

Laboratory automation systems and workcells product guide, 2/13:68

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Automation solutions a salve for labs of all sizes

Brendan Dabkowski

Steve Jobs' words resonate in all markets: You can't just ask customers what they want and try to give it to them; by the time you build it, they'll want something else.

That logic is one reason why makers of laboratory automation systems and workcells, the focus of CAP TODAY's product guide, strive to offer solutions that meet customers' needs today while being lithe enough to tackle the challenges of tomorrow.

"There's a clear shift among medium- to very-high-volume laboratories to adopt adaptable automation systems," says Siemens Healthcare Diagnostics' Dave Hickey, who adds that tightened budgets, fewer personnel, and fluctuating testing volumes are pushing labs to invest in solutions that can expand over time. Sarstedt's Peter Rumswinkel concurs. "Laboratories increasingly demand automation that is customized for their current needs and budgets but easily updated for future requirements," he says. Labotix Automation's Peter J. Manes adds that customers want to be able to start with "as little or as much automation" as is necessary or affordable and then be able to "grow their system as they need to, change analyzers when they want to, or even have the ability to change the physical shape of the system." In other words, he says, they're looking for solutions that "evolve as their lab evolves."

In addition to being flexible, lab automation solutions must be able to perform a range of basic tasks, says Aim Lab Automation Technologies business manager Ralph Donaldson. These tasks can include performing aliquots and identifying, capping, decapping, and sorting sample tubes. Aim Lab's PathFinder 900 Plus automation system for midsize to large labs, which the company released in July, performs these functions and more. Developed in response to demand for faster throughput and increased configurability, the 900 Plus doubles the decapping and recapping throughput of the original PathFinder 900 system. Also released last year, says Donaldson, was the PathFinder 350A Archiver automated benchtop system, which sorts, caps, and archives up to 350 sample tubes per hour. Later this year, Aim Lab plans to launch its PathFinder 450S benchtop sorter. The sorter, an updated version of the PathFinder 350S, provides increased sample throughput (25 percent more than the 350S), has greater tube capacity, and provides enhanced capability for handling sample racks with closely spaced tubes.

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Beckman Coulter, too, has updated some of its automation solutions. In the past year, the company added to its Power Processor system a "dynamic inlet" and refrigerated storage units that hold 3,000 and 5,000 samples, respectively, says marketing manager Ted Sheridan. The dynamic inlet allows lab professionals to load samples into color-coded routine, stat, centrifuge-bypass, and map-to-storage 50-position inlet trays. Customers can add up to three refrigerated storage units to a Power Processor line, Sheridan says. High-speed robotic components allow sample tubes to be added or removed from a refrigerated storage unit at a rate of 600 per hour, automating storage and retrieval of the tubes.

Beckman Coulter's AutoMate 2500 standalone high-speed sorters can now aliquot serum from sample tubes and pipette the samples into microtiter plates smaller than 96 wells, Sheridan says. The sorter sends to Beckman's Sorting-Drive software information about the position of the aliquot in the microtiter plate along with the sample

identification. The software stores the information in an internal database and sends it to the laboratory information system or middleware for traceability and further processing. The AutoMate 2500 and AutoMate 1200 (also in the product guide) work with all Beckman and many non-Beckman analyzers, can have their inlet and outlet trays configured in hundreds of ways to “maximize the tube flow for a particular laboratory,” and include aliquot and resealer options, Sheridan points out.

Pursuant to the demand for flexibility, Siemens introduced its Aptio Automation solution last July. Aptio’s “point-in-space” aspiration feature enables multiple connected Siemens analyzers to “sip” from the same sample tube as it moves along the automation track, without needing to move the tube from the track to the analyzer, says Hickey, CEO of the company’s chemistry, immunoassay, automation, and diagnostics IT business unit. This allows the automation system to quickly move samples from one analyzer to the next, he says, thereby improving test result turnaround time. Aptio has a “puck-based” sample transportation system, in which one cartridge (puck) holds one sample tube. The system routes each sample tube to the appropriate analyzer to be tested immediately, rather than having multiple sample tubes sit untested in a tray while other samples in the same tray are tested. Then Siemens’ CentraLink data-management system aggregates and displays the clinical and workflow data funneling in from the various analyzers connected to Aptio.

Labotix, like its competitors, had flexibility in mind when adding functionality to one of its existing solutions. The company, in July, expanded its Specimen Processing System (SPS) to act as an automated centrifuge, high-speed sorter, and high-speed track loader called the autoloader, says Manes, the company’s vice president of sales. The SPS interfaces with the Labotix track system but can also act as a standalone unit. The company will soon introduce its LabConnect software, which works in conjunction with its SPS units and will allow users to track specimens from the point of draw rather than receipt in the laboratory.

Roche Diagnostics’ Jeremy Kiger predicts that customers will demand “an automation partner with a flexible portfolio” that provides solutions for labs of all sizes. New to Roche’s expanding portfolio is the Cobas p 312 preanalytical system, an open automation solution the company released in June. The Cobas p 312 is a three- by three-foot unit that automatically registers samples and selectively decaps, sorts, and archives sample tubes for chemistry, immunoassay, hematology, coagulation, and urinalysis testing, says Kiger, the company’s lab automation marketing manager.

Yaskawa America’s life science technology leader, Craig Rubenstein, says some of his company’s customers are requesting technology to identify “noncompliant specimens.” Such automation system functionality is not yet available, he says, but it would make laboratory operations significantly more efficient. Yaskawa will, later this year, launch its AutoSorter IV (ASIV) automated system, which is based on the company’s AutoSorter II. The ASIV sorts 1,200 sample tubes per hour and has a sort deck with space for 1,400 tubes.

Released by Sysmex America last October were the XN-3000 and XN-9000 automated hematology systems. The XN-3000 trackless system consists of two integrated analytical modules and the SP-10 slidemaker/stainer, the latter of which enables “greater productivity and standardized blood film preparation,” says Nilam Patel, MT(ASCP)SH, senior product manager, automation solutions. The XN-9000 can be tailored to meet individual lab requirements; up to nine modules can be combined into one integrated system, she says. The XN-9000 can also be configured to include automated tube sorting and archiving and a fully integrated hemoglobin A1c testing module.

New from Abbott Diagnostics is the Accelerator p540 preanalytic system. Launched in November, the standalone system automates sample decapping; aliquotting and tube labeling; sample tube sorting; and the storage, aliquotting, and sending of quality control samples, says David Overcash, senior product manager, automation, diagnostics.

Finally, Sarstedt last year updated the aliquot module of its modular laboratory automation systems, says Rumswinkel, the company’s vice president and general manager. Users can now print two-dimensional bar codes on secondary, or daughter, tubes produced by the automation module.

CAP TODAY’s guide to laboratory automation systems and workcells includes products from the aforementioned

companies and from m-u-t America and Ortho-Clinical Diagnostics. Companies supplied the information listed. Readers interested in a particular product should confirm that it has the stated capabilities and features.

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