Fully automated: Thousands of blood samples every hour

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worldwide, is aiming to set new standards for the industry. Once completed in 2015, the automation solution will be able to process several thousand blood samples every hour.

Automation specialists from the Chemistry, Immunoassay, Automation and Diagnostics IT Business Unit of the Diagnostics Division of Siemens Healthcare are designing and installing this solution in conjunction with automation provider Inpeco. The new track combines many areas of blood sample testing as part of a comprehensive system, from sample feed through to storage.

This automation solution increases sample throughput, reducing the need for manual work and thus reducing the risk of errors. It also reduces the processing time for each sample, resulting in a substantial productivity gain for the laboratory.

The challenge in designing such a comprehensive automation system lies in bringing together the many different work processes and areas of testing that are performed in a laboratory. This one-of-a-kind, fully customized Siemens automation solution integrates and optimizes the many critical tasks of a clinical laboratory into a single line.

Refrigeration unit for up to 500,000 samples

The system fully automates the processing of unsorted test tubes, regardless of content - blood, urine, serum -using bar code labels. Robot arms place the sample containers on multi-lane conveyor belts that transport them to the appropriate diagnostic stations. Also, should a customer need it, Siemens automation solution can prioritize urgent samples for emergency cases and automatically convey them on a sort of "passing lane," moving them quickly to the front of the line. At the analysis stations, pipettes draw the volume of sample required in each case, which means there is no longer any need to split a sample between

several test tubes, which has previously been standard. The measurement data for each sample and its current position in the line can be called up at any time and it is possible to see when all the results will be available. Storage is also fully automated, to ensure that the right sample is always available when required.

The Lab of the Future is precisely tailored to the demands of Quest Diagnostics. For example, it must be able to incorporate additional instruments from other manufacturers into the line at any time. A further new aspect was the size of the refrigeration unit, which accommodates up to 500,000 samples. Siemens and Inpeco will be the preferred providers should Quest Diagnostics want to implement a comparable automation solution in its other clinical laboratories

Provided by Siemens