Laboratory automation systems and workcells

Part 1 of 12	**Abbott Diagnostics** **Amelia Presley** amelia.presley@abbott.com **100 Abbott Park Rd., Abbott Park, IL 60622** **847-935-0039 www.abbottdiagnostics.com**	**Aim Lab (formerly Ai Scientific)** **Ralph Donaldson** aimlab@aimlab.com **10-22 Hornibrook Esplanade, Clontarf, QL, Australia 4035** **+61 7 3105 5005 www.aimlab.com**
See accompanying article on page 18		
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	**Accelerator APS/2005/—** **15+/60+ (includes Europe, Middle East, Africa, and India)/4**	**PathFinder 350S/2008/7** **0/2/4**
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 **yes/yes** **yes/yes/yes/yes** **yes/no/no/yes** **yes/yes** **yes/yes/open** **yes/yes**	 **yes/no** **yes/yes/no/yes** **yes/yes/yes/yes** **no/yes** **no/no/open** **yes/yes**
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature/automation SW feature** **automation SW feature** **automation SW feature/automation SW feature/automation SW feature** **automation SW feature** **automation SW feature** **automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature**	 **—/automation SW feature** **—/automation SW feature** **—/—/automation SW feature** **LIS feature** **automation SW feature/automation SW feature/—** **automation SW feature** **automation SW feature** **—** **automation SW feature/automation SW feature** **—** **automation SW feature/automation SW feature** **automation SW feature/—** **LIS feature/automation SW feature**
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	**Cerner Classic, Cerner Millenium, Cortex, Delphic, Dianoema, GE Ultra, GLMIS by MIPS, Lab Track, Medisolution by Technidata, Meditech 5.4, Misys, Misys CPR (Cloverleaf Engine), Misys Smart, ModulabGold (Izasa), OSM, Roche Omega, SCS, Siemens, Soft/HL7, ASTM**	**Instrument Manager, Ultra, Apollo, Kestral, others/ASTM, CLSI-LIS2A**
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	**yes** **APS track section/40.2 × variable × 17.0 in./yes** **16, 13 × 100; 16, 13 × 75, others, multiple types simultaneously/13** **yes** **yes/floor mounted/yes** **compressed air, electricity, water/—** **single specimen container per carrier/yes**	**no** **—** **—** **—** **—** **—** **—**
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	**yes** **Hettich/58.5 × 32 × 42 in./yes** **up to 320/16, 13×100; 16, 13×75, others, multiple types simultaneously** **no** **yes** **no** **weekly, monthly** **yes** **input-output module/54.3 × 77.6 × 39.6 in./yes/up to 600** **16, 13 × 100; 16, 13 × 75, others, multiple types simultaneously/yes** **744/weekly, monthly** **yes** **decapper module/46.7 × 34.7 × 17 in./yes/up to 600** **16, 13 × 100; 16, 13 × 75, others, multiple types simultaneously/daily, weekly** **yes/yes** **yes** **input output module/54.3 × 77.6 × 39.6 in./yes/up to 600** **16, 13 × 100; 16, 13 × 75, others, mult. types simult./specimen, method, ouput** **no** **—** **—** **no** **—** **—** **—** **—**	**no** **—** **—** **—** **—** **—** **—** **yes** **PathFinder 350S/98 × 40 × 52 cm (39 × 16 × 21 in.)/yes/350 tubes per hour** **16, 13 × 100; 16, 13 × 75/yes** **flexible/annually** **no** **—** **—** **—** **yes** **PathFinder 350S/98 × 40 × 52 cm (39 × 16 × 21 in.)/yes/350 tubes per hour** **16, 13 × 100; 16, 13 × 75/specimen, method, output** **no** **—** **—** **no** **—** **—** **—** **—**
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 **yes** **yes** **no/point-of-reference sampling/no** **point-of-reference sampling/no**	 **no** **no** **—** **—**
Instruments to which your system/product is interfaced **Other robotic products/components to which system, product is linked**	**Architect c8000, c16000, i2000SR, Ortho Fusion 5.1, Diasorin Liaison (ex-US only)** **—**	**—** **—**
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	**sealer** **resealer module/49.2 × 44.9 × 17 in./yes/up to 600** **yes/16, 13 × 100; 16, 13 × 75, others** **monthly**	**no** **—** **—** **—**
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments** **Avg. time to install/Who provides service, support/Hours support is available** **On-site biomedical engineer required/User group meets regularly**	**yes** **tube storage module/95 × 89.2 × 70 in./yes/up to 600** **16, 13 × 100; 16, 13 × 75, others, multiple types simultaneously/yes** **no/0 and 15,360** **yes/daily, monthly** **yes** **modular open architecture** **depends on configuration/Abbott Diagnostics/business & extended hours** **yes/yes**	**yes** **PathFinder 350S/52 × 98 × 40 cm/yes/350+** **16, 13 × 100; 16, 13 × 75/yes** **yes/250** **yes/weekly, six months** **no** **ability to network multiple instruments** **1 day/distributor/—** **no/no**
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	**varies by configuration** **—** **—** **—** **—**	**$A62,000** **included/—/—** **included/—/included/—** **—** **—**
Distinguishing features (supplied by company) ** For basic bulding block unit* *** Average throughput in specimen containers per hour per device* *Note: a dash in lieu of an answer means company did not answer question or question is not applicable*	**flexibility: configurable, component-based design; functionality: refrigerated online storage & multiple tube types simultaneously, RFID, point-in-space sampling; support: Lean Six Sigma Black Belt consultants; configurable laboratory automation and middleware solutions**	**benchtop sorting at an affordable price; ability to change deck layout in one minute; flexible input and output positions**

Tabulation does not represent an endorsement by the College of American Pathologists.

Survey editor: Raymond D. Aller, MD

Laboratory automation systems and workcells

Part 2 of 12	Aim Lab (formerly Ai Scientific) Ralph Donaldson sales@aimlab.com 10-22 Hornibrook Esplanade, Clontarf, QL, Australia 4035 +61 7 3105 5005 www.aimlab.com	Beckman Coulter Jeff Quint jfquint@beckman.com 200 S. Kraemer Blvd., Brea, CA 92822 714-961-4118 www.beckmancoulter.com
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	PathFinder 900/2008/5 0/4/6	AutoMate 800/2006/21 11/91/10
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 yes/no yes/yes/no/yes yes/yes/yes/yes no/yes no/no/open yes/yes	 yes/no yes/no/yes/yes yes/yes/yes/no yes/yes yes/no/open yes/—
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 —/LIS feature automation SW feature/automation SW feature automation SW feature/—/automation SW feature LIS feature automation SW feature/automation SW feature/automation SW feature automation SW feature automation SW feature — automation SW feature/automation SW feature LIS feature/LIS feature LIS feature/LIS feature automation SW feature/— LIS feature/automation SW feature	 LIS feature/automation SW feature LIS feature/— automation SW feature/LIS feature/automation SW feature LIS feature automation SW feat./automation SW feat./automation SW feat. automation SW feature automation SW feature automation SW feature automation SW feature/automation SW feature automation SW feature/— automation SW feature/— automation SW feature/— automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	Instrument Manager, Ultra, Kestral, Apollo, others//ASTM, CLSI-LIS2A	SCC, Siemens, Philips/ASTM, Power Processor
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — —	no — — — — —
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	no — — — — — — yes PathFinder 900 module/1.7 × 2.5 × 1.4 m/yes/350 tubes per hour 16, 13 × 100; 16, 13 × 75/yes up to 250/quarterly yes PathFinder 900 module/1.7 × 2.5 × 1.4 m/yes/>500 tubes per hour 16, 13 × 100; 16, 13 × 75/weekly, monthly, annually yes/yes yes PathFinder 900 module/1.7 × 2.5 × 1.4 m/yes/350 tubes per hour 16, 13 × 100; 16, 13 × 75/specimen, method, output no — — yes PathFinder 900 module/1.7 × 2.5 × 1.4 m/yes/>500 tubes per hour 16, 13 × 100; 16, 13 × 75 yes/yes yes/weekly, monthly, annually	yes AutoMate 800/—/yes 300/16, 13 × 100; 16, 13 × 75, Sarstedt, Greiner, BD pediatric tubes no no no daily yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75, Sarstedt, Greiner, BD pediatric tubes/yes 600/daily, monthly yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75, Sarstedt, Greiner, BD pediatric/daily, monthly yes/yes yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75, Sarstedt, Greiner, BD pediatric/method, output no — — yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75, Sarstedt yes/yes yes/daily, monthly
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 no no no/no/no no/no	 no no — —
Instruments to which your system/product is interfaced **Other robotic products/components to which system, product is linked**	none —	— —
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	yes PathFinder 900 module/1.7 × 2.5 × 1.4 m/yes/>600 tubes per hour no/16, 13 × 100; 16, 13 × 75 daily, monthly, annually	no — — —
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments**	yes PathFinder 900/1.7 × 2.5 × 1.4 m/yes/900+ 16, 13 × 100; 16, 13 × 75/yes no/1,000 in standard format yes/weekly, monthly, annually no ability to network multiple PathFinders	yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75, Sarstedt, Greiner, BD pediatric tubes/no yes/1 and 400 yes/daily, monthly no —
Avg. time to install/Who provides service, support/Hours support is available **On-site biomedical engineer required/User group meets regularly**	3 weeks/GST and distributor/24–7 no/no	7 days/Beckman Coulter/24–7 no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	$A420,000 (fully optioned system) included/included/— included/included/included/— —/included —/included	— — — — —
Distinguishing features (supplied by company)	ability to change deck layout in five minutes; ability to recap primary tubes with original cap to preserve tube-type identity; dual track for parallel processing of samples leading to high overall throughput (that is, output tubes)	automatic rack layout can be reconfigured with another rack style; intelligent aliquotting; sample storage routing by duration and temperature

* For basic bulding block unit
** Average throughput in specimen containers per hour per device
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

Laboratory automation systems and workcells

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Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	AutoMate 2500 Family/2003/85 50/300/20	LH 1500 Hematology Automation Series/2002/6 97/15/20
Automation products that are available		
• Pre-analytical processor/Total laboratory automation	yes/no	yes/yes
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/no/no/yes	yes/yes/no/no
• Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/yes/yes/yes	yes/no/no/no
• Automated functions: Storage-retrieval/Intelligent sample routing	no/yes	yes/yes
• SW: Dedicated Process Control/Middleware control using LIS/Architecture	yes/yes/open	yes/yes/open
• Company has dedicated automation support team/Remote sys. monitoring	yes/yes	yes/yes
Software features/functionality		
• Patient demographics & insurance data/Rules-based architecture	LIS feature/automation SW feature	—
• Supports data retrieval/Internet connectivity	automation SW feature/—	automation SW feature/—
• Online real-time help system/QC/Stats & management reports	—/—/automation SW feature	automation SW feature/LIS feature/—
• Evaluates validity & releasability of results from automated analyzers	—	—
• Specimen tracking/Priority processing/Random-access spec. movement	automation SW feature/automation SW feature/automation SW feature	automation SW feature/automation SW feature/automation SW feature
• Supports accession No. redundancy (duplicate specimen ID)	automation SW feature	—
• Supports specimen carrier & level identification	automation SW feature	—
• Unique bar-code number per container required	—	automation SW feature
• Specimen routing/Multistop routing (one tube to multiple workstations)	automation SW feature/automation SW feature	automation SW feature/ automation SW feature
• Specimen scheduling/Instrument scheduling	automation SW feature/—	automation SW feature/ automation SW feature
• Routes test to workstation/Automatic reflex, repeat, dilutions	—/—	automation SW feature/ automation SW feature
• Supports multiple HW config./Supports other proprietary transport. HW	automation SW feature/—	automation SW feature/—
• Sample storage & retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature	automation SW feature/ automation SW feature
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	Cerner, Misys, Modulus, Data Innovations, SCC, Atlas, McKesson/HL7, ASTM	Cerner, Sunquest, SCC, Meditech, others/LH 1500
Transportation systems available	no	yes
• Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5	—	—/—/yes
• Containers device accommodates/Avg. throughput in cm per second	—	13 × 75/—
• Supports automatic rerouting for reflex-repeat-dilutions	—	yes
• Modular HW/Installed options/Device can operate in track & manual mode	—	yes/floor mounted/yes
• Required utilities/Required maintenance	—	compressed air, electricity/monthly
• Carrier type/Scalable system	—	single specimen container per carrier/yes
Automated centrifugation available	no	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—	—
• Maximum throughput/Containers device accommodates	—	—
• Can identify tube types for custom programmed rate & spin times per run	—	—
• More than one centrif. can be connected to track system	—	—
• For multi-unit centrif., each centrif. operates independently for rate & time	—	—
• Maintenance required	—	—
Automated input/accessioning available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200	—
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75; diameter: 10.5–17.0 mm; length: 70–100 mm/yes	13 × 75/yes
• Maximum No. of samples that can be loaded/Maintenance required	300, continuously/—	200/monthly
Automated decapping available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200	—
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75; diameter: 10.5–17.0 mm; length: 70–100 mm/—	—
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/yes	—
Automated sorting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200	—/—/yes/425
• Containers device accommodates/Software can sort by	16, 13×100; 16, 13×75; others/specimen, method, output	13 × 75/method
Specimen integrity monitor available	no	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	—
• Containers device accommodates/Maintenance required	—	—
Automated aliquotting available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoMate 1250, 2550/64 × 101 × 53 in/yes/600	—
• Containers device accommodates	16, 13 × 100; 16, 13 × 75, secondary tubes 13 × 75	—
• Inspects samples for bar code/Detects & reports clots in specimen	yes/yes	—
• Detects & reports quantity not sufficient specimens/Maintenance required	yes/daily	—
Instrument (analyzer) interfaces		
• Rules-based instrument interface control subsystem	no	no
• Process control of instrument via control subsystem	no	yes
Physical/hardware (instrument/specimen) interface		
• Hematology/Chemistry/Coagulation	no/no/no	robotic arm interface/—/—
• Immunoassay/Urinalysis	no/no	—
Instruments to which your system/product is interfaced	—	LH 750, 755 and LH 780, 785
Other robotic products/components to which system, product is linked	—	—
Automated recapper or sealer available	sealer	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	all AutoMate 2500 Family units/—/yes/1,200	—
• Recaps-seals multiple size tubes simultaneously/Containers device accomm.	yes/16, 13 × 100; 16, 13 × 75	—
• Maintenance required	daily	—
Automated storage & retrieval available	—	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	—	—/—/yes/340
• Containers device accommodates/Connects to the track	—	13 × 75/yes
• Room temperature/Min. & max. No. of tubes stored per module	—	yes/1,000
• Multiple size tubes can be stored in the same module/Maintenance required	—	no/weekly, monthly
• Refrigerated storage & retrieval capability	—	—
Longitudinal upgrade pathway or plan to protect users' investments	—	expandable, as the lab grows
Avg. time to install/Who provides service, support/Hours support is available	1 week/Beckman Coulter/24–7	7–21 days/Beckman Coulter/24–7
On-site biomedical engineer required/User group meets regularly	no/no	no/yes
List price	$290,000–$460,000	varies by configuration
Individual list prices for components		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company)	high speed, cost efficient way to automate pre- and postanalytical steps; improves patient safety and lab efficiency through use of the tube inspection unit to ensure the correct label is on the sample and that enough sample volume is available; allows direct sorting to most analyzers' racks	automatic hands-off rerun and reflex test from the stockyard to the analyzers; sorting of pending samples for secondary tests by test; automatically loads analyzers and is expandable

* For basic bulding block unit
** Average throughput in specimen containers per hour per device
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

Laboratory automation systems and workcells

Part 4 of 12	Beckman Coulter Jeff Quint jfquint@beckman.com 200 S Kraemer Blvd., Brea, CA 92822 714-961-4118 www.beckmancoulter.com	Integrated Laboratory Automation Solutions William Neeley, MD wneeleymd@lab-ilas.com 1237 Chicago Rd., Troy, MI 48083 866-825-3477 www.lab-ilas.com
Name of system/First year installed/No. of 2009 contracts signed No. of live sites installed in N. America/Europe/Asia-Australia	Power Processor/1998/38 372/112/99	The Efficiency Series/2003/1 3/—/—
Automation products that are available		
• Pre-analytical processor/Total laboratory automation	yes/yes	yes/yes
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/yes/yes/yes	yes/yes/yes/yes
• Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/yes/yes/yes	yes/yes/yes/yes
• Automated functions: Storage-retrieval/Intelligent sample routing	yes/yes	yes/yes
• SW: Dedicated Process Control/Middleware control using LIS/Architecture	yes/yes/open	yes/yes/open
• Company has dedicated automation support team/Remote sys. monitoring	yes/yes	yes/yes
Software features/functionality		
• Patient demographics & insurance data/Rules-based architecture	LIS feature/auto SW feature	LIS feature/automation SW & LIS feature
• Supports data retrieval/Internet connectivity	automation SW feature/ automation SW feature	automation SW feature/automation SW feature
• Online real-time help system/QC/Stats & management reports	automation SW feat./ automation SW feat./ automation SW feat.	automation SW feature/LIS feature/automation SW feature
• Evaluates validity & releasability of results from automated analyzers	automation SW feature	automation SW feature
• Specimen tracking/Priority processing/Random-access spec. movement	automation SW feat./ automation SW feat./ automation SW feat.	automation SW feature/automation SW feature/automation SW feature
• Supports accession No. redundancy (duplicate specimen ID)	—	automation SW feature
• Supports specimen carrier & level identification	automation SW feature	automation SW feature
• Unique bar-code number per container required	automation SW feature	automation SW & LIS feature
• Specimen routing/Multistop routing (one tube to multiple workstations)	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Specimen scheduling/Instrument scheduling	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Supports multiple HW config./Supports other proprietary transport. HW	automation SW feature/—	automation SW feature/automation SW feature
• Sample storage & retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature	automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	SCC, Siemens, Philips, Misys, Cerner, McKesson, GE, Meditech, PerSe, Molis, MIPS, Vista, Swiss Lab/Power Processor, Direct, HL7	Misys (Smart)/direct LIS
Transportation systems available	yes	yes
• Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5	Power Processor II/—/yes	The Efficiency Series/varies with instrument size/yes
• Containers device accommodates/Avg. throughput in cm per second	16, 13 × 100; 16, 13 × 75, Sarstedt/—	16, 13 × 100; 16, 13 × 75/2,300 tubes per hour w/single loading module
• Supports automatic rerouting for reflex-repeat-dilutions	yes	yes
• Modular HW/Installed options/Device can operate in track & manual mode	yes/floor & subfloor mounted/yes	yes/floor mounted, overhead mounted, subfloor mounted/yes
• Required utilities/Required maintenance	compressed air, electricity/monthly	compressed air, electricity/bimonthly
• Carrier type/Scalable system	single specimen container per carrier/yes	single specimen container per carrier/yes
Automated centrifugation available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5	Power Processor II/—/yes	Hettich Robotic/84 × 50 × 63 in./yes
• Maximum throughput/Containers device accommodates	300–450/16, 13 × 100; 16, 13 × 75, Sarstedt	280/16, 13 × 100; 16, 13 × 75
• Can identify tube types for custom programmed rate & spin times per run	no	yes
• More than one centrif. can be connected to track system	yes	yes
• For multi-unit centrif., each centrif. operates independently for rate & time	yes	yes
• Maintenance required	weekly	bimonthly
Automated input/accessioning available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Power Processor II/—/yes/900	The Efficiency Series/can be customized/yes/800 per hour
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75, Sarstedt/yes	16, 13 × 100; 16, 13 × 75/yes
• Maximum No. of samples that can be loaded/Maintenance required	200/monthly	2,300/bimonthly
Automated decapping available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Power Processor II/—/yes/600	The Efficiency Series/—/yes/750
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75, Sarstedt/monthly	16, 13 × 100; 16, 13 × 75/bimonthly
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/no	yes/yes
Automated sorting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Power Processor II/—/yes/500	The Efficiency Series/can be customized/yes/2,300
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75, Sarstedt/method, output	16, 13 × 100; 16, 13 × 75/specimen type, output priority
Specimen integrity monitor available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Power Processor II/—/yes/90	—
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75, Sarstedt/monthly	—
Automated aliquotting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Power Processor II/—/yes/140 primary samples	The Efficiency Series/—/yes
• Containers device accommodates	16, 13 × 100; 16, 13 × 75, Sarstedt	16, 13 × 100; 16, 13 × 75
• Inspects samples for bar code/Detects & reports clots in specimen	yes/yes	yes/yes
• Detects & reports quantity not sufficient specimens/Maintenance required	yes/daily, weekly	yes/bimonthly
Instrument (analyzer) interfaces		
• Rules-based instrument interface control subsystem	yes	yes
• Process control of instrument via control subsystem	yes	yes
Physical/hardware (instrument/specimen) interface		
• Hematology/Chemistry/Coagulation	robotic arm interface/point-of-reference sampling, robotic arm interface/point-of-reference sampling, robotic arm interface	robotic arm interface/point-of-reference sampling/robotic arm interface
• Immunoassay/Urinalysis	point-of-reference sampling, robotic arm interface/point-of-reference sampling	point-of-reference sampling/point-of-reference sampling
Instruments to which your system/product is interfaced	Abbott Architect, Axsym; Bayer Centaur, Atlas; Beckman Coulter LX 20, DxC, DxI; Ortho 950, 250, Eci; Roche Modular; Stago Star	Ortho: Vitros 5,1, 950, & 250; Abbott: Architect i2000, Axsym; Olympus: DPC Immulite 2000, Roche Modular; Beckman Coulter: DXi 800, Stago Star, others
Other robotic products/components to which system, product is linked	—	iLAS Sorter (stand alone), interface to any track system
Automated recapper or sealer available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	Power Processor III/—/yes/500	The Efficiency Series/—/yes/800
• Recaps-seals multiple size tubes simultaneously/Containers device accomm.	no/13 × 100; 13 × 75, Sarstedt	yes/16, 13 × 100; 16, 13 × 75
• Maintenance required	weekly	bimonthly
Automated storage & retrieval available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	Power Processor III/—/yes/500	ExDec/—/yes/1,200
• Containers device accommodates/Connects to the track	13 × 100; 13 × 75, Sarstedt/yes	16, 13 × 100; 16, 13 × 75/yes
• Room temperature/Min. & max. No. of tubes stored per module	yes/1 and 6,000	yes/up to 1,200
• Multiple size tubes can be stored in the same module/Maintenance required	no/weekly	no/—
• Refrigerated storage & retrieval capability	yes	no
Longitudinal upgrade pathway or plan to protect users' investments	Power Processor is expandable for upgrades as lab needs grow	easily extendable
Avg. time to install/Who provides service, support/Hours support is available	7–21 days/Beckman Coutler/24–7	1-2 weeks/Integrated Laboratory Automation Solutions/224–7
On-site biomedical engineer required/User group meets regularly	no/yes	no/no
List price	depends on configuration	depends on configuration and laboratory requirement
Individual list prices for components		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company) * For basic bulding block unit ** Average throughput in specimen containers per hour per device Note: a dash in lieu of an answer means company did not answer question or question is not applicable	refrigerated storage with recapping and auto rerun; totally open system; intelligent aliquotting; proven consistent TAT results	prioritizes stats; uses variety of tube sizes; provides smart sorting and delivery; totally flexible; interfaces with any track-ready instruments and wide range of LIS vendors; remote management; adaptable for all lab sizes

Tabulation does not represent an endorsement by the College of American Pathologists.

Laboratory automation systems and workcells

Part 5 of 12	LABOTIX Automation Peter J. Manes peter.manes@labotix.com 2323 S 171st Street, Omaha, NE 68130 402-398-2274 www.labotix.com	m-u-t America Karsten Wittmann kwittmann@mut-group.com 3931 Deep Rock Road, Henrico, VA 23233 804-620-4029 www.mut-group.com
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	RRUSH/1994/— 11/4/—	m.u.t HCTS2000 MK2 Automated Sorter/2007/— —
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 yes/yes yes/yes/yes/yes yes/yes/no/yes yes/yes yes/yes/open yes/yes	 yes/no yes/no/no/no yes/no/no/no no/yes yes/no/closed yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 —/automation SW feature automation SW feature/ automation SW feature/automation SW feature/automation SW feature LIS feature/ automation SW feature/automation SW feature/automation SW feature — — automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/LIS feature automation SW feature/— automation SW feature/automation SW feature	 LIS feature/automation SW feature automation SW feature/—/— — automation SW feature/automation SW feature/— automation SW feature — automation SW feature/automation SW feature — automation SW feature/— —/automation SW feature
LIS(s) & versions interfaced & live w/ LAS/How LIS(s) are interfaced w/ your LAS	Cerner, PGP, Philips/HL7	Mysis, Soft, DI, VA, DHCP/ASTM
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes Flexlink/variable/yes 16, 13 × 100; 16, 13 × 75/1,100 per hour yes yes/floor mounted/yes compressed air, electricity/quarterly single specimen container per carrier/yes	no — — — — — —
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required	yes Hettich Rotanta/various sizes/yes 400/16, 13 × 100; 16, 13 × 75 yes yes yes annually	no — — — — — —
Automated input/accessioning available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required	yes SPS Autoloader/74 × 30 × 36 in./yes/1,200 16, 13 × 100; 16, 13 × 75/yes 525/quarterly	yes HTS2000 MK2/48 × 56 × 31 in./yes/2,000 16, 13 × 100; 16, 13 × 75, 8–19 mm diameter × 75–120 mm height/no 550/daily, monthly
Automated decapping available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps	yes RRUSH/20 × 9 × 12 in./yes/400 16, 13 × 100; 16, 13 × 75/quarterly yes/yes	no — — —
Automated sorting available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes RRUSH/72 × 58 × 55 in./yes/500 16, 13 × 100; 16, 13 × 75/specimen, method, output	yes HCTS2000 MK2/48 × 56 × 31 in./yes/2,000 16, 13 × 100; 16, 13 × 75, 8–19 mm diameter × 75–120 mm height/ specimen type, bar code, cap color, method, output priority
Specimen integrity monitor available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	no — —
Automated aliquoting available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	yes RRUSH/67 × 57 × 25 in./yes/175 16, 13 × 100; 16, 13 × 75 yes/yes yes/quarterly	no — — — —
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 yes yes point-of-reference, robotic rack/point-of-reference, robotic rack/robotic rack point-of-reference, robotic rack/point-of-reference, robotic rack	 no no no/no/no no/no
Instruments to which your system/product is interfaced	Beckman Coulter DXi, Ortho-Clinical Vitros 5,1, Siemens Centaur, Advia 1650 and Immulite 2000, Ortho-Clinical Vitros 950 and 250, Kone Konelab 30, others	—
Other robotic products/components to which system, product is linked	—	
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	recapper RRUSH/60 × 13 × 23 in./yes/750 yes/16, 13 × 100; 16, 13 × 75 quarterly	no — — —
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability	yes RRUSH/90 × 47 × 56 in./no/450 16, 13 × 100; 16, 13 × 75/yes yes/5,700 yes/quarterly yes	no — — — — —
Longitudinal upgrade pathway or plan to protect users' investments **Avg. time to install/Who provides service, support/Hours support is available** **On-site biomedical engineer required/User group meets regularly**	modular system, open system (change automation when instruments change) 21 days/Labotix/24–7–365 days per year —/no	independent of analyzer company; module can be upgraded with options <2 days/m-u-t America/24–7 on request no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	varies by system — — — —	$116,000 included—/— —/—/included/— — —
Distinguishing features (supplied by company)	open system allows customers to choose current analyzers or best of breed; no need to change automation when changing analyzers; complete line of modules, such as auto tube loader, auto centrifuge, decapper, sorter, aliquoter, recapper, refrigerated storage; custom lab automation systems	no robotic arms used, yields high throughput and reliability with ease of operation and installation; users can pour sample tubes into hopper, eliminating shuffling of tubes in and out of racks in lab reception areas; simplicity and flexibility of sorting rules and methods

* For basic bulding block unit
** Average throughput in specimen containers per hour per device
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

Tabulation does not represent an endorsement by the College of American Pathologists.

Part 6 of 12	Ortho-Clinical Diagnostics Mark Steelman msteelma@its.jnj.com 1001 US Route 202, Raritan, NJ 08869 585-453-3420 www.orthoclinical.com	PVT LabSystems Miriam Hoelzel info@pvtlabsystems.com 300 Town Park Dr., Suite 190, Kennesaw, GA 30144 877-788-5227 www.pvtlabsystems.com
Name of system/First year installed/No. of 2009 contracts signed No. of live sites installed in N. America/Europe/Asia-Australia	enGen Laboratory Automation System/2001/13 16/41/1	Aliquoting System RSA Pro/2002/15 34/159/57
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 yes/yes yes/yes/yes/yes yes/yes/no/— in development/yes yes/yes/open yes/yes	 yes/yes yes/yes (as option)/yes (as option)/yes yes/yes/yes/yes yes (within output sorter)/yes yes/yes/open yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 automation SW feature/automation SW feature automation SW feature/automation SW feature —/automation SW feature/automation SW feature automation SW feature automation SW feature/automation SW feature/automation SW feature — automation SW feature automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/—	 automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature/automation SW feature — automation SW feature/automation SW feature/automation SW feature automation SW feature automation SW feature — automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/— automation SW feature/automation SW feature automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	enGen interfaces with many LIS programs via Data Innovations MW: Cerner, Misys, SCC, several others/HL7, ASTM	Cerner, MCS, Medat, Systek, MIPS, Providens, Bayer, Molis, Omega, Misys, Vertex, Zanacore, DI, Cirrus, SCC Soft, Nyantech, MCS Promed, Swisslab, Melos, IDAA, Syscomp, OSM, Star LIMS, others/ASTM and system-specific dynamic interface
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	 yes Covered Conveyor/600 to 2,400 mm sections/yes 16, 13 × 100; 16, 13 × 75/10 yes yes/floor mounted/yes compressed air, electricity/annually single specimen container per carrier/yes	 yes Pick & Place Pro Module/45.67 × 31.49 × 74.02 in./yes 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/— no yes/floor mounted/yes compressed air, electricity/every 4 months single specimen container per carrier/yes
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	 yes centrifuge module/1,900 × 1,200 × 1,375 mm/yes 400; 96-tube capacity/13 × 100; 13 × 75 yes yes yes quarterly yes rack entry-exit module/1,900 × 1,200 × 965 mm/yes/500 16, 13 × 100; 16, 13 × 75/yes 600/annually yes decapper module/1,600 × 600 × 965 mm/yes/600 16, 13 × 100; 16, 13 × 75/annually yes/yes yes rack exit-entry module/1,900 × 1,200 × 965 mm/yes/500 16, 13 × 100; 16, 13 × 75/specimen, method, output yes via Vitros 5,1 FS 3600, 5600/—/—/— 16, 13 × 100; 16, 13 × 75/weekly, monthly, annually yes aliquoter & labeler module/1,900 × 1,500 × 965 mm/yes/200 16, 13 × 100; 16, 13 × 75 yes/yes yes/quarterly	 yes (as option, can be upgraded) EC1 or EC2/EC1: 61.4 × 78.3 × 83.6 in.; EC2: 85.8 × 79.3 × 78.7 in./yes depends on config./16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm yes yes yes every 4 months yes input unit/78.74 × 33.47 × 69.29 in./yes/max 1,200 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/yes 600/every 4 months yes decapping mod./14.96 × 12.60 × 5.90 in./yes/max 1,200 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 4 months yes/yes yes output sorter/71.65 × 55.90 × 55.11 in./yes/max 1,200 16, 13×100; 16, 13×75; 11.5×65.5 to 15.5×108 mm/specimen, method, output yes QS I module/11.4 × 19.7 × 14.0 in./yes/850 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 4 months yes aliquoting unit/125 × 73.2 × 78.7 in./yes/655 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm yes/yes yes/every 4 months
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 yes — robotic arm interface/point-of-reference sampling/in development point-of-reference sampling/—	 yes no robotic arm interface/robotic arm interface/robotic arm interface robotic arm interface/robotic arm interface
Instruments to which your system/product is interfaced Other robotic products/components to which system, product is linked	Vitros 5600, 3600, 5,1 FS, 950, 250/350 Systems; enGen interfaces with several non-Vitros IA systems —	all instruments that can be connected to Roche/Hitachi Modular, Roche/Hitachi Cobas 8000 Beckman Coulter IDS Line, Siemens Workcell & Labcell, Inpeco FlexLab
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	recapper recapper module/1,600 × 600 × 965 mm/yes/500 yes/16, 13 × 100; 16, 13 × 75 annually	sealer recapping module/13.39 × 12.20 × 8.66 in./yes/max 1,200 yes/16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm every 4 months
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Avg. time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	yes, in development — — — — — customized automation offering, enGen can be reconfigured or upgraded as needs change; SW configuration updates available periodically depends on config., custom./depends on service contract with Ortho no/no	yes, implemented into system (up to 41 workplaces) —/—/yes/max 1,200 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/yes no/1,200 yes/every 4 months no independent of any analyzer company, PVT modules can be upgraded 1–2 weeks/PVT LabSystems/daily 8 AM–5 PM & 24–7 on request no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	depends on configuration — — — —	$380,000 $15k–$45k (Silver Server)/$70k–$90k (Pick & Place Pro)/$170k–$240k included/included/included/— $95,000 (QS I)/included —/$70,000–$90,000
Distinguishing features (supplied by company) * For basic bulding block unit ** Average throughput in specimen containers per hour per device	customizable: systems designed to fit in existing floor space while providing Lean workflow; configurable: systems designed to interface with several lab analyzers; systems grow with the lab	basic platform can be assembled with all modules for an all-in-one system; low consumable costs through standard products; quality module QS I for monitoring (specimen integrity monitor and volume measuring)

Laboratory automation systems and workcells

Part 7 of 12	PVT LabSystems **Miriam Hoelzel** info@pvtlabsystems.com **300 Town Park Dr., Suite 190, Kennesaw, GA 30144** **877-788-5227** www.pvtlabsystems.com	PVT LabSystems **Miriam Hoelzel** info@pvtlabsystems.com **300 Town Park Dr., Suite 190, Kennesaw, GA 30144** **877-788-5227** www.pvtlabsystems.com
Name of system/First year installed/No. of 2009 contracts signed No. of live sites installed in N. America/Europe/Asia-Australia	**Workstation RSA and RSD Pro/2003/5** **5/25/3**	**Sorting System RSD Pro/2001/23** **16/112/20**
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 **yes/yes** **yes/yes (as option)/yes (as option)/yes** **yes/yes/yes/yes** **yes/yes** **yes/yes/open** **yes/yes**	 **yes/yes** **yes/yes (as option)/yes (as option)/yes** **yes/no/no/yes (as option)** **yes/yes** **yes/yes/open** **yes/yes**
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature/automation SW feature** **—** **automation SW feature/automation SW feature/automation SW feature** **automation SW feature** **automation SW feature** **—** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/—** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature**	 **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature/automation SW feature** **—** **automation SW feature/automation SW feature/automation SW feature** **automation SW feature** **automation SW feature** **—** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature** **automation SW feature/—** **automation SW feature/automation SW feature** **automation SW feature/automation SW feature**
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	**Cerner, MCS, Medat, Systek, MIPS, Providens, Bayer, Molis, Omega, Misys, Vertex, Zanacore, DI, Cirrus, SCC Soft, Nyantech, MCS Promed, Swisslab, Melos, IDAA, Syscomp, OSM, Star LIMS, others/ASTM and system-specific dynamic interface**	**Cerner, MCS, Medat, Systek, MIPS, Providens, Bayer, Molis, Omega, Misys, Vertex, Zanacore, DI, Cirrus, SCC Soft, Nyantech, MCS Promed, Swisslab, Melos, IDAA, Syscomp, OSM, Star LIMS, others/ASTM and system-specific dynamic interface**
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	**yes** **Pick & Place Pro Module/45.67 × 31.49 × 74.02 in./yes** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/—** **no** **yes/floor mounted/yes** **compressed air, electricity/every 6 months** **single and mult. (5) specimen container per carrier/yes**	**yes** **Pick & Place Pro Module/45.67 × 31.49 × 74.02 in./yes** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/—** **no** **yes/floor mounted/yes** **compressed air, electricity/every 6 months** **single specimen container per carrier/yes**
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	**yes (as option)** **EC1 or EC2/EC1: 61.4 × 78.3 × 83.6 in.; EC2: 85.8 × 79.3 × 78.7 in./yes** **depends on config./16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm** **yes** **yes** **yes** **every 6 months** **yes** **input unit/78.74 × 33.47 × 69.29 in./yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/yes** **EC1: 150 tubes; EC2: 300 tubes/every 6 months** **yes** **decapping mod./14.96 × 12.60 × 5.90 in./yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 6 months** **yes/yes** **yes** **output sorter/71.65 × 55.90 × 55.11 in./yes/max 1,200** **16, 13×100; 16, 13×75; 11.5×65.5 to 15.5×108 mm/specimen, method, output** **yes** **QS I/11.4 × 19.7 × 14.0 in./yes/850** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 6 months** **yes** **aliquoting unit/125 × 73.2 × 78.7 in./yes/655** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm** **yes/yes** **yes/every 6 months**	**yes (as option)** **EC1 or EC2/EC1: 61.4 × 78.3 × 83.6 in.; EC2: 85.8 × 79.3 × 78.7 in./yes** **depends on config./16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm** **yes** **yes** **yes** **every 6 months** **yes** **input unit/78.74 × 33.47 × 69.29 in./yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/yes** **600/every 6 months** **yes** **decapping mod./14.96 × 12.60 × 5.90 in./yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 6 months** **yes/yes** **yes** **output sorter/71.65 × 55.90 × 55.11 in./yes/max 1,200** **16, 13×100; 16, 13×75; 11.5×65.5 to 15.5×108 mm/specimen, method, output** **yes** **QS I/11.4 × 19.7 × 14.0 in./yes/850** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/every 6 months** **no** **—** **—** **—** **—**
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 **yes** **no** **robotic arm interface/robotic arm interface/robotic arm interface** **robotic arm interface/robotic arm interface**	 **yes** **no** **robotic arm interface/robotic arm interface/robotic arm interface** **robotic arm interface/robotic arm interface**
Instruments to which your system/product is interfaced Other robotic products/components to which system, product is linked	**all instruments that can be connected to Roche/Hitachi Modular, Roche/Hitachi Cobas 8000** **Beckman Coulter IDS Line, Siemens Workcell & Labcell, Inpeco FlexLab**	**all instruments that can be connected to Roche/Hitachi Modular, Roche/Hitachi Cobas 8000** **Beckman Coulter IDS Line, Siemens Workcell & Labcell, Inpeco FlexLab**
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	**sealer** **recapping module/13.39 × 12.20 × 8.66 in./yes/max 1,200** **yes/16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm** **every 6 months**	**sealer** **recapping module/13.39 × 12.20 × 8.66 in./yes/max 1,200** **yes/16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm** **every 6 months**
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	**yes, implemented into system (up to 41 workplaces)** **—/—/yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 to 15.5 × 108 mm/yes** **no/1,200** **yes/every 6 months** **no** **independent of any analyzer company, PVT modules can be upgraded**	**yes, implemented into system (up to 41 workplaces)** **—/—/yes/max 1,200** **16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm up to 15.5 × 108 mm/yes** **no/max 1,200** **yes/every 6 months** **no** **independent of any analyzer company; modules can be upgraded**
Avg. time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	**1–2 weeks/PVT LabSystems/daily 8 AM–5 PM and 24–7 on request** **no/no**	**1 week/PVT LabSystems and partners/daily 8 AM–5 PM (EST); 24–7 on request** **no/no**
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	**$450,000–$600,000 (depends on options included)** **$15k–$45k (Silver Server)/$70k–$90k (Pick & Place Pro)/included** **included/included/included/—** **$95,000 (QS I)/included** **—/$70,000–$90,000**	**$250,000** **$15k–$45k (Silver Server)/$70k–$90k (Pick & Place Pro)/$170k–$240k** **included/included/included/—** **$95,000 (QS I)/—** **—/$70,000–$90,000**
Distinguishing features (supplied by company) ** For basic bulding block unit* *** Average throughput in specimen containers per hour per device*	**basic platform can be assembled with all modules for an all-in-one system; low consumable costs through standard products; quality module QS I for monitoring (specimen integrity monitor and volume measuring)**	**basic platform can be assembled with all modules for an all-in-one system; low consumable costs through standard products; quality module QS I for monitoring (specimen integrity monitor and volume measuring)**

Laboratory automation systems and workcells

Part 8 of 12	PVT LabSystems Miriam Hoelzel info@pvtlabsystems.com 300 Town Park Dr., Suite 190, Kennesaw, GA 30144 877-788-5227 www.pvtlabsystems.com	Roche Diagnostics Corp. Edward R. Duning ed.duning@roche.com 9115 Hague Rd., Indianapolis, IN 46250 317-521-4710 www.mylabonline.com
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	Sorting System Kolibri/to be released, Feb. 2011/— —	Modular Pre-Analytics/2000/48 (U.S.) 151/292/265
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 yes/no yes/no/no/yes (as option) yes/no/no/no yes/yes yes/yes/closed yes/yes	 yes/yes yes/yes/yes/yes yes/yes/yes/yes yes/yes yes/yes/open yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/—/automation SW feature — automation SW feature/automation SW feature/— automation SW feature — — automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/— automation SW feature/— automation SW feature/automation SW feature	 automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature/automation SW feature automation SW feature automation SW feature/automation SW feature/automation SW feature automation SW feature automation SW feature automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/— automation SW feature/automation SW feature automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/ LAS/How LIS(s) are interfaced w/ your LAS	Cerner, MCS, Medat, Systek, MIPS, Providens, Bayer, Molis, Omega, Misys, Vertex, Zanacore, DI, Cirrus, SCC Soft, Nyantech, MCS Promed, Swisslab, Melos, IDAA, Syscomp, OSM, Star LIMS, others/ASTM and system-specific dynamic interface	Cerner, Misys, Cerner Millennium, Vista, McKesson, Soft, DOD, others/HL7, ASTM
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — — —	yes MPA (A, B, C)/A: 4.6×15 × 3.5 ft.; B: 4.6 × 18 × 3.5 ft.; C: 4.6 × 9 × 3.5 ft./yes 16, 13 × 100; 16, 13 × 75; 13 × 92, Greiner FB, others/400 tubes per hour no yes/floor mounted/yes electricity/daily, weekly, monthly, quarterly multiple specimen (5) container per carrier/yes
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	no — — — — — — yes input drawer(s)/63 × 35 × 45 in./yes/up to 450 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm to 15.5 × 108 mm/yes 150–300/every 4 months yes decapping module/63 × 35 × 45 in./yes/up to 450 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm to 15.5 × 108 mm/every 4 months yes/yes yes output drawers/63 × 35 × 45 in./yes/up to 450 16, 13×100; 16, 13×75; 11.5×65.5 to 15.5×108 mm/specimen type via input rack no — — no — — — —	yes standard centrifuge/3 × 2.5 × 3.5 ft./yes 250 for 1 unit, 400 for 2/16, 13 × 100; 16, 13 × 75 yes yes no daily, quarterly yes standard input buffer/42 × 38 × 41 in./yes/160 racks 16, 13 × 100; 16, 13 × 75/yes 300/daily, monthly, quarterly yes standard decapper/49 × 18 × 41 in./yes/80 16, 13×100; 16, 13×75; bubber, hemogard, twist-off/daily, monthly, quarterly yes/yes yes standard sorter/36.6 × 11.8 × 41 in./yes/80 16, 13 × 100; 16, 13 × 75; 13×92, Greiner FB, others/specimen, method, output yes standard aliquoter/53 × 42 × 41 in./yes/80 16, 13 × 100; 16, 13 × 75; 13×92, Greiner FB, others/daily, monthly, quarterly yes standard aliquoter/53 × 42 × 41 in./yes/80 16, 13 × 100; 16, 13 × 75; 13×92, Greiner FB, others yes/yes yes/daily, monthly, quarterly
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 no no — —	 yes yes no/point-of-reference sampling/no point-of-reference sampling/point-of-reference sampling
Instruments to which your system/product is interfaced	—	Hitachi, Stago, Beckman A/B gate
Other robotic products/components to which system, product is linked	—	Hitachi, Stago, Beckman A/B gate
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	no — — —	recapper standard recapper/50 × 17.5 × 41 in./yes/400 per hour yes/16, 13 × 100; 16, 13 × 75, others daily, monthly, quarterly
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments** **Avg. time to install/Who provides service, support/Hours support is available** **On-site biomedical engineer required/User group meets regularly**	yes included/63 × 35 × 45 in./yes/up to 450 16, 13 × 100; 16, 13 × 75; 11.5 × 65.5 mm to 15.5 × 108 mm/no no/up to 450 yes/every 4 months no independent of any analyzer company synd modules can be upgraded 2–3 days/PVT LabSystems & partners/daily 8 AM–5 PM (EST); 24–7 on request no/no	yes (storage) p501, p701/p501: 5.3 ft. × 14 ft.; p701: 5.3 ft. × 17.6 ft./yes/400 per hour 16, 13 × 100; 16, 13 × 75, others/yes no/p501: 13,500; p701: 27,000 yes/daily, monthly, quarterly yes support for a minimum of 10 years after production 2–3 days/trained installation and service teams/24-7-365 days per year no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	$125,000 $15,000–$45,000 (Silver Server)/—/— included/included/included/archiving included — —	system configuration and design dependant — — — —
Distinguishing features (supplied by company) ** For basic bulding block unit* *** Average throughput in specimen containers per hour per device* Note: a dash in lieu of an answer means company did not answer question or question is not applicable	small footprint; remote access for diagnosis and service; sorting platform is a simultaneous input and output area (it can be used for both at the same time)	completely scalable and flexable to fit customer needs and facility space requirements; programmed and personalized to any customer workflow requirements; three models can be configured in 100+ standard layouts, connecting up to 12 chemistry/immunochemistry modules

Laboratory automation systems and workcells

Part 9 of 12	Sarstedt, Inc. Peter Rumswinkel, VP/GM sarstedt@bellsouth.net P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com	Siemens Healthcare Diagnostics Eric LaFleche 1717 Deerfield Road, Deerfield, IL 60015 914-524-3823 www.usa.siemens.com/diagnostics
Name of system/First year installed/No. of 2009 contracts signed No. of live sites installed in N. America/Europe/Asia-Australia	Sarstedt PVS/— —	ADVIA Solutions/1998/— >150 U.S./>500 worldwide
Automation products that are available		
• Pre-analytical processor/Total laboratory automation	yes/no	yes/yes
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/—/no/yes	yes/yes/yes/yes
• Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/yes/yes/yes	yes/no/no/no/various partnerships in place
• Automated functions: Storage-retrieval/Intelligent sample routing	no/yes	yes/yes
• SW: Dedicated Process Control/Middleware control using LIS/Architecture	yes/yes/open	yes/yes/—
• Company has dedicated automation support team/Remote sys. monitoring	yes/yes	yes/yes
Software features/functionality		
• Patient demographics & insurance data/Rules-based architecture	—/automation SW feature	LIS feature/automation SW feature
• Supports data retrieval/Internet connectivity	automation SW feature/—	automation SW feat./LIS feature
• Online real-time help system/QC/Stats & management reports	—/—/automation SW feature	automation SW feature/automation SW feature/automation SW feature
• Evaluates validity & releasability of results from automated analyzers	—	automation SW feature
• Specimen tracking/Priority processing/Random-access spec. movement	automation SW feature/automation SW feature/—	automation SW feature/automation SW feature/automation SW feature
• Supports accession No. redundancy (duplicate specimen ID)	automation SW feature	automation SW feature
• Supports specimen carrier & level identification	automation SW feature	automation SW feature
• Unique bar-code number per container required	automation SW feature	automation SW feature
• Specimen routing/Multistop routing (one tube to multiple workstations)	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Specimen scheduling/Instrument scheduling	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Supports multiple HW config./Supports other proprietary transport. HW	automation SW feature/—	automation SW feature/automation SW feature
• Sample storage & retrieval SW/Supports approved CLSI standards	—/automation SW feature	automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/ LAS/How LIS(s) are interfaced w/ your LAS	—	Siemens, Cerner, Meditech, SCC Soft, Misys, Data Innovations, OSI, Telepath-iSoft, Netlab, LMX Labzis II, SCL 2000, others/ASTM
Transportation systems available	no	yes
• Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5	—	—/950 × 2,000 × 530 mm/yes
• Containers device accommodates/Avg. throughput in cm per second	—	16, 13 × 100; 16, 13 × 75, others/71.6
• Supports automatic rerouting for reflex-repeat-dilutions	—	yes
• Modular HW/Installed options/Device can operate in track & manual mode	—	yes/floor and subfloor mounted/yes
• Required utilities/Required maintenance	—	compressed air, electricity, water/weekly, monthly, quarterly, annually
• Carrier type/Scalable system	—	single specimen container per carrier/yes
Automated centrifugation available	no	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—	—/1,900 × 1,570 × 860 mm/yes
• Maximum throughput/Containers device accommodates	—	300/16, 13 × 100; 16, 13 × 75, others
• Can identify tube types for custom programmed rate & spin times per run	—	yes
• More than one centrif. can be connected to track system	—	yes
• For multi-unit centrif., each centrif. operates independently for rate & time	—	yes
• Maintenance required	—	weekly, monthly, quarterly, annually
Automated input/accessioning available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/—/yes/1200	sample manager/1,900 × 2,040 × 860 mm/yes/325
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75; 13 × 65 to 16 × 100/—	16, 13 × 100; 16, 13 × 75, others/yes
• Maximum No. of samples that can be loaded/Maintenance required	up to 600, configuration dependent/quarterly	1,000/weekly, monthly, quarterly, annually
Automated decapping available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/configuration dependent/yes/1,200	—/included in centrifuge module/yes/240; independent module/550
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75, multiple/quarterly	16, 13 × 100; 16, 13 × 75, others/weekly, monthly, quarterly, annually
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/yes	yes/yes
Automated sorting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/configuration dependent/yes/1,200	sample manager/1,900 × 2,040 × 860 mm/yes/325
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75, multiple/specimen, method, output	16, 13 × 100; 16, 13 × 75, others/specimen, method, output
Specimen integrity monitor available	yes	onboard each instrument
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/configuration dependent/yes/700	integrated on chemistry instrument
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75, multiple/quarterly	16, 13 × 100; 16, 13 × 75, others/—
Automated aliquotting available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/configuration dependent/yes/dependent upon number of aliquots and their volumes	—
• Containers device accommodates	16, 13 × 100; 16, 13 × 75, multiple	—
• Inspects samples for bar code/Detects & reports clots in specimen	yes/yes	—
• Detects & reports quantity not sufficient specimens/Maintenance required	yes/quarterly	—
Instrument (analyzer) interfaces		
• Rules-based instrument interface control subsystem	no	yes
• Process control of instrument via control subsystem	no	yes
Physical/hardware (instrument/specimen) interface		
• Hematology/Chemistry/Coagulation	—	robotic arm interface/point-of-reference sampling/robotic arm interface
• Immunoassay/Urinalysis	—	point-of-reference sampling, robotic arm interface/point-of-reference sampling
Instruments to which your system/product is interfaced	—	Advia 120/2120, Advia Centaur/Centaur XP, Immulite 2000/Advia 1500/500/1650/1800/2400; Stago, RxL, CA-7000, Dimension Vista
Other robotic products/components to which system, product is linked	—	—
Automated recapper or sealer available	recapper	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	—/configuration dependent/yes/1,200	—
• Recaps-seals multiple size tubes simultaneously/Containers device accomm.	yes/16, 13 × 100; 16, 13 × 75; 13–16 mm. in diameter	—
• Maintenance required	quarterly	—
Automated storage & retrieval available	no	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput*	—	sample manager/1,900 × 2,040 × 860 mm/yes/325
• Containers device accommodates/Connects to the track	—	16, 13 × 100; 16, 13 × 75, others/yes
• Room temperature/Min. & max. No. of tubes stored per module	—	yes/1 and 1,000
• Multiple size tubes can be stored in the same module/Maintenance required	—	yes/weekly, monthly, quarterly, annually
• Refrigerated storage & retrieval capability	—	no
Longitudinal upgrade pathway or plan to protect users' investments	systems are upgradeable	flexible and expandable: can contain as few as 2 interfaced components-instruments and can expand to up to 16 interfaces
Avg. time to install/Who provides service, support/Hours support is available	2–3 weeks/Sarstedt or authorized Sarstedt service co./contract dependent	configuration dependent/Siemens Heathcare Diagnostics/24–7
On-site biomedical engineer required/User group meets regularly	no/no	no/yes
List price	configuration dependent	varies by configuration
Individual list prices for components		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company) * For basic bulding block unit ** Average throughput in specimen containers per hour per device	bulk loading module: tubes are dumped into a hopper, eliminating need for pre-racking; modular design enables configuration based on individual requirements; manufacturer of instr. and corresponding consumables	high-throughput lab automation with broad menu, single LIS connection, flexible configurations and ability to connect multiple disciplines to same track system: (chem, IA, hem, coag, urine)

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Laboratory automation systems and workcells

Part 10 of 12	Siemens Healthcare Diagnostics **Tim Keating** **1717 Deerfield Road, Deerfield, IL 60015** **302-631-9482** www.usa.siemens.com/diagnostics	Siemens Healthcare Diagnostics **Tim Keating** timothy.m.keating@siemens.com **1717 Deerfield Road, Deerfield, IL 60015** **302-631-9482** www.usa.siemens.com/diagnostics
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	StreamLab Analytical Workcell/2002/— >130 U.S./>250 worldwide	VersaCell System/2002/80 140/650/100
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	yes/yes yes/yes/yes/yes yes/analyzer removes aliquot/no/yes yes/yes yes/yes/open yes/yes	yes/no no/no/no/no yes/no/no/no yes/yes yes/yes/closed yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	automation SW & LIS feature/automation SW feature automation SW feature/automation SW feature automation SW feat./automation SW feat./automation SW feat. automation SW feature automation SW feat./automation SW feat./automation SW feat. automation SW feature automation SW & LIS feature automation SW & LIS feature automation SW feature/automation SW feature automation SW & LIS feature/automation SW & LIS feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature	LIS feature/automation SW feature automation/SW feature/— —/LIS feature/automation SW feature LIS feature automation SW feat./automation SW feat./automation SW feat. automation SW feature automation SW & LIS feature automation SW & LIS feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/—
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	Cerner, Meditech, SCC, Misys, CHCS, LabGem, Swiss Lab, Medicom, Izasa, Confidentia, others/DBASTM, Dimension Protocol, HL7, ASTM	—/ASTM
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes StreamLab/60 × 70 × 35 in/yes 16, 13 × 100; 16, 13 × 75/300 tubes per hour yes yes/floor mounted/yes compressed air, electricity/weekly single specimen container per carrier/yes	yes VersaCell System/70 × 51 × 41 in./— 16, 13 × 100; 16, 13 × 75/not a track-based system yes yes/floor mounted/yes electricity/annually single specimen container per carrier/yes
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	yes StreamLab/31 × 23 × 29 in/yes up to 400 per hr/16, 13 × 100; 16, 13 × 75, handles various sizes simultan. yes no — weekly, monthly yes StreamLab/60 × 70 × 35 in./yes/300 tubes 16, 13 × 100; 16, 13 × 75/yes up to 600/daily, monthly yes StreamLab/integrated with input-output track/yes/300 16, 13 × 100; 16, 13 × 75/daily, monthly yes/yes yes StreamLab/integrated with input-output track/yes/300 16, 13 × 100; 16, 13 × 75/specimen, method, output yes StreamLab/integrated with analyzer/yes/300 16, 13 × 100; 16, 13 × 75/— yes StreamLab/integrated with sample transfer module/yes/300 16, 13 × 100; 16, 13 × 75 yes/yes yes/daily	no — — — — — — yes VersaCell System/70 × 51 × 41 in./—/200 16, 13 × 100; 16, 13 × 75/yes 200/annually no — — — yes VersaCell System/70 × 51 × 41 in./no/200 16, 13 × 100; 16, 13 × 75/specimen, method, output no — — no — — — —
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	yes yes no/pt-of-ref sampling, rob. arm interface/pt-of-ref sampling, rob. arm interf. point-of-reference sampling, robotic arm interface/no	yes yes no/point-of-reference sampling/no point-of-reference sampling/no
Instruments to which your system/product is interfaced **Other robotic products/components to which system, product is linked**	Dimension RxL Max, Dimension Vista 1500/500, Immulite 2000 & 2500; Sysmex CA 7000; Abbott Architect i2000 (avail. outside U.S. only) and Advia Centaur —	Advia 1800, Immulite Immunoassay, Advia Centaur StreamLab Analytical Workcell and Advia Automation Workcells
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	yes StreamLab/40 × 36 × 17 in./yes/300 yes/13 × 100; 13 × 75; 16 × 100; 16 × 75 daily, monthly	no — — —
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments**	yes StreamLab SW & input-output module/60 × 70 × 35 in./yes/300 13 × 100; 13 × 75; 16 × 100; 16 × 75 (47,952 storage capacity)/no yes/up to 576 yes/— yes StreamLab systems are scalable with open configurations	no — — — — — continue connectivity development and software enhancements
Avg. time to install/Who provides service, support/Hours support is available **On-site biomedical engineer required/User group meets regularly**	5 days/Siemens/24–7 no/yes	two days/Siemens Healthcare Diagnostics/24–7 no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	contact Siemens representative — — — —	contact Siemens representative — — — —
Distinguishing features (supplied by company) ** For basic bulding block unit* *** Average throughput in specimen containers per hour per device* Note: a dash in lieu of an answer means company did not answer question or question is not applicable	integrated automation solution with open architecture allows custom configuration and reconfiguraton by incorporating a 90-degree track turn, which helps maintain a small footprint	breadth of menu with flexibility of connectivity; throughput, pre- and post-analytical sample management

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Laboratory automation systems and workcells

Part 11 of 12	Sysmex America **Nilam Patel** pateln@sysmex.com **1 Nelson C. White Parkway, Mundelein, IL 60060** **800-379-7639 ext. 4309** www.sysmex.com/usa	Sysmex America **Krista Curcio** curciok@sysmex.com **1 Nelson C. White Parkway, Mundelein, IL 60060** **800-379-7639 ext. 4613** www.sysmex.com/usa
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	**HST-N/1991/50+** **230/1,600+ (Europe, Asia, Latin America, Canada, & Australia)**	**XE-Alpha N/1991/30** **250/650+ (Europe, Asia, Latin America, Canada, Australia)**
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	 no/no yes/no/no/no yes/no/—/no no/yes yes/yes/closed yes/yes	 —/— yes/—/no/no yes/no/—/no no/— yes/yes/closed yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	 automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature /automation SW feature /LIS feature automation SW feature automation SW feature/automation SW feature/yes automation SW feature automation SW feature automation SW feature automation SW feature/automation SW feature —/— automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature/automation SW feature	 —/automation SW feature automation SW feature/LIS feature automation SW feature /automation SW feature /LIS feature automation SW feature automation SW feature/automation SW feature/— automation SW feature automation SW feature automation SW feature automation SW feature/automation SW feature —/— automation SW feature/automation SW feature —/automation SW feature —/—
LIS(s) & versions interfaced & live w/LAS/How LIS(s) are interfaced w/your LAS	**Cerner (Classic and Millenium), Misys, SCC, Meditech, GE/HL7 & ASTM**	**Cerner (Classic and Millennium), Misys, SCC, Meditech, GE/HL7 & ASTM**
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	**yes** HSTN/depends on configuration/yes 16 × 75; 13 × 75/min throughput 150/hr; max as high as lab needs/hour yes yes/floor mounted/yes — rack/yes	**yes** Alpha N/2 × 7.3 × 3.4 feet 16 × 75; 13 × 75/based on No. of analyzers no yes/—/yes — rack/no
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	no — — — — — — yes — — 200 samples per input module/— no — — — yes PVT TS-series: low-mid volume ~5 × 3 ft.; high volume ~6 × 5 ft. 13 × 75/specimen, method, output yes (located within the analyzers) — — no — — — —	no — — — — — — yes — —/no 100 samples per input module/— no — — — no —/—/yes/— —/— yes (located within the analyzers) — — no — — — —
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	 yes yes point-of-reference sampling/—/— —	 yes yes — —
Instruments to which your system/product is interfaced	**Bio-Rad Variant II Turbo Link A1C analyzer**	—
Other robotic products/components to which system, product is linked	**Thermo automation, Lab Interlink/Labotix, IDS**	—
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	no — — —	no — — —
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments**	no — — — — — —	no — — — — — —
Avg. time to install/Who provides service, support/Hours support is available **On-site biomedical engineer required/User group meets regularly**	**<3 days/Sysmex/24–7** no/no	**1 day/Sysmex/24–7** no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	**dependent upon configuration, contact Sysmex** — — — —	**dependent upon configuration, contact Sysmex** — — — —
Distinguishing features (supplied by company) * For basic bulding block unit ** Average throughput in specimen containers per hour per device Note: a dash in lieu of an answer means company did not answer question or question is not applicable	**scalable, flexible, and reliable automation and instrument systems; fast installation (<3 days); scalable multi-site, multi-system middleware solutions that are developed, tested, and supported by Sysmex**	**scalable and flexible configurations with proven history; 1-day installation; scalable middleware solutions are developed & supported by Sysmex**

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Laboratory automation systems and workcells

Part 12 of 12

	Yaskawa America Inc., Motoman Robotics Division **Craig Rubenstein** craig.rubenstein@motoman.com **805 Liberty Lane, West Carrollton, OH 45449** **949-263-2648** www.motoman.com/labauto/	Yaskawa America Inc., Motoman Robotics Division **Craig Rubenstein** craig.rubenstein@motoman.com **805 Liberty Lane, West Carrollton, OH 45449** **949-263-2648** www.motoman.com/labauto/
Name of system/First year installed/No. of 2009 contracts signed **No. of live sites installed in N. America/Europe/Asia-Australia**	**Autosorter II/2006/13** 18/—/—	**Autosorter III/2008/13** 18/—/—
Automation products that are available • Pre-analytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping • Automated functions: Rack specific sort/Aliquot/Tube relabeling/Resealing • Automated functions: Storage-retrieval/Intelligent sample routing • SW: Dedicated Process Control/Middleware control using LIS/Architecture • Company has dedicated automation support team/Remote sys. monitoring	yes/no yes/yes/yes/yes yes/yes/no/yes (recapping) no/yes yes/yes/open yes/yes	yes/no yes/yes/yes/yes yes/yes/no/yes (recapping) no/yes yes/yes/open yes/yes
Software features/functionality • Patient demographics & insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats & management reports • Evaluates validity & releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession No. redundancy (duplicate specimen ID) • Supports specimen carrier & level identification • Unique bar-code number per container required • Specimen routing/Multistop routing (one tube to multiple workstations) • Specimen scheduling/Instrument scheduling • Routes test to workstation/Automatic reflex, repeat, dilutions • Supports multiple HW config./Supports other proprietary transport. HW • Sample storage & retrieval SW/Supports approved CLSI standards	—/automation SW feature automation SW feature/automation SW feature automation SW feature/ automation SW feature/automation SW feature — automation SW feature/ automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature automation SW feature automation SW feature/ automation SW feature —/— automation SW feature/— automation SW feature/automation SW feature automation SW feature/automation SW feature	—/automation SW feature automation SW feature/automation SW feature automation SW feature/ automation SW feature/automation SW feature — automation SW feature/ automation SW feature/automation SW feature automation SW feature/automation SW feature automation SW feature automation SW feature automation SW feature/ automation SW feature —/— automation SW feature/— automation SW feature/automation SW feature automation SW feature/automation SW feature
LIS(s) & versions interfaced & live w/ LAS/How LIS(s) are interfaced w/ your LAS	Cerner, Triple G, Surround/ODBC, HL7	Cerner, Triple G, Surround/ODBC, HL7
Transportation systems available • Model/Dimen.* (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Avg. throughput in cm per second • Supports automatic rerouting for reflex-repeat-dilutions • Modular HW/Installed options/Device can operate in track & manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes —/configuration dependent/yes 16, 13 × 100; 16, 13 × 75, 9–16 mm diameter, 75–100 mm height/50 yes no/floor mounted/yes compressed air, electricity/daily, monthly, annually single and multiple (30) specimen container per carrier/yes	yes —/configuration dependent/yes 16, 13 × 100; 16, 13 × 75, 9–16 mm diameter, 75–100 mm height/50 no no/floor mounted/yes electricity/daily, monthly, annually single specimen container per carrier/yes
Automated centrifugation available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput/Containers device accommodates • Can identify tube types for custom programmed rate & spin times per run • More than one centrif. can be connected to track system • For multi-unit centrif., each centrif. operates independently for rate & time • Maintenance required **Automated input/accessioning available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Dedicated lanes for stat samples • Maximum No. of samples that can be loaded/Maintenance required **Automated decapping available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required • Removes multiple size tube caps per run/Removes screw type sample caps **Automated sorting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by **Specimen integrity monitor available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required **Automated aliquotting available** • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for bar code/Detects & reports clots in specimen • Detects & reports quantity not sufficient specimens/Maintenance required	no — — — — — — yes AutoSorter II/6 × 5 × 5 ft./yes/1,000 16, 13 × 100; 16, 13 × 75, 9–16 mm diameter, 75–100 mm height/yes 1,000/daily, monthly, annually yes —/fits within footprint of AutoSorter II/yes/1,000 16, 13×100; 16, 13×75, 9–16 mm dia., 75–100 mm hgt./daily, monthly, annually yes/yes yes AutoSorter II/6 × 5 × 5 ft./yes/1,000 16, 13×100; 16, 13×75, 9–16 mm dia., 75–100 mm hgt./specimen, method, output — — — yes Aloka APS/68 × 101 × 43 in./yes/500 16, 13 × 100; 16, 13 × 75 yes/yes yes/daily, monthly, annually	yes Hettich Rotanta/81 × 87 × 42 in., 9–16 mm dia, 75–100 mm height/yes 300+/16, 13 × 100; 16, 13 × 75, 9–16 mm dia, 75–100 mm height no no — daily, monthly, annually yes AutoSorter III/81 × 87 × 42 in. (enclosed within ASIII footprint)/yes/800 16, 13 × 100; 16, 13 × 75, 9–16 mm dia, 75–100 mm hgt/yes 300/daily, monthly, annually yes AutoSorter III/81 × 87 × 42 in. (enclosed within ASIII footprint)/yes/800 16, 13×100; 16, 13×75, 9–16 mm dia, 75–100 mm hgt/daily, monthly, annually yes/yes yes AutoSorter III/81 × 87 × 42 in./yes/800 16, 13×100; 16, 13×75, 9–16 mm dia, 75–100 mm hgt/specimen, method, output — — — planned Aloka module/to be determined/yes/100–200 16, 13 × 100; 16, 13 × 75 yes/yes yes/daily, monthly, annually
Instrument (analyzer) interfaces • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem **Physical/hardware (instrument/specimen) interface** • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	no no Sysmex HST —	no no Sysmex HST —
Instruments to which your system/product is interfaced	Sysmex hematology automation	—
Other robotic products/components to which system, product is linked	MDS (now Innotek) single-specimen carrier transportation system	ILAS, MDS (now Innotek) single-specimen carrier transportation system
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Recaps-seals multiple size tubes simultaneously/Containers device accomm. • Maintenance required	yes (recapper) AutoSorter II/6 × 5 × 5 ft./yes/>1,800 yes/16, 13 × 100; 16, 13 × 75 daily, monthly, annually	planned AutoSorter III/to be determined/yes/800 yes/16, 13 × 100; 16, 13 × 75 daily, monthly, annually
Automated storage & retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput* • Containers device accommodates/Connects to the track • Room temperature/Min. & max. No. of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage & retrieval capability **Longitudinal upgrade pathway or plan to protect users' investments** **Avg. time to install/Who provides service, support/Hours support is available** **On-site biomedical engineer required/User group meets regularly**	no — — — — — flexible, open design permits change of tubes/racks as instrumentation changes; connectivity and functionality upgrades <1–2 weeks, more for complex systems/Motoman/24–7 hotline no/no	no — — — — — flexible, open design permits change of tubes/racks as instrumentation changes; connectivity and functionality upgrades <1 week/Motoman/24–7 hotline no/no
List price **Individual list prices for components** • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage & retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	$250,000 included/configuration dependent/— included/configuration dependent/included/— —/configuration dependent —/configuration dependent	$195,000 included/configuration dependent/$39,500 included/included/included/— —/to be determined —/to be determined
Distinguishing features (supplied by company)	customization-friendly; designed and built in the U.S.; independent of IVD instrument manufacturers; free-standing, high-throughput instruments or integrated lines	customization-friendly; designed and built in the U.S.; independent of IVD instrument manufacturers; free-standing, small footprint, modular automation

* For basic bulding block unit
** Average throughput in specimen containers per hour per device
Note: a dash in lieu of an answer means company did not answer question or question is not applicable