMPLES / 24hr**

**3-10 INTEGRATED WORK BENCHES**

**STORE UP TO 12-48 MEDIA TYPES**

**600-4,850 PLATES**

**3 TO 5X MORE SINGLE COLONIES COMPARED TO MANUAL STREAKING METHODS**

- LESS SUBCULTURING
- REDUCED COSTS
- IMPROVING PATIENT CARE
- FASTER TURNAROUND TIME

**GLOBAL CUSTOMER BASE**

**TOTAL LAB AUTOMATION OUTCOMES**

- INCREASE # DISCRETE SINGLE COLONIES
- REDUCE # SUBCULTURES/ADDITIONAL TESTS
- REDUCE TIME TO PROCESS SPECIMEN
- IMPROVE STAFF PRODUCTIVITY & CAPACITY
- REDUCE TURNAROUND TIME
- PROVIDE FASTER PATIENT RESULTS

**MODULAR, SCALABLE AND FORWARD-COMPATIBLE AUTOMATION**

**Rolling Bead Technology**

Three to five times more single colonies vs. manual streaking methods, resulting in significantly reduced lab cost by reducing the need to make bacterial subculture for ID and AST procedures. 2,4
THE CHALLENGE

Globally speaking, healthcare facilities face unprecedented challenges today. From economic pressures and experienced labor shortages to an increase in the complexity of diseases, hospitals and laboratories are searching for ways to do more with less while improving diagnostic tools in order to impact patient care and outcomes.

In the clinical laboratory, consolidation of testing is, in many cases, the consequence of healthcare policies and cost constraints. As specimen volumes and service needs steadily increase, many laboratories do not have the ability to expand labor resources to address this need.

THE SOLUTION

BD Kiestra™ solutions provide your lab with modular, scalable and forward-compatible automation solutions optimized to accommodate many laboratory requirements and needs.

BD Kiestra™ InoqulA+™

Advance the standard of inoculation for all sample types.

The BD Kiestra™ InoqulA+™ sample processor automates the processing of both liquid and non-liquid bacteriology specimens on one integrated platform to increase the efficiency of your clinical staff. The BD Kiestra InoqulA+ system’s innovative streaking method offers more consistent colony isolation and less subculturing over manual methods, allowing for faster and more accurate results.³

BD Kiestra™ WCA

Optimize your microbiology workflow in a compact solution.

The BD Kiestra™ Work Cell Automation system is a modular solution designed for laboratories of all sizes. This enables the integration of automated specimen processing, plate transportation, incubation and digital imaging systems in a compact footprint. This scalable solution helps to increase productivity and allows your staff to focus more on making clinical decisions and impacting patient care.

BD Kiestra™ TLA

Customize your laboratory solution to support fast clinical decisions.

The BD Kiestra™ Total Lab Automation system offers complete microbiology laboratory automation. We are delivering the future of microbiology automation today, with a solution designed to maximize staff efficiency and deliver fast diagnostic information to support critical clinical decision-making.

Economic & Clinical Value

2 CONFIGURATIONS

BD Kiestra™ InoqulA+™

3 CONFIGURATIONS

BD Kiestra™ WCA

∞ CONFIGURATIONS

BD Kiestra™ TLA
Support Services

Improving laboratory accuracy and efficiency begins with sound planning and guidance. Our UmbrellA approach guides you through the many stages of system integration – from system specification, to laboratory analysis, transition management and mock laboratories. One company, diverse teams in a multifaceted approach.

Initiation Phase – Workflow Studies
It is vital to select the right system configuration for your laboratory’s needs. Our team of lab automation workflow specialists will analyze your daily workload, processes and sample types as well as expected growth in volume and changes in staffing to ensure that the right lab automation solution is proposed.

Project Management
Our project team is involved early in the process to ensure understanding of your goals and a smooth implementation of your BD Kiestra™ solution. We provide guidance on floor plans and renovations, evaluate workflow, identify technical and IT specifications, and run simulations to create a complete project plan. Our project team observes end-to-end processes, consults with you on workflow optimization and gathers baseline metrics to allow for performance comparisons once your laboratory automation is fully implemented.

Change Management
The implementation of laboratory automation is not only about implementing technology, but also about changing processes and behavior. Our change management module will focus on the emotional aspects of the change for your staff. In this module, staff will be guided through all elements of the implementation process using training programs and workshops that show the positive impact of lab automation.

Implementation/Training
Mock Labs Installing bench top systems in your lab to perform mock labs prior to system implementation allows your laboratory staff to become acclimated with the new technology. This can result in shorter training time, greater acceptance of the system and faster go-live time.

Training Training will be made available after implementation of your BD Kiestra Solution. These programs can be customized to accommodate the unique requirements of Key User Groups (KUGs) and IT staff and address other applications as needed.

Service & Support
Our service specialists are available 24/7. Your system’s performance will be proactively monitored through MIS and LEAN reports, which are used to guide continuous improvement activities with our Solutions team. This team will engage with your lab for future analysis, suggesting workflow updates to further improve system performance and realize outcomes based on metrics.

The UmbrellA approach focuses on supporting laboratory efficiency and advancing quality and standardization to improve patient management and care compared to traditional microbiology.