

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 1 of 17	Abbott Diagnostics Jody Gross jody.gross@abbott.com 100 Abbott Park Rd., Dept. AIOC, Bldg. CP01-5, Abbott Park, IL 60064 www.abbottdiagnostics.com	Abbott Diagnostics Jody Gross jody.gross@abbott.com 100 Abbott Park Rd., Dept. AIOC, Bldg. CP01-5, Abbott Park, IL 60064 www.abbottdiagnostics.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	ACCELERATOR a3600/2013/>60 >50/>40/>70	ACCELERATOR p540/2014/>15 >5/>10/>15
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes no/yes/yes/yes yes/yes yes/yes/closed yes/yes	yes/— yes/no/yes/yes yes/yes/yes/no no/yes yes/yes/closed yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	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 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/LIS 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) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Cerner Classic and Millennium, Cortex, GE Ultra, Lab Track, MediSolution, Meditech 5.4, Misis, SCC, Siemens, others/ASTM/yes	—/HL7, Ethernet 10 base T or 100 base TX/—
Transportation systems available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes ACCELERATOR a3600 TM/40 × 90.5 × 17 in./yes 16, 13 × 100; 16, 13 × 75; many others/17.5 (3,600 per hour) yes yes/floor mounted/yes compressed air, electricity/monthly single specimen container per carrier/yes (connects 99 modules/nodes)	yes ACCELERATOR p540/57.8 × 65.7 × 45.5 in./— 16, 13 × 100; 16, 13 × 75/— — yes/floor mounted/— electricity/monthly multiple specimen container per carrier (5)/no
Automated centrifugation available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	yes ACCELERATOR a3600 CM (Hettich Rotanta 460 Robotic)/59 × 37.4 × 55.5 in./yes	yes ACCELERATOR p540 Centrifuge Connecting Module and ACCELERATOR p540 Centrifuge/57.8 × 60.2 × 36.4 in./—
• Maximum throughput per hour/Containers device accommodates	300/16, 13 × 100; 16, 13 × 75; many others	300/16, 13 × 100; 16, 13 × 75
• Can identify tube types for custom programmed rate and spin times per run	no	no
• More than one centrifuge can be connected to track system	yes	no
• For multiunit centrifuge: each centrifuge operates independently for rate and time	yes	—
• Maintenance required	weekly, monthly	weekly
Automated input/accessioning available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes ACCELERATOR a3600 IOM, others/54.3 × 77.6 × 42.7 in./yes/—	yes ACCELERATOR p540/57.8 × 65.7 × 45.5 in./yes/540 tubes
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75; many others/yes	16, 13 × 100; 16, 13 × 75/yes
• Maximum No. of samples that can be loaded/Maintenance required	780/—	200/—
Automated decapping available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes ACCELERATOR a3600 DCM/46.7 × 34.7 × 17 in./yes/800	yes ACCELERATOR p540 (decapper is within the Aliquoter module)/—/yes/570
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75; many others/daily, monthly	16, 13 × 100; 16, 13 × 75/weekly, monthly
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/yes	yes/yes
Automated sorting available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes ACCELERATOR a3600 IOM/54.3 × 77.6 × 42.7 in./yes/750	yes ACCELERATOR p540/57.9 × 39.4 × 33.5 in./yes/1,000
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75; many others/specimen, method, output	16, 13 × 75; 16, 13 × 100/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes, on ARCHITECT Chemistry Systems ARCHITECT c8000, c16000/35.2 × 37.5 × 61.4 in./yes/1,800	no —
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75; many others/daily, weekly, quarterly, monthly	—
Automated aliquoting available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes ACCELERATOR a3600 AQM/35.2 × 37.5 × 61.4 in./yes/500 (100 primary)	yes ACCELERATOR p540/57.8 × 65.7 × 45.5 in./yes/540
• Containers device accommodates	16, 13 × 100; 16, 13 × 75; many others	16, 13 × 100; 16, 13 × 75
• Inspects samples for barcode/Detects and reports clots in specimen	yes/yes	yes/yes
• Detects and reports quantity not sufficient specimens/Maintenance required	yes/daily, weekly, monthly	yes/monthly
Instrument (analyzer) interfaces: • Rules-based instrument interface control subsystem • Process control of instrument via control subsystem	yes yes	no no
Physical/hardware (instrument/specimen) interface: • Hematology/Chemistry/Coagulation • Immunoassay/Urinalysis	pick-and-place robotics/point-in-space sampling/point-in-space sampling point-in-space sampling/—	— —
Instruments to which your system or product is interfaced	Abbott ARCHITECT immunochemistry; CELL-DYN hematology and CP3000 coagulation systems; more than 20 other market-leading testing platforms	ARCHITECT c8000, c16000, ci82000, ci16200
Other robotic products, components to which system or product is linked	—	—
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	recapper and sealer ACCELERATOR a3600 RCM, RSM/49.2 × 44.9 × 17 in./yes/800	no —
• Recaps, seals multiple size tubes simul./Containers device accommodates	yes/16, 13 × 100; 16, 13 × 75; many others	—
• Maintenance required	monthly	—
Automated storage and retrieval available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	yes ACCELERATOR a3600 TSM/101.1 × 76.7 × 70 in./yes/800	no —
• Containers device accommodates/Connects to the track	16, 13 × 100; 16, 13 × 75; many others/yes	—
• Room temperature/Minimum and maximum number of tubes stored per module	no/9,216 or 15,360	—
• Multiple size tubes can be stored in the same module/Maintenance required	yes/daily, monthly	—
• Refrigerated storage and retrieval capability	yes	—
Longitudinal upgrade pathway or plan to protect users' investments	flexible modules and track configurability enable future expansions	—
Average time to install/Who provides service, support/Hours support is available	site dependent/Abbott Diagnostics/24–7	1 week, dependent on middleware and LIS interfaces/Abbott Diagnostics/multiple support options; 24–7
On-site biomedical engineer required/User group meets regularly	no/no	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 and retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company)	ACCELERATOR a3600 is an open automation system that consolidates sample management across all disciplines of the laboratory including chemistry, immunoassay, hematology, coagulation, HPLC, ESR, immunology, and protein electrophoresis; Abbott's technical experts will actively partner with customers to customize a system that will fully deliver key performance metrics	ACCELERATOR p540 is a modular and scalable task-targeted system with the ability to automate accessioning, decapping, aliquoting, sorting, and centrifugation; p540 can accommodate racks from Abbott, Stago, Phadia, and other market-leading testing platforms
* For basic building 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 2 of 17	Aim Lab Automation Technologies Ralph Donaldson aimlab@aimlab.com 15 Lisgar Street, Virginia, Qld, Australia 4014 +61 7 3897 1600 www.aimlab.com	Aim Lab Automation Technologies Ralph Donaldson aimlab@aimlab.com 15 Lisgar Street, Virginia, Qld, Australia 4014 +61 7 3897 1600 www.aimlab.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	PathFinder 450S/2015/4 1/7/4	PathFinder 900 Plus/2014/8 9/36/12
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/no yes/no/no/no yes/no/no/no no/yes yes/yes/open yes/yes	yes/no yes/no/no/yes yes/yes/yes/yes no/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and 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 LIS feature/LIS feature LIS feature/LIS feature LIS 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 feature/automation SW feature LIS feature/— automation SW feature/LIS feature automation SW feature/— LIS feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Apollo, HCLAB, Kestral PLS, Labcore, Ultra/CLSI LIS 1-A, 2-A/—	Apollo, HCLAB, Kestral PLS, Labcore, Ultra/ASTM, CLSI LIS 1-A, 2-A/—
Transportation systems available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — — —	no — — — — — —
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — —	no — — — — —
Automated input/accessioning available • Model/Dimen. (H x W x 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 PathFinder 450S/520 x 1000 x 450 mm (21 x 40 x 18 in.)/yes/450 max. 16, 13 x 100; 16, 13 x 75/yes >100/semiannually	yes PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/1,200+ tubes 16, 13 x 100; 16, 13 x 75; 12–16 mm OD, 63–120 mm height/yes —/quarterly, annually
Automated decapping available • Model/Dimen. (H x W x 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	no — — —	yes PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/1,000 tubes 16, 13 x 100; 16, 13 x 75; 12–16 mm OD, 63–120 mm height/quarterly, annually yes/yes
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes PathFinder 450S/520 x 1000 x 450 mm (21 x 40 x 18 in.)/yes/450 max. 16, 13 x 100; 16, 13 x 75/specimen, method, output	yes PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/1,200+ tubes 16, 13 x 100; 16, 13 x 75; 12–16 mm OD, 63–120 mm ht/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	no — —
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	no — — —	yes PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/— 16, 13 x 100; 16, 13 x 75; 12–16 mm OD, 63–120 mm height yes/yes yes/quarterly, 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 — —
Instruments to which your system or product is interfaced Other robotic products, components to which system or product is linked	— —	— —
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	— — — —	yes PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/up to 1,100 tubes yes/16, 13 x 100; 16, 13 x 75; 12–16 mm OD, 63–120 mm height quarterly, annually
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	no — — — — — ability to swap layouts to accommodate workflow changes 1 day/distributor/— no/no	storage PathFinder 900 Plus/2.5 x 1.8 x 1.4 m (8.2 x 5.9 x 4.6 in.)/yes/1,200+ tubes 16, 13 x 100; 16, 13 x 75; 12–16 mm outer diameter, 63–120 mm height/yes yes/— yes/quarterly, annually no ability to add, change modules, swap out deck layout to expand application 3 weeks/distributor/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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— included/—/— included/—/included/— — —	— included/—/— included/included/included/included —/optional —/optional
Distinguishing features (supplied by company)	compact benchtop design; flexible deck layout; accommodates various third-party analyzer racks	modular design for flexible configuration and layout; parallel processing of samples and workload balancing for optimal throughput; three-sided loading and unloading of samples for multiple user access; accommodates multiple container types simultaneously
*For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

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See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	PathFinder 350A Archiver/2014/6 10/22/31	Power Express/2013/60 35/20/25
Automation products that are available:		
• Preanalytical processor/Total laboratory automation	yes/no	yes/yes
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/no/no/no	yes/yes/yes/yes
Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/no/no/yes	yes/yes/no/yes
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 system monitoring	yes/yes	yes/yes
Software features/functionality:		
• Patient demographics and insurance data/Rules-based architecture	—/LIS feature	—/LIS feature
• Supports data retrieval/Internet connectivity	automation SW feature/automation SW feature	automation SW feature/—
• Online real-time help system/QC/Stats and management reports	automation SW feature/—/automation SW feature	—/—/automation SW feature
• Evaluates validity and 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 number redundancy (duplicate specimen ID)	automation SW feature	—
• Supports specimen carrier and level identification	automation SW feature	automation SW feature
• Unique barcode number per container required	automation SW feature	automation SW feature
• Specimen routing/Multistop routing (one tube to multiple workstations)	LIS feature/automation SW feature	automation SW feature/automation SW feature
• Specimen scheduling/Instrument scheduling	LIS feature/—	automation SW feature/—
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/LIS feature	automation SW feature/automation SW feature
• Supports multiple HW configuration/Supports other proprietary transport. HW	automation SW feature/—	automation SW feature/—
• Sample storage and retrieval SW/Supports approved CLSI standards	LIS feature/automation SW feature	automation SW feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Apollo, HCLAB, Kestral PLS, Labcore, Ultra/CLSI LIS 1-A, 2-A/—	SCC, Siemens, Cerner, McKesson, GE, Mediatech, Per Sé, others/ASTM/yes
Transportation systems available	no	yes
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—	300, 600, 900, 1200 mm tracks/depends on length/yes
• Containers device accommodates/Average throughput in cm per second	—	16, 13 × 100; 16, 13 × 75/12.5
• Supports automatic rerouting for reflex, repeat, dilutions	—	yes
• Modular HW/Installed options/Device can operate in track and manual mode	—	yes/floor mounted/yes
• Required utilities/Required maintenance	—	electricity, compressed air/daily
• Carrier type/Scalable system	—	single specimen container per carrier/yes
Automated centrifugation available	no	yes
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—	Power Express Centrifuge/—/yes
• Maximum throughput per hour/Containers device accommodates	—	300/16, 13 × 100; 16, 13 × 75
• Can identify tube types for custom programmed rate and spin times per run	—	yes
• More than one centrifuge can be connected to track system	—	yes
• For multiunit centrifuge: each centrifuge operates independently for rate and time	—	yes
• Maintenance required	—	daily
Automated input/accessioning available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	PathFinder 350A Archiver/115 × 56 × 47 cm (45 × 22 × 18.5 in.)/yes/350 samples	Dynamic Inlet/—/yes/1,450
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75; 12–16 mm OD, 63–120 mm height/yes	16, 13 × 100; 16, 13 × 75/yes
• Maximum No. of samples that can be loaded/Maintenance required	—/semiannually	400/daily
Automated decapping available	no	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	Decapper/—/yes/1,200
• Containers device accommodates/Maintenance required	—	16, 13 × 100; 16, 13 × 75/daily
• 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**	PathFinder 350A Archiver/115 × 56 × 47 cm (45 × 22 × 18.5 in.)/yes/350 samples	—/—/yes/600
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75; 12–16 mm OD, 63–120 mm ht/specimen, method, output	16, 13 × 100; 16, 13 × 75/method, output
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 aliquoting available	no	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	Aliquotter/—/yes/1,200
• Containers device accommodates	—	13 × 100, 13 × 75
• Inspects samples for barcode/Detects and reports clots in specimen	—	yes/yes
• Detects and reports quantity not sufficient specimens/Maintenance required	—	yes/daily
Instrument (analyzer) interfaces:		
• Rules-based instrument interface control subsystem	no	—
• Process control of instrument via control subsystem	no	—
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
• Immunoassay/Urinalysis	—	point-of-reference sampling/—
Instruments to which your system or product is interfaced	—	—
Other robotic products, components to which system or product is linked	—	—
Automated recapper or sealer available	sealer	recapper
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	PathFinder 350A Archiver/22 × 45 × 8.5 in./yes/350 tubes	—/—/yes/1,200
• Recaps, seals multiple size tubes simult./Containers device accommodates	yes/16, 13 × 100; 16, 13 × 75; 12–16 mm OD, 63–120 mm height	no/16, 13 × 100; 16, 13 × 75
• Maintenance required	monthly, annually	daily
Automated storage and retrieval available	storage	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	PathFinder 350A Archiver/115 × 56 × 47 cm (45 × 22 × 18.5 in.)/yes/350 samples	3K and 5K/—/yes/600
• Containers device accommodates/Connects to the track	16, 13 × 100; 16, 13 × 75; 12–16 mm OD, 63–120 mm height/no	16, 13 × 100; 16, 13 × 75/yes
• Room temperature/Minimum and maximum number of tubes stored per module	yes/—	yes/1–5,440
• Multiple size tubes can be stored in the same module/Maintenance required	yes/monthly	yes/daily
• Refrigerated storage and retrieval capability	no	yes
Longitudinal upgrade pathway or plan to protect users' investments	ability to swap out deck layout to expand application	—
Average time to install/Who provides service, support/Hours support is available	1 day/distributor/—	depends on site size/Beckman Coulter/—
On-site biomedical engineer required/User group meets regularly	no/no	no/yes
List price	—	—
Individual list prices for components:		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval	included/—/included/included	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—/included	—
Distinguishing features (supplied by company)	automatically caps, sorts, and archives sample tubes directly from analyzer racks; archives tubes into low-cost storage racks; runs with or without an LIS connection; accommodates multiple container types simultaneously	consistently short turnaround time; random access storage; open multidiscipline system
* For basic building 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

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Part 4 of 17	Beckman Coulter Raymond Tecotzky rhtecotzky@beckman.com 250 S. Kraemer Blvd., Brea, CA 92822 714-961-3753 www.beckmancoulter.com	Beckman Coulter Simon Kasse skasse@beckman.com 250 S. Kraemer Blvd., Brea, CA 92822 +49 89 579589 3607 www.beckmancoulter.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	AutoMate 800/2006/5 39/103/17	AutoMate 2500 Family/2003/168 >100/>700/>200
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/no yes/no/yes/yes yes/yes/yes/no yes/yes yes/no/open yes/—	yes/no yes/no/no/yes yes/yes/yes/yes no/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	LIS feature/automation SW feature LIS feature/— automation SW feature/LIS 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/— 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 automation SW feature/— — automation SW feature/— automation SW feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	SCC, Siemens/ASTM/yes	Cerner, SCC, Atlas, McKesson, others/HL7, ASTM/yes
Transportation systems available • Model/Dimensions (H × W × D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — — —	no — — — — — —
Automated centrifugation available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	yes AutoMate 800/—/yes 300/16, 13 × 100; 16, 13 × 75; Sarstedt, Greiner, BD pediatric tubes no no no daily	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 AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75; Sarstedt, Greiner, BD pediatric tubes/yes 600/daily, monthly	yes AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200 16, 13 × 100; 16, 13 × 75; diameter: 10.5–17.0 mm; length: 70–100 mm/yes 300, continuously/—
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 AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75; Sarstedt, Greiner, BD pediatric tubes/daily, monthly yes/yes	yes AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200 16, 13 × 100; 16, 13 × 75; diameter: 10.5–17.0 mm; length: 70–100 mm/— yes/yes
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 AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75; Sarstedt, Greiner, BD pediatric tubes/method, output	yes AutoMate 2500 Family units/64 × 73 × 53 in./yes/1,200 16, 13 × 100; 16, 13 × 75; others/specimen, test order, fill level, input position
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 barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes AutoMate 800/—/yes/420 16, 13 × 100; 16, 13 × 75; Sarstedt yes/yes yes/daily, monthly	yes AutoMate 1250, 2550/64 × 101 × 53 in./yes/600 16, 13 × 100; 16, 13 × 75; secondary tubes 13 × 75 yes/yes yes/daily
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 — —
Instruments to which your system or product is interfaced Other robotic products, components to which system or 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 simult./Containers device accommodates • Maintenance required	no — — —	sealer all AutoMate 2500 Family units/—/yes/1,200 yes/16, 13 × 100; 16, 13 × 75 daily
Automated storage and 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/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	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 — 7 days/Beckman Coulter/24–7 no/no	— — — — — longitudinal upgrade pathway 1 week/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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	\$290,000–\$460,000 — — — —
Distinguishing features (supplied by company)	automatic rack layout can be reconfigured with another rack style; intelligent aliquoting; sample storage routing by duration and temperature	high-speed, cost-efficient way to automate pre- and postanalytical steps; improves patient safety and lab efficiency through tube inspection unit to ensure correct label is on the sample and that enough sample volume is available; allows direct sorting to most analyzers' racks, and easy to change configurations
* For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 5 of 17	Beckman Coulter	Cerner Laboratory Automation
See captodayonline.com/productguides for an interactive version of guide	Raymond Tecotzky rhtecotzky@beckman.com 250 S. Kraemer Blvd., Brea, CA 92822 714-961-3753 www.beckmancoulter.com	Robert Whited labautomation@cerner.com 2800 Rockcreek Parkway, Kansas City, MO 64117 816-201-9531 www.cerner.com
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	Power Processor/1998/60 >350/>100>200	Cerner Laboratory Automation/2010/3 5/0/0
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes yes/yes/yes/yes yes/yes yes/yes/open yes/yes	yes/yes yes/yes/yes/yes yes/yes/yes/yes yes/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	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 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 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/automation SW feature automation SW feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	SCC, Siemens, Cerner, McKesson, GE, Mediatech, Per Sé, others/Direct, HL7/yes	Cerner Millennium PathNet, self-developed LIS, Orchard/HL7/—
Transportation systems available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes Power Processor II/—/yes 16, 13 × 100; 16, 13 × 75; Sarstedt/— yes yes/floor and subfloor mounted/yes compressed air, electricity/monthly single specimen container per carrier/yes	yes Cerner Lab Automation/custom/yes 16, 13 × 100; 16, 13 × 75/variable yes yes/floor mounted/no compressed air, electricity/daily, weekly, monthly, quarterly, annually single specimen container per carrier/yes
Automated centrifugation available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	yes Power Processor II/—/yes 300–450/16, 13 × 100; 16, 13 × 75; Sarstedt no yes yes weekly	yes Hettich/71.6 × 47 × 75 in./yes variable/16, 13 × 100; 16, 13 × 75 yes yes yes daily, weekly, monthly, quarterly, annually
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 Power Processor II/—/yes/900 16, 13 × 100; 16, 13 × 75; Sarstedt/yes 200/monthly	yes Cerner Lab Automation/47 × 43 × 75 in./yes/variable 16, 13 × 100; 16, 13 × 75/yes variable/daily, weekly, monthly, quarterly, annually
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 Power Processor II/—/yes/600 16, 13 × 100; 16, 13 × 75; Sarstedt/monthly yes/no	yes Cerner Lab Automation/33.5 × 66.1 × 20.5 in./yes/variable 16, 13 × 100; 16, 13 × 75/daily, weekly, monthly, quarterly, annually yes/yes
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 Power Processor II/—/yes/500 16, 13 × 100; 16, 13 × 75; Sarstedt/method, output	yes Cerner Lab Automation/43 × 47 × 75 in./yes/variable 16, 13 × 100; 16, 13 × 75/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	yes Power Processor II/—/yes/90 16, 13 × 100; 16, 13 × 75; Sarstedt/monthly	yes Cerner Lab Automation (in development)/—/yes/— 16, 13 × 100; 16, 13 × 75/daily, weekly, monthly, quarterly, annually
Automated aliquoting available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes Power Processor II/—/yes/140 primary samples 16, 13 × 100; 16, 13 × 75; Sarstedt yes/yes yes/daily, weekly	yes Cerner Lab Automation/62.6 × 57 × 66.7 in./yes/variable 16, 13 × 100; 16, 13 × 75 yes/yes yes/daily, weekly, monthly, quarterly, 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	yes yes robotic arm interface/point-of-reference sampling, robotic arm interface/point-of-reference sampling, robotic arm interface point-of-reference sampling, robotic arm interface/point-of-reference sampling	yes yes point-of-reference sampling, robotic arm interface/point-of-reference sampling, robotic arm interface/point-of-reference sampling, robotic arm interface point-of-reference sampling, robotic arm interface/no
Instruments to which your system or product is interfaced	AU680, 5400, 2700, 5800; Abbott Architect, Axsym; Siemens Advia, Atlas; Beckman Coulter LX 20, DxC, Dxl; Ortho 950, 250, Eci; Roche Modular; Stago STA-R	Beckman Coulter AU5800 series, Beckman Coulter Dxl, Siemens Advia Centaur series, Roche cobas series, Stago STA-R, Sysmex XN series, Bio-Rad BioPlex 2200
Other robotic products, components to which system or 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 simult./Containers device accommodates • Maintenance required	recapper Power Processor III/—/yes/500 no/13 × 100; 13 × 75; Sarstedt weekly	recapper Cerner Lab Automation/50.4 × 24.4 × 66.1 in./yes/variable yes/16, 13 × 100; 16, 13 × 75 weekly, monthly, quarterly, annually
Automated storage and 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/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	yes Power Processor III/—/yes/500 13 × 100; 13 × 75; Sarstedt/yes yes/1 and 5,440 no/weekly yes Power Processor is expandable for upgrades as lab needs grow	yes Cerner Lab Automation/115 × 75.2 × 57.1 in./yes/variable 16, 13 × 100; 16, 13 × 75/yes yes/variable yes/weekly, monthly, quarterly, annually yes open modular system allows changing of analyzers and adding of components, track length, and reconfiguration of the physical track
Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	7–21 days/Beckman Coulter/24–7 no/yes	20 days/Cerner/24–7, 365 days per year no/—
List price Individual list prices for components: • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company)	refrigerated storage with recapping and auto rerun; totally open system; intelligent aliquoting; consistent turnaround time results	open, modular system independent of lab instrumentation; ability to do custom configurations; sort and deliver all specimens to any destination (analyzer) in the laboratory
* For basic building 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 6 of 17	IDS Joseph Wilk joewilkjr@idsma.com 8-14-30 Nagamine Higashi, Kumamoto, Japan 861-8038 978-563-9455 www.idsma.com	IDS Joseph Wilk joewilkjr@idsma.com 8-14-30 Nagamine Higashi, Kumamoto, Japan 861-8038 978-563-9455 www.idsma.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	IDS 2800 Sample Processor/2015/— 500+/75+/500+	IDS CLAS X-1/2017/— 500+/75+/500+
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes yes/yes/no/yes yes/yes yes/yes (Japan only)/open yes/no	yes/yes yes/yes/yes/yes yes/yes/no/yes yes/yes yes/yes (Japan only)/open yes/no
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	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/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 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) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	numerous LISs/ASTM/yes	numerous LISs/ASTM/yes
Transportation systems available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes IDS 2800/1,500 x 1,570 x 850 mm/yes 16, 13 x 100; 16, 13 x 75/750 per hour yes yes/floor mounted, overhead mounted, subfloor mounted/yes electricity (based on configuration)/daily, monthly single specimen container per carrier/yes	yes multiple/varies/yes 16, 13 x 100; 16, 13 x 75/750 per hour for base model, beltless transport system yes yes/floor mounted, overhead mounted, subfloor mounted/yes electricity (based on configuration)/daily, monthly single specimen container per carrier/yes
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — —	yes IDS CLAS High Performance Centrifugation/—/yes 1,000/16, 13 x 100; 16, 13 x 75 yes yes yes —
Automated input/accessioning available • Model/Dimen. (H x W x 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 —/included in system/yes/320 16, 13 x 100; 16, 13 x 75/yes —/daily, monthly	yes various/varies/yes/300–3,000 based on model 16, 13 x 100; 16, 13 x 75/yes 200 for base model/monthly
Automated decapping available • Model/Dimen. (H x W x 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 —/included in system/yes/320 16, 13 x 100; 16, 13 x 75/— yes/yes	yes IDS CLAS X-1 Base/—/yes/750 16, 13 x 100; 16, 13 x 75/— yes/yes
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes —/included in system/yes/450 16, 13 x 100; 16, 13 x 75/specimen, method, output	yes IDS CLAS X-1 Base/—/yes/750 16, 13 x 100; 16, 13 x 75/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	no — —
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes —/included in system/yes/320 primaries 16, 13 x 100; 16, 13 x 75; up to 4 different aliquot tubes simultaneously; maximum aliquot dispense volumes up to 2 mL yes/yes yes/daily	yes IDS CLAS X-1 Base/varies/yes/300 primaries 16, 13 x 100; 16, 13 x 75; maximum aliquot dispense volumes up to 2 mL yes/yes yes/daily
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 — —
Instruments to which your system or product is interfaced	—	all automation capable analyzers including Siemens, Beckman Coulter, Hitachi, Roche, Sysmex, Toshiba, Jeol, Tosoh, Diasorin, Stago, IL, OCD, Abbott, others
Other robotic products, components to which system or product is linked	—	various custom projects have incorporated automation components and systems (both commercial and proprietary)
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	— — — —	recapper IDS CLAS X-1 Base/—/yes/750 yes/16, 13 x 100; 16, 13 x 75; screw recapper also available —
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	— — — — — — standalone system can be incorporated into a TLA installation via external track connections for both input and output	yes various/varies by capacity/yes/— 16, 13 x 100; 16, 13 x 75/yes yes/1,000–5,400 yes/— yes modular system design allows for expansion or contraction as requirements dictate
Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	1 month including validation/IDS/24–7 no/no	1 month including validation/IDS/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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company) * For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>	fully integrated production results in 98 percent of components produced in-house, allows for unlimited customization based on each customer's needs; broad product line to address sample volumes from 300 to 30,000+ specimens per day	fully integrated production results in 98 percent of components produced in-house, allows for unlimited customization based on each customer's needs; broad product line to address sample volumes from 300 to 30,000+ specimens per day

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 7 of 17	IDS Joseph Wilk joewilkjr@idsma.com 8-14-30 Nagamine Higashi, Kumamoto, Japan 861-8038 978-563-9455 www.idsma.com	IDS Joseph Wilk joewilkjr@idsma.com 8-14-30 Nagamine Higashi, Kumamoto, Japan 861-8038 978-563-9455 www.idsma.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	IDS CLAS High Speed Sorter/2017/— 500+/75+/500+	IDS CLAS/2000/— 500+/75+/500+
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes yes/no/no/no yes/yes yes/yes (Japan only)/open yes/no	yes/yes yes/yes/yes/yes yes/yes/no/yes yes/yes yes/yes (Japan only)/open yes/no
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	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/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 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) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	numerous LISs/ASTM/yes	numerous LISs/ASTM/yes
Transportation systems available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes multiple/varies/yes 16, 13 × 100; 16, 13 × 75/3,000 per hour no yes/floor mounted/yes electricity (based on configuration)/daily, monthly single specimen container per carrier/yes	yes multiple/varies by unit/yes 16, 13 × 100; 16, 13 × 75; urine cups, tubes, others/750–3,000 per hour yes yes/floor mounted, overhead mounted, subfloor mounted/yes electricity, compressed air (based on configuration)/daily, monthly multiple specimen container per carrier/yes
Automated centrifugation available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — —	yes various/varies by model/yes 300–1,000 based on model/16, 13 × 100; 16, 13 × 75 yes yes yes —
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 IDS CLAS X-1 Bulk Loader/—/yes/3,000 16, 13 × 100; 16, 13 × 75/no continuous feed/daily	yes various/varies/yes/300–3,000 based on model 16, 13 × 100; 16, 13 × 75; urine cups, tubes, others/yes —/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 IDS CLAS X-1 High Speed Decapper/—/yes/3,000 16, 13 × 100; 16, 13 × 75/— yes/yes	yes various/varies by unit/yes/800–3,000 based on model 16, 13 × 100; 16, 13 × 75/— yes/yes
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 IDS CLAS X-1 High Speed Outlet/varies by model/yes/1,000 16, 13 × 100; 16, 13 × 75/specimen, method, output	yes multiple/varies by model/yes/varies by model 16, 13 × 100; 16, 13 × 75/specimen, method, output
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	— — —	yes multiple/varies by model/yes/300–600 primaries; multiple units can be connected in one system 16, 13 × 100; 16, 13 × 75; up to 4 different aliquot tubes simultaneously based on model; maximum aliquot dispense volumes up to 4 mL
• Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	— —	yes/yes yes/daily
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, robotic arm/point-of-reference sampling, robotic arm/point-of-reference sampling, robotic arm point-of-reference sampling, robotic arm/point-of-reference sampling, robotic arm
Instruments to which your system or product is interfaced	all automation capable analyzers including Siemens, Beckman Coulter, Hitachi, Roche, Sysmex, Toshiba, Jeol, Tosoh, Diasorin, Stago, IL, OCD, Abbott, others	all automation capable analyzers including Siemens, Beckman Coulter, Hitachi, Roche, Sysmex, Toshiba, Jeol, Tosoh, Diasorin, Stago, IL, OCD, Abbott, others
Other robotic products, components to which system or product is linked	various custom projects have incorporated automation components and systems (both commercial and proprietary)	various custom projects have incorporated automation components and systems (both commercial and proprietary)
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	— — — —	recapper multiple/varies by unit/yes/— yes/16, 13 × 100; 16, 13 × 75 —
Automated storage and 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/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	— — — — — modular system design allows for expansion or contraction as requirements dictate	yes various/varies by capacity/yes/— 16, 13 × 100; 16, 13 × 75/yes yes/1,000–5,400 yes/— yes modular system design allows for expansion or contraction as requirements dictate
Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	1 month including validation/IDS/— no/no	1 month including validation/IDS/— 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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company)	fully integrated production results in 98 percent of components produced in-house, allows for unlimited customization based on each customer's needs; broad product line to address sample volumes from 300 to 30,000+ specimens per day	fully integrated production results in 98 percent of components produced in-house, allows for unlimited customization based on each customer's needs; broad product line to address sample volumes from 300 to 30,000+ specimens per day
* For basic building 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 8 of 17	Inpeco Giuseppe Minola info@inpeco.com Via San Gottardo 10, Lugano, CH 6900, Switzerland +41 91 9118200 www.inpeco.com	Instrumentation Laboratory Venita Shirley vshirley@ilww.com 180 Hartwell Road, Bedford, MA 01730 781-861-0710 www.instrumentationlaboratory.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	FlexLab Automation/2008/28 N. America: 8; S. America: 3/177/11	HemoCell hemostasis workcell/2013/— 30 worldwide
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes no/yes/yes/yes yes/yes yes/yes/open yes/yes	yes/yes yes/yes/yes/yes yes/no/no/yes yes/yes yes/yes/closed yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	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 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 (connection to third-party conveyor and pneumatic mails) 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 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) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Cerner Classic and Millennium, Cortex, GE Ultra, Meditech 5.4, Misys, SCC, others/ ASTM/yes	Remisol, SampleNet, Modulab, Concerto, OpenLIS, GLIMS; in process: Cerner, Soft, Meditech/HL7, ASTM/yes
Transportation systems available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes FlexLab Track Module, Vertical Transportation Module (VTM)/Track: 1,020 x 2,300 x 430 mm; VTM: customized for height x 405 x 185 mm/yes 16, 13 x 100; 16, 13 x 75; some pediatric tubes with adapter/17.5 yes yes/floor mounted/yes compressed air, electricity/no maintenance required to operator single specimen container per carrier/yes	yes covered conveyor/600–2,400 mm sections/yes 16, 13 x 100; 16, 13 x 75/10 yes yes/floor mounted/— compressed air, electricity/annually single specimen container per carrier/yes
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	yes FlexLab Centrifuge Module (Hettich Rotanta 460 Robotic)/1,485 x 945 x 1,155 mm/yes 300 tubes/16, 13 x 100; 16, 13 x 75; pediatric tubes with adapter no yes yes weekly, monthly	yes Centrifuge Module/1,900 x 1,200 x 1,375 mm/yes 400/13 x 100; 13 x 75; 96-tube capacity no yes yes quarterly
Automated input/accessioning available • Model/Dimen. (H x W x 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 FlexLab IOM/RIM/BIM Module/—/yes/IOM: 750; RIM: 800; BIM: 1,000 tubes 16, 13 x 100; 16, 13 x 75; some pediatric tubes with adapter, others/yes IOM: 780; RIM: 288; BIM: 800/weekly, monthly	yes EsFlex/1,900 x 1,200 x 1,515 mm/yes/600 16, 13 x 100; 16, 13 x 75/yes 800/annually
Automated decapping available • Model/Dimen. (H x W x 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 FlexLab Decapper and Desealer Module/—/yes/Decapper: 800, Desealer: 200 16, 13 x 100; 16, 13 x 75; some pediatric tubes with adapter/daily, monthly yes/yes	yes Decapper Module/1,600 x 600 x 965 mm/yes/600 16, 13 x 100; 16, 13 x 75/annually yes/yes
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes FlexLab Input-Output Module/1,490 x 2,340 x 775 mm/yes/750 tubes 16, 13 x 100; 16, 13 x 75; some pediatric tubes with adapter/specimen, method, output	yes EsFlex/1,900 x 1,200 x 1,515 mm/yes/600 16, 13 x 100; 16, 13 x 75/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	yes ACL TOP 750 LAS/1,620 x 1,800 x 870 mm/yes/— 16, 13 x 100; 16, 13 x 75/quarterly
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes FlexLab Aliquoter Module: 1,450 x 705 x 1,590 mm; FlexLab Liquid Handling Robot LAS: customized/yes/Aliquoter: 500 tubes; LHR-LAS: up to 960 tubes (10 plates) primary tubes: 16, 13 x 100; 16, 13 x 75; aliquots: 13 x 100 with false bottom or 12 x 75 tubes, plates, and cryovials in rack based on SBS dimensional standards yes/yes yes/daily, weekly, monthly	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, robotic arm/point-of-ref., robotic arm/point-of-ref., robotic arm point-of-reference sampling, robotic arm/robotic arm interface	yes yes no/no/point-of-reference sampling no/no
Instruments to which your system or product is interfaced	Abbott, Siemens, Roche, Beckman, Sysmex, Ortho, Diasorin, Thermo, Bio-Rad, Tosoh, Stago, Copan, IL, Alifax, DIESSE, Mechatronics, Helena, Fujirebio, Jeol, Sekisui, others	Instrumentation Laboratory ACL TOP 700/750 LAS
Other robotic products, components to which system or product is linked	—	—
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	recapper for screw cap aliquot, recapper for pressure cap aliquot, sealer FlexLab Recapper and Sealer Module/—/yes/400, sealer module available yes/16, 13 x 100; 16, 13 x 75; some pediatric tubes with adapter, others monthly	recapper Recapper Module/1,600 x 600 x 965 mm/yes/500 yes/16, 13 x 100; 16, 13 x 75 annually
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	yes FlexLab Storage and Retrieval Module (RSM); High Volume Storage (HVS)/RSM: 2,460x2,460x1,405 mm; HVS: scalable up to 3,700x8,310x7,397 mm/yes/ up to 7,500 16, 13 x 100; 16, 13 x 75; others/yes 39.2°F (4°C)/9,000 or 15,360 or up to 554,400 yes/daily, monthly yes initial level of automation can incrementally expand to meet growing lab needs	yes EsFlex/1,900 x 1,200 x 1,515 mm/yes/600 16, 13 x 100; 16, 13 x 75/yes yes/800 yes/annually no customized automation offering, HemoCell can be reconfigured or upgraded as needs change; SW configuration updates available periodically
Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	site dependent/Inpeco with cooperation of local service agencies/24–7 no/no	2 weeks/IL affiliates/depends on contract 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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — —	— — — —
Distinguishing features (supplied by company)	open and flexible; fully integrated data management and automation software; innovative solutions for specialties such as mass spectrometry or biobanking	customizable: each HemoCell is customized to meet customer needs; configurable; configuration of the installed HemoCell may change with customer needs; compact; HemoCell is designed to fit in existing floor space while providing lean workflow
* For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 9 of 17	Ortho-Clinical Diagnostics Hubert Guyot hubert.guyot@orthoclinicaldiagnostics.com 1001 US Route 202, Raritan, NJ 08869 +33 664055772 www.orthoclinical.com	Roche Diagnostics Ed Gilligan edward.gilligan@roche.com 9115 Hague Road, Indianapolis, IN 46250 317-521-3150 www.roche-diagnostics.us
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	VITROS Automation Solutions/2015/— 108 worldwide, incl. enGen installs	cobas connection modules (CCM)/2014 outside U.S., 2016 U.S./— —
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes yes/yes/yes/no yes/yes yes/yes/open yes/yes	yes/yes yes/yes/yes/yes yes/yes/yes/yes yes/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and 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/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Cerner, SCC, Sunquest, McKesson, Meditech, Orchard, others/HL7 or ASTM (direct or through middleware)/yes	numerous LISs/HL7, ASTM/yes
Transportation systems available • Model/Dimensions (H × W × D)*/Conforms to CLSI Stand. Auto 1-5	yes Conveyor 600–2,400 mm, U-, L-, Z-, and Internal U-Turn/1,000 × 175 × 600 mm (≤2,400 mm of length)/yes	yes CCM track/.5, 1.0 m/yes
• Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	16, 13 × 100; 16, 13 × 75/10 yes yes/floor mounted/yes compressed air, electricity/daily, weekly, annually single specimen container per carrier/yes	16, 13 × 100; 16, 13 × 75; FBT/30 yes yes/floor mounted/yes compressed air, electricity/daily, weekly, monthly, bimonthly multiple specimen container per carrier/yes
Automated centrifugation available	yes	yes
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	Centrifuge Module with Hettich Rotanta 460 RSC/1,900 × 1,200 × 1,365 mm/yes 400/13 × 100; 13 × 75 no yes yes	cobas p471 (single), cobas p671 (double)/72.4 × 90.6 × 50.8 in./yes up to 495; 940 with 5 min. spin/16, 13 × 100; 16, 13 × 75 yes yes yes
Automated input/accessioning available	yes	yes
• 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	ES Flex/1,900 × 1,200 × 790 mm/yes/600 16, 13 × 100; 16, 13 × 75/yes 480–512/daily, weekly, annually	cobas p512: 82.8 × 74.4 × 62.4 in.; cobas p612: 78 × 124.8 × 73.2 in./yes/up to 1,400 16, 13 × 100; 16, 13 × 75; FBT/yes up to 600/daily, monthly
Automated decapping available	yes	yes
• 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	Decapper Module/1,600 × 600 × 790 mm/yes/600 16, 13 × 100; 16, 13 × 75/daily, weekly yes/yes	cobas p512: 82.8 × 74.4 × 62.4 in.; cobas p612: 78 × 124.8 × 73.2 in./yes/up to 1,400 16, 13 × 100; 16, 13 × 75/daily, weekly, monthly yes/yes
Automated sorting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	ES Flex, Rack Exit/1,900 × 1,200 × 790 mm/yes/600 16, 13 × 100; 16, 13 × 75/specimen, method, output	cobas p512: 82.8 × 74.4 × 62.4 in.; cobas p612: 78 × 124.8 × 73.2 in./yes/up to 1,400 16, 13 × 100; 16, 13 × 75/specimen, method, output
Specimen integrity monitor available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	via VITROS 5,1 FS, 3600, 4600, 5600 systems/—/—/— 16, 13 × 100; 16, 13 × 75/weekly, monthly, annually	QS1/cobas p512: 82.8 × 74.4 × 62.4 in.; cobas p612: 78 × 124.8 × 73.2 in./yes/up to 1,400 16, 13 × 100; 16, 13 × 75/—
Automated aliquoting available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	Aliquoter and Labeler/1,900 × 1,500 × 790 mm/yes/120 16, 13 × 100; 16, 13 × 75 yes/yes yes/daily, weekly	cobas p612/78 × 124.8 × 73.2 in./yes/655 (depends on No. of aliquots) 16, 13 × 100; 16, 13 × 75; FBT yes/yes yes/weekly
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/robotic arm interface point-of-reference sampling/—	yes yes robotic arm interface/robotic arm interface/robotic arm interface robotic arm interface/—
Instruments to which your system or product is interfaced	VITROS 5,1 FS, 3600, 4600, 5600 systems; Centaur XP; Architect i2000 SR; Stago STA-R; Sysmex XN-9000 series; DiaSorin Liaison XL	Sysmex XN9000 and HST; Stago STA-R Evolution and Max
Other robotic products, components to which system or product is linked	—	Roche cobas 6800/8800 automated molecular sys.; add-on buffer; output buffer
Automated recapper or sealer available	recapper	sealer
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	Recapper Module/1,600 × 600 × 790 mm/yes/600 yes/16, 13 × 100; 16, 13 × 75 daily, weekly	cobas p512: 82.8 × 74.4 × 62.4 in.; cobas p612: 78 × 124.8 × 73.2 in./yes/up to 1,400 yes/16, 13 × 100; 16, 13 × 75 daily
Automated storage and retrieval available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	Refrigerated Storage Module (220V, 110V)/2,100 × 1,700 × 3,650 mm/yes/700; ES Flex Module (nonrefrigerated)/1,900 × 1,200 × 790 mm/yes/600 16, 13 × 100; 16, 13 × 75/yes yes/14,800 for refrigerated storage; 800 for ES Flex yes/daily, weekly yes (refrigerated storage) modules, interfaces, and conveyors can be added to existing installation without having to move the track or track can be completely rearranged on site	cobas p501: 91 × 171 × 67 in.; cobas p701: 91 × 215 × 67 in./yes/up to 750 16, 13 × 100; 16, 13 × 75; FBT/yes no/13,500 and 27,000 yes/— yes Roche continues to invest in upgrades and improvements to current modules as well as in future modules
Average time to install/Who provides service, support/Hours support is available	varies, 2–4 weeks or more depending on complexity/Ortho-Clinical Diagnostics/M–F, 8 AM–5 PM, or 24–7 depending on contract	1–14 days for install, implementation depends on system/Roche/varies by contract type
On-site biomedical engineer required/User group meets regularly	no/no	no/no
List price	varies	—
Individual list prices for components: • Process control SW/Transportation systems/Auto. centrifugation • Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — —	— — — —
Distinguishing features (supplied by company)	open architecture/middleware enables connection of many analyzer brands, including competitive systems; instruments can be placed in lean configuration or on both sides of the track to optimize space and fit existing laboratory layout; modules, interfaces, and conveyors can be added to installed automation configuration without major dis- ruption; track components can be easily rearranged without major construction work in the lab to absorb increased capacity or incorporate additional testing disciplines	ability to connect to molecular systems (cross-contamination studies completed); speed of system—up to 2,000 tubes per hour; flexibility of system—ability to add automation and analytical modules as testing needs change and ability to connect to other testing disciplines
* For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 10 of 17	Roche Diagnostics Ed Gilligan edward.gilligan@roche.com 9115 Hague Road, Indianapolis, IN 46250 317-521-3150 www.roche-diagnostics.us	Roche Diagnostics Ed Gilligan edward.gilligan@roche.com 9115 Hague Road, Indianapolis, IN 46250 317-521-3150 www.roche-diagnostics.us
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	cobas 8100 automated workflow series/2015/— —	cobas p612 pre-analytical system/2002/15 >800 worldwide
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/yes yes/yes/yes/yes yes/yes/yes/yes yes/— yes/yes/open yes/yes	yes/yes yes/yes (as option)/yes/yes yes/yes/yes/yes yes/yes yes/yes/closed yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and retrieval SW/Supports approved CLSI standards	LIS 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/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) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	numerous LISs/HL7, ASTM/yes	Cerner, Misis, others/ASTM and system-specific dynamic interface/no
Transportation systems available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	yes cobas 8100/varies on configuration/yes 16, 13 x 100; 16, 13 x 75; FBT/15 yes yes/floor mounted/— electricity/daily, weekly, monthly, quarterly, annually single specimen container per carrier/yes	yes transport built into the instrument/—/yes 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 mm up to 15.5 x 108 mm/— no yes/—/yes electricity/weekly, quarterly single specimen container per carrier/yes
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	yes cobas 8100 ACU/59 x 35 x 43 in./yes up to 300 per unit, up to 3 per line/16, 13 x 100; 16, 13 x 75 yes yes yes daily, weekly, monthly	yes single (EC1): 61.4 x 78.3 x 83.6 in.; EC2: 85.8 x 79.3 x 78.7 in./yes EC1: 380 tubes/16, 13 x 100; 16, 13 x 75; others yes yes yes weekly, quarterly
Automated input/accessioning available • Model/Dimen. (H x W x 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 cobas 8100 IPB/59 x 41 x 43 in./yes/up to 800 16, 13 x 100; 16, 13 x 75; FBT/yes up to 400 per module, 2 modules per line/daily, weekly, monthly	yes input unit as part of system/78.74 x 33.47 x 69.29 in./yes/up to 1,400 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 mm up to 15.5 x 108 mm/yes 600/daily, quarterly
Automated decapping available • Model/Dimen. (H x W x 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 cobas 8100 DSP/59 x 24 x 43 in./yes/up to 800 16, 13 x 100; 16, 13 x 75; FBT/daily, weekly, monthly yes/yes	yes decapping module as part of system/14.96 x 12.60 x 5.90 in./yes/up to 1,400 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/daily, quarterly yes/yes
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	yes cobas 8100 OBS/59 x 24 x 43 in./yes/up to 800 16, 13 x 100; 16, 13 x 75; FBT/specimen, method, output yes Sample Check Module/59 x 11.8 x 43.3 in./yes/up to 800 16, 13 x 100; 16, 13 x 75; FBT/yes	yes output sorter as part of system/71.65 x 55.90 x 55.11 in./yes/up to 1,400 16, 13x100; 16, 13x75; 11.5x65.5 to 15.5x108 mm/specimen, method, output yes Quality Check Unit QS I/11.4 x 19.7 x 14.0 in./yes/850 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/daily, quarterly
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes cobas 8100 AQN/59 x 24 x 43 in./yes/up to 800 for 2 aliquots 16, 13 x 100; 16, 13 x 75; FBT, RBT yes/yes yes/daily, weekly, monthly	yes aliquoting unit as part of system/125 x 73.2 x 78.7 in./yes/655 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm yes/yes yes/daily, 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	yes yes robotic arm interface/robotic arm interface/robotic arm interface robotic arm interface/—	yes no — —
Instruments to which your system or product is interfaced Other robotic products, components to which system or product is linked	Sysmex XN and Stago STA-R Evolution and MAX Roche cobas p501 and p701 Storage and Retrieval systems	— —
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	recapper cobas 8100 RSF/59 x 12 x 43 in./yes/up to 800 yes/16, 13 x 100; 16, 13 x 75; FBT daily, weekly, monthly	sealer recapping module as part of system/13.39 x 12.20 x 8.66 in./yes/up to 1,400 yes/16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm daily, quarterly
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments	yes cobas p701: 91 x 215 x 67 in.; cobas p501: 91 x 171 x 67 in./yes/up to 800 16, 13 x 100; 16, 13 x 75; FBT/yes no/27,000 and 13,500 yes/daily, weekly yes Roche continues to invest in upgrades and improvements to current modules as well as in future modules	yes as part of system (output sorter), up to 41 workplaces/—/yes/up to 750 16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/yes no/1,200 yes/daily, quarterly no independent of any analyzer company, Roche/PVT modules can be upgraded
Average time to install/Who provides service, support/Hours support is available	<5 days, varies by lab/Roche/varies by contract type	~1-2 weeks/Roche Diagnostics/daily 8 AM-5 PM (EST) and 24-7 upon request
On-site biomedical engineer required/User group meets regularly	no/no	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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— included/available/available included/included/included/— —/included —
Distinguishing features (supplied by company)	multilevel, bidirectional sample transport; maintains predictable TAT during peak testing with a two-story system architecture that separates full sample holders from empty ones; conforms to your laboratory's individual needs by offering workflows using primary samples, aliquoting, or both; provides flexible storage modules that automate the entire add-on/repeat testing process for short-, mid-, and long-term storage needs; minimal maintenance required	standalone system offers advanced functionality and throughput of up to 1,000 sample tubes per hour; open-system solution for automating preanalytical steps within a lab across multiple disciplines and vendors; minimal maintenance required
* For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

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See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	cobas p512 pre-analytical system/2001/23 >400 worldwide	AL-Flex —
Automation products that are available:		
• Preanalytical processor/Total laboratory automation	yes/yes	yes/no
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/yes/yes/yes	yes/no/no/no
• Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/no/no/yes	yes/yes/yes/no
• Storage retrieval/Intelligent sample routing	yes/yes	no/yes
• SW: Dedicated process control/Middleware control using LIS/Architecture	yes/yes/closed	yes/yes/open
• Company has dedicated automation support team/Remote system monitoring	yes/yes	yes/yes
Software features/functionality:		
• Patient demographics and insurance data/Rules-based architecture	automation SW feature/automation SW feature	LIS feature/automation SW 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 and management reports	automation SW feature/automation SW feature/automation SW feature	—/automation SW feature/automation SW feature
• Evaluates validity and 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 number redundancy (duplicate specimen ID)	automation SW feature	automation SW feature
• Supports specimen carrier and level identification	automation SW feature	automation SW feature
• Unique barcode number per container required	—	—
• 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	—
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/—	—/automation SW feature
• Supports multiple HW configuration/Supports other proprietary transport. HW	automation SW feature/automation SW feature	automation SW feature/—
• Sample storage and retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature	—
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Cerner, McKesson, SCC, others/ASTM and system-specific dynamic interface/no	—
Transportation systems available	yes	no
• Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5	transport built into the instrument/—/yes	—
• Containers device accommodates/Average throughput in cm per second	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/—	—
• Supports automatic rerouting for reflex, repeat, dilutions	no	—
• Modular HW/Installed options/Device can operate in track and manual mode	yes/—/yes	—
• Required utilities/Required maintenance	electricity/daily, quarterly	—
• Carrier type/Scalable system	single specimen container per carrier/yes	—
Automated centrifugation available	yes	no
• Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5	single (EC1)/61.4 x 78.3 x 83.6 in.; EC2: 85.8 x 79.3 x 78.7 in./yes	—
• Maximum throughput per hour/Containers device accommodates	EC1: 380 tubes/16, 13 x 100; 16, 13 x 75; others	—
• Can identify tube types for custom programmed rate and spin times per run	yes	—
• More than one centrifuge can be connected to track system	yes	—
• For multiunit centrifuge: each centrifuge operates independently for rate and time	yes	—
• Maintenance required	daily, quarterly	—
Automated input/accessioning available	yes	yes
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	input unit as part of system/78.74 x 33.47 x 69.29 in./yes/up to 1,400	—/—/yes/—
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 mm to 15.5 x 108 mm/yes	16, 13 x 100; 16, 13 x 75/yes
• Maximum No. of samples that can be loaded/Maintenance required	600/daily, quarterly	600/quarterly
Automated decapping available	yes	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	decapping module as part of system/14.96 x 12.60 x 5.90 in./yes/up to 1,400	—
• Containers device accommodates/Maintenance required	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/daily, quarterly	—
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/yes	—
Automated sorting available	yes	yes
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	output sorter as part of system/71.65 x 55.90 x 55.11 in./yes/up to 1,400	—/—/yes/—
• Containers device accommodates/Software can sort by	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/specimen, method, output	16, 13 x 100; 16, 13 x 75/specimen, method, output
Specimen integrity monitor available	yes	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Quality Check Unit QS I/11.4 x 19.7 x 14.0 in./yes/850	—
• Containers device accommodates/Maintenance required	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm/daily, quarterly	—
Automated aliquoting available	no	yes
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	—/—/yes/—
• Containers device accommodates	—	16, 13 x 100; 16, 13 x 75
• Inspects samples for barcode/Detects and reports clots in specimen	—	yes/yes
• Detects and reports quantity not sufficient specimens/Maintenance required	—	yes/quarterly
Instrument (analyzer) interfaces:		
• Rules-based instrument interface control subsystem	yes	yes
• Process control of instrument via control subsystem	no	yes
Physical/hardware (instrument/specimen) interface:		
• Hematology/Chemistry/Coagulation	no/no/no	—
• Immunoassay/Urinalysis	no/no	—
Instruments to which your system or product is interfaced	—	—
Other robotic products, components to which system or product is linked	—	—
Automated recapper or sealer available	sealer	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	recapping module as part of system/13.39 x 12.20 x 8.66 in./yes/up to 1,400	—
• Recaps, seals multiple size tubes simult./Containers device accommodates	yes/16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 to 15.5 x 108 mm	—
• Maintenance required	daily, quarterly	—
Automated storage and retrieval available	yes	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—/—/yes/up to 750	—
• Containers device accommodates/Connects to the track	16, 13 x 100; 16, 13 x 75; 11.5 x 65.5 mm to 15.5 x 108 mm/yes	—
• Room temperature/Minimum and maximum number of tubes stored per module	no/up to 1,200	—
• Multiple size tubes can be stored in the same module/Maintenance required	yes/daily, quarterly	—
• Refrigerated storage and retrieval capability	no	—
Longitudinal upgrade pathway or plan to protect users' investments	independent of any analyzer company, Roche/PVT modules can be upgraded	—
Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	~1 week/Roche Diagnostics/daily 8 AM–5 PM (EST) and 24–7 upon request no/no	2 days/Sarstedt/M–F, 8 AM–5 PM no/no
List price	—	—
Individual list prices for components:		
• Process control SW/Transportation systems/Auto. centrifugation	—/included/—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval	included/included/included/—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company)	standalone system offers advanced functionality and throughput of up to 1,000 sample tubes per hour; open-system solution for automating preanalytical steps within a lab across multiple disciplines and vendors; minimal maintenance required	
* For basic building 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 12 of 17	Sarstedt Peter Rumswinkel, VP/GM customerservice@sarstedt.us P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com	Sarstedt Peter Rumswinkel, VP/GM customerservice@sarstedt.us P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	BL 1200 ID/2010/— —	DC/RC 900 Flex/2009/— —
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/no yes/yes/no/yes yes/yes/yes/yes no/yes yes/yes/open yes/yes	yes/no yes/no/no/yes yes/no/no/yes no/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and 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
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	—	—
Transportation systems available • Model/Dimensions (H x W x D)*/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — — —	no — — — — — —
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — — —	no — — — — — —
Automated input/accessioning available • Model/Dimen. (H x W x 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 —/—/—/1,200 16, 13 x 100; 16, 13 x 75/yes —/daily, weekly, monthly, quarterly, annually	yes —/—/yes/800 16, 13 x 100; 16, 13 x 75; 13 x 65 to 16 x 100/yes 600/daily, annually
Automated decapping available • Model/Dimen. (H x W x 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 —/—/—/1,200 16, 13 x 100; 16, 13 x 75/daily, annually yes/yes	yes —/—/yes/800 16, 13 x 100; 16, 13 x 75; 13 x 65 to 16 x 100/daily, annually yes/yes
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes —/—/—/1,200 16, 13 x 100; 16, 13 x 75/specimen, method, output	yes —/—/yes/800 16, 13 x 100; 16, 13 x 75; 13 x 65 to 16 x 100/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	no — —
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes —/—/—/depends on number of aliquots 16, 13 x 100; 16, 13 x 75 yes/yes yes/daily, quarterly, annually	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	no no — —	no no — —
Instruments to which your system or product is interfaced Other robotic products, components to which system or product is linked	— track available	— —
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	recapper —/—/—/1,200 yes/16, 13 x 100; 16, 13 x 75 daily, annually	recapper —/—/yes/800 yes/16, 13 x 100; 16, 13 x 75; 13 x 65 to 16 x 100 daily, annually
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	no — — — — — — 1-2 weeks/Sarstedt or authorized Sarstedt service company/contract dependent no/no	no — — — — — — systems are upgradable 3 days/Sarstedt/M-F, 8 AM-5 PM 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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company)	bulk loading module: tubes are dumped into a hopper, eliminating need for pre-racking; modular design enables configuration based on individual requirements; custom sort target and rules determined by user	small sorter footprint; maximizes floor space; fills a gap experienced by smaller labs when large automation is too expensive; supports multiple runs for routine and archiving
* For basic building 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 13 of 17	Sarstedt Beau Fulbright instrument@sarstedt.us P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com	Sarstedt Peter Rumswinkel, VP/GM customerservice@sarstedt.us P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	MK2/2006/— 47/—/—	HSS High Speed Sorter 1625/2004/— —
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/no yes/no/no/no no/no/no/no no/yes yes/yes/open yes/yes	yes/no yes/yes/yes/yes yes/no/no/yes no/yes yes/yes/open yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and 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(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	—/serial connection/—	—
Transportation systems available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — — —	no — — — — — —
Automated centrifugation available • Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — — —	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 MK2/51 × 31 × 48 in./—/1,700 16, 13 × 100; 16, 13 × 75/no 600/daily, weekly, annually	yes —/—/yes/1,200 16, 13 × 100; 16, 13 × 75; 13 × 65 to 16 × 100/yes 600/daily, annually
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	no — — —	yes —/—/yes/1,200 16, 13 × 100; 16, 13 × 75; 13 × 65 to 16 × 100/daily, annually yes/yes
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 MK2/51 × 31 × 48 in./—/1,700 16, 13 × 100; 16, 13 × 75; others/specimen, method, output	yes —/—/yes/1,200 16, 13 × 100; 16, 13 × 75; 13 × 65 to 16 × 100/specimen, method, output
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 barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	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	no no — —	no no — —
Instruments to which your system or product is interfaced Other robotic products, components to which system or product is linked	— —	— track available
Automated recapper or sealer available • Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	— — — —	recapper —/—/yes/1,200 yes/16, 13 × 100; 16, 13 × 75; 13 × 65 to 16 × 100 daily, annually
Automated storage and 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/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	no — — — — — — 2.5 hours/Sarstedt/24–7 no/no	no — — — — — — systems are upgradable 1–2 weeks/Sarstedt/M–F, 8 AM–5 PM 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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company)		small footprint requires minimal lab space; modular design enables configuration with only the necessary modules and functions; custom sort target and rules are determined by the user
* For basic building block unit ** Average throughput in specimen containers per hour per device		
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 14 of 17	Sarstedt Peter Rumswinkel, VP/GM customerservice@sarstedt.us P. O. Box 468, Newton, NC 28658 800-257-5101 www.sarstedt.com	Siemens Healthineers Keith Pierson keith.pierson@siemens.com 511 Benedict Avenue, Tarrytown, NY 10591 847-267-6034 www.usa.siemens.com/diagnostics
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	Sarstedt PVS/—/— —	VersaCell X3 Solution/2014/— >200/>1,183 worldwide
Automation products that are available: • Preanalytical processor/Total laboratory automation • Automated functions: Accessioning/Track load/Centrifugation/Decapping Rack specific sort/Aliquot/Tube relabeling/Resealing Storage retrieval/Intelligent sample routing • SW: Dedicated process control/Middleware control using LIS/Architecture Company has dedicated automation support team/Remote system monitoring	yes/no yes/yes/no/yes yes/yes/yes/yes no/yes yes/yes/open yes/yes	yes/no no/yes/no/no yes/no/no/no yes/yes yes/yes/closed yes/yes
Software features/functionality: • Patient demographics and insurance data/Rules-based architecture • Supports data retrieval/Internet connectivity • Online real-time help system/QC/Stats and management reports • Evaluates validity and releasability of results from automated analyzers • Specimen tracking/Priority processing/Random-access spec. movement • Supports accession number redundancy (duplicate specimen ID) • Supports specimen carrier and level identification • Unique barcode 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 configuration/Supports other proprietary transport. HW • Sample storage and 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/LIS feature LIS 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 automation SW feature/automation SW feature automation SW feature/LIS feature automation SW feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	—	multiple vendors/ASTM/no
Transportation systems available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Containers device accommodates/Average throughput in cm per second • Supports automatic rerouting for reflex, repeat, dilutions • Modular HW/Installed options/Device can operate in track and manual mode • Required utilities/Required maintenance • Carrier type/Scalable system	no — — — — —	yes VersaCell X3 Solution/60 x 31 x 44 in./yes 16, 13 x 100; 16, 13 x 75/— yes yes/floor mounted/yes electricity/— —/yes
Automated centrifugation available • Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5 • Maximum throughput per hour/Containers device accommodates • Can identify tube types for custom programmed rate and spin times per run • More than one centrifuge can be connected to track system • For multiunit centrifuge: each centrifuge operates independently for rate and time • Maintenance required	no — — — — —	no — — — — —
Automated input/accessioning available • Model/Dimen. (H x W x 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 —/—/yes/1,200 16, 13 x 100; 16, 13 x 75; 13 x 65 to 16 x 100/— up to 600/quarterly	yes VersaCell X3 Solution/60 x 31 x 44 in./yes/200 samples 16 x 100; 16 x 75/yes 208/—
Automated decapping available • Model/Dimen. (H x W x 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 —/configuration dependent/yes/1,200 16, 13 x 100; 16, 13 x 75; multiple/quarterly yes/yes	no — — —
Automated sorting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Software can sort by	yes —/configuration dependent/yes/1,200 16, 13 x 100; 16, 13 x 75; multiple/specimen, method, output	yes VersaCell X3 Solution/60 x 31 x 44 in./yes/200 samples 16 x 100; 16 x 75/specimen, method, output
Specimen integrity monitor available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Maintenance required	no — —	no — —
Automated aliquoting available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates • Inspects samples for barcode/Detects and reports clots in specimen • Detects and reports quantity not sufficient specimens/Maintenance required	yes —/configuration dependent/yes/dependent on number of aliquots and their volumes 16, 13 x 100; 16, 13 x 75; multiple 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	no no — —	yes yes —/point-of-reference sampling/— point-of-reference sampling/—
Instruments to which your system or product is interfaced	—	Advia 1800 system, Immulite Immunoassay system, Advia Centaur system, Dimension EXL with LM, Dimension EXL 200 system, Dimension RxL MAX system StreamLab analytical workcell, Advia automation workcells, and Aptio automation
Other robotic products, components to which system or product is linked	track available	
Automated recapper or sealer available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Recaps, seals multiple size tubes simult./Containers device accommodates • Maintenance required	recapper —/configuration dependent/yes/1,200 yes/16, 13 x 100; 16, 13 x 75; 13–16 mm in diameter quarterly	no — — —
Automated storage and retrieval available • Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput** • Containers device accommodates/Connects to the track • Room temperature/Minimum and maximum number of tubes stored per module • Multiple size tubes can be stored in the same module/Maintenance required • Refrigerated storage and retrieval capability Longitudinal upgrade pathway or plan to protect users' investments Average time to install/Who provides service, support/Hours support is available On-site biomedical engineer required/User group meets regularly	no — — — — — systems are upgradable 1–2 weeks/Sarstedt or authorized Sarstedt service company/contract dependent no/no	no — — — — — — 2 days/—/— 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 and retrieval • Specimen integrity monitor/Automated aliquot • Instrument (analyzer) interfaces/Automated recap	— — — — —	— — — — —
Distinguishing features (supplied by company) * For basic building block unit ** Average throughput in specimen containers per hour per device <i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>	bulk loading module: tubes are dumped into a hopper, eliminating need for pre-racking; modular design enables configuration based on individual requirements; screw-cap recapping	non-track- or rack-based automated sample management system from pre- to postanalytical; single point of entry for up to three analyzers connected; choice of various analyzers to provide a large onboard menu

LABORATORY AUTOMATION SYSTEMS AND WORKCELLS

Part 15 of 17	Siemens Healthineers	Sysmex America
See captodayonline.com/productguides for an interactive version of guide	Tim Keating timothy.m.keating@siemens.com 511 Benedict Avenue, Tarrytown, NY 10591 302-631-9482 www.usa.siemens.com/diagnostics	Nilam Patel pateln@sysmex.com 577 Aptakistic Road, Lincolnshire, IL 60069 800-379-7639 ext. 9309 www.sysmex.com/us
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	Aptio Automation/2011 outside U.S., 2013 U.S./— >115/>400 worldwide	XN-3000/2012/120 318/—/—
Automation products that are available:		
• Preanalytical processor/Total laboratory automation	yes/yes	no/no
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/yes/yes/yes	no/yes/no/no
Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/yes/yes/yes	no/no/no/no
Storage retrieval/Intelligent sample routing	yes/yes	no/no
• SW: Dedicated process control/Middleware control using LIS/Architecture	yes/yes/—	no/no/open
Company has dedicated automation support team/Remote system monitoring	yes/yes	yes/yes
Software features/functionality:		
• Patient demographics and insurance data/Rules-based architecture	LIS feature/automation SW feature	LIS feature/automation SW feature
• Supports data retrieval/Internet connectivity	automation SW feature/—	automation SW feature/automation SW feature
• Online real-time help system/QC/Stats and management reports	automation SW feature/automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Evaluates validity and releasability of results from automated analyzers	automation SW feature	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/automation SW feature
• Supports accession number redundancy (duplicate specimen ID)	automation SW feature	automation SW feature
• Supports specimen carrier and level identification	automation SW feature	automation SW feature
• Unique barcode 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	—
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/automation SW feature	automation SW feature/automation SW feature
• Supports multiple HW configuration/Supports other proprietary transport. HW	automation SW feature/—	—
• Sample storage and retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature	—/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	multiple vendors/ASTM/yes	Epic Beaker, Sunquest Laboratory and Commercial Laboratory, Cerner Classic and Millennium, Diamond LabGen, Mediatech Magic and Client-Server, HCA-Mediatech, McKesson Horizon Lab, others/ASTM/yes
Transportation systems available	yes	yes
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	Aptio Automation/54.33 × 77.56 × 42.71 in./yes	XN-3000/42 × 78 × 35 in./yes
• Containers device accommodates/Average throughput in cm per second	16, 13 × 100; 16, 13 × 75/17.25	13 × 75; microtainer and BD MAP tubes/up to 200 samples per hour
• Supports automatic rerouting for reflex, repeat, dilutions	yes	yes
• Modular HW/Installed options/Device can operate in track and manual mode	yes/floor mounted/yes	yes/—/yes
• Required utilities/Required maintenance	compressed air, electricity/none	electricity/daily
• Carrier type/Scalable system	single specimen container per carrier/yes (accommodates up to 32 analyzers)	multiple specimen container per carrier/yes (components used to build XN-9000)
Automated centrifugation available	yes	no
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	Hettich 80-position refrigerated/59 × 37.4 × 55.5 in./yes	—
• Maximum throughput per hour/Containers device accommodates	300 with 10-minute spin/16, 13 × 100; 16, 13 × 75	—
• Can identify tube types for custom programmed rate and spin times per run	yes	—
• More than one centrifuge can be connected to track system	yes	—
• For multiunit centrifuge: each centrifuge operates independently for rate and time	yes	—
• Maintenance required	weekly, monthly	—
Automated input/accessioning available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Automation input-output module/54.33 × 77.56 × 42.71 in./yes/750	—
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75/yes	—
• Maximum No. of samples that can be loaded/Maintenance required	780/weekly, monthly	—
Automated decapping available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Decapper/included in track/yes/800	—
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75/daily, monthly	—
• Removes multiple size tube caps per run/Removes screw type sample caps	yes/yes	—
Automated sorting available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Automation input-output module/54.33 × 77.56 × 42.71 in./yes/800	—
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75/specimen, method, output	—
Specimen integrity monitor available	yes	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	performed at analyzer/—/yes/analyzer dependent	monitored within the XN analyzer/—/—/—
• Containers device accommodates/Maintenance required	16, 13 × 100; 16, 13 × 75/—	—
Automated aliquoting available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Automation aliquotter/35.2 × 61.4 × 27.5 in./yes/100 primary, 400 aliquot tubes	—
• Containers device accommodates	16, 13 × 100; 16, 13 × 75	—
• Inspects samples for barcode/Detects and reports clots in specimen	yes/yes	—
• Detects and reports quantity not sufficient specimens/Maintenance required	yes/daily, weekly	—
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 sampl./O.U.S.: point-of-reference sampl.	—
• Immunoassay/Urinalysis	point-of-reference sampling, robotic arm interface/—	—
Instruments to which your system or product is interfaced	Advia 1800, 2400, 2120i; Dimension Vista 1500, 500; Dimension EXL LM, EXL 200; Immulite 2000, 2000 XPI; Sysmex CS-5100 (not available in U.S.), Advia Chemistry XPT, Advia Centaur XPT (not available in U.S.)	Sysmex DI-60
Other robotic products, components to which system or product is linked	—	—
Automated recapper or sealer available	recapper and sealer	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Automation tube recapper and sealer/incorporated into the track/yes/200	—
• Recaps, seals multiple size tubes simult./Containers device accommodates	yes/16, 13 × 100; 16, 13 × 75	—
• Maintenance required	monthly	—
Automated storage and retrieval available	yes	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	Aptio Automation 9,000 or 15,000/85.63 × 76.77 × 70 in.; 101.2 × 76.77 × 70 in./yes/800	—
• Containers device accommodates/Connects to the track	16, 13 × 100; 16, 13 × 75/yes	—
• Room temperature/Minimum and maximum number of tubes stored per module	yes/module dependent, I/O=780	—
• Multiple size tubes can be stored in the same module/Maintenance required	yes/daily	—
• Refrigerated storage and retrieval capability	yes	—
Longitudinal upgrade pathway or plan to protect users' investments	continued commitment to module development, analyzer connectivity, and IT enhancements	all XN components are modular and can be used to scale the system
Average time to install/Who provides service, support/Hours support is available	3–6 weeks/Siemens/24–7	3 days/Sysmex/24–7
On-site biomedical engineer required/User group meets regularly	no/yes	no/yes
List price	—	—
Individual list prices for components:		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company)	scalability, footprint, IT solution, multiple module options, process management	unique co-primary system with reflexive slide preparation and automatic, hands-free, repeat/reflex testing capability; automatic workload balancing between analytical modules; compact automation, scalable, and flexible to meet laboratory's needs; optional WAM middleware available
* For basic building 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 16 of 17	Sysmex America Ann Ludwig ludwiga@sysmex.com 577 Aptakisic Road, Lincolnshire, IL 60069 913-221-8402 www.sysmex.com/us	Yaskawa America, Motoman Robotics Division Craig Rubenstein craig.rubenstein@motoman.com 100 Automation Way, Miamisburg, OH 45342 949-263-2648 www.motoman.com/labauto/
See captodayonline.com/productguides for an interactive version of guide		
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	XN-9000/2011/60+ 65/50/70	AutoSorter 2000BB/2013/1 11/0/0
Automation products that are available:		
• Preanalytical processor/Total laboratory automation	no/no	yes/yes
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	no/yes/no/no	yes/yes/yes/yes
Rack specific sort/Aliquot/Tube relabeling/Resealing	no/no/no/no	yes/yes/yes/yes
Storage retrieval/Intelligent sample routing	no/no	yes/yes
• SW: Dedicated process control/Middleware control using LIS/Architecture	yes/yes/open	yes/yes/open
Company has dedicated automation support team/Remote system monitoring	yes/yes	yes/yes
Software features/functionality:		
• Patient demographics and insurance data/Rules-based architecture	automation SW feature/automation SW feature	—/automation SW 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 and management reports	automation SW feature/automation SW feature	—/—/automation SW feature
• Evaluates validity and 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 number redundancy (duplicate specimen ID)	automation SW feature	—
• Supports specimen carrier and level identification	automation SW feature	—
• Unique barcode 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	—	—
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/automation SW feature	automation SW feature/—
• Supports multiple HW configuration/Supports other proprietary transport. HW	automation SW feature	—
• Sample storage and retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature	—
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Epic Beaker, Sunquest Laboratory and Commercial Laboratory, Cerner Classic and Millennium, Diamond LabGen, Meditech Magic and Client-Server, HCA-Meditech, McKesson Horizon Lab, others/ASTM/yes	Cerner, Triple G, Haemonetics Surround, SCC/HL7/yes
Transportation systems available	yes	no
• Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5	XN-9000/configuration dependent/yes	—
• Containers device accommodates/Average throughput in cm per second	13 x 75; microtainer and BD MAP tubes/≤100 samples	—
• Supports automatic rerouting for reflex, repeat, dilutions	yes	—
• Modular HW/Installed options/Device can operate in track and manual mode	yes/—/yes	—
• Required utilities/Required maintenance	electricity/daily	—
• Carrier type/Scalable system	multiple specimen container per carrier/yes (add optional modules)	—
Automated centrifugation available	no	no
• Model/Dimensions (H x W x D)/Conforms to CLSI Stand. Auto 1-5	—	—
• Maximum throughput per hour/Containers device accommodates	—	—
• Can identify tube types for custom programmed rate and spin times per run	—	—
• More than one centrifuge can be connected to track system	—	—
• For multiunit centrifuge: each centrifuge operates independently for rate and time	—	—
• Maintenance required	—	—
Automated input/accessioning available	yes	no
• Model/Dimen. (H x W x 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	250 samples with continuous load capabilities/none	—
Automated decapping available	no	no
• Model/Dimen. (H x W x 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	yes	yes
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	XN9000-TS-10/5.7 x 3.3 x 4.3 ft./—/up to 500 tubes; XN9000-10-H/5.7 x 3.3 x 4.3 ft./—/up to 1,000 tubes	AutoSorter 2000BB/—/yes/2,000
• Containers device accommodates/Software can sort by	—/specimen, method, output priority, track routing	16, 13 x 100; 16, 13 x 75; 12–16 mm diameter, 700–105 mm height/ specimen, method, output
Specimen integrity monitor available	yes	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	monitored with the XN analyzer/—/—/—	—
• Containers device accommodates/Maintenance required	—	—
Automated aliquoting available	no	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	—
• Containers device accommodates	—	—
• Inspects samples for barcode/Detects and reports clots in specimen	—	—
• Detects and reports quantity not sufficient specimens/Maintenance required	—	—
Instrument (analyzer) interfaces:		
• Rules-based instrument interface control subsystem	yes	—
• Process control of instrument via control subsystem	yes	—
Physical/hardware (instrument/specimen) interface:		
• Hematology/Chemistry/Coagulation	—	—
• Immunoassay/Urinalysis	—	—
Instruments to which your system or product is interfaced	Bio-Rad VARIANT II TURBO Link A1C analyzer; Sysmex DI-60, XN9000-TS-10/TS-10-H	none (standalone bulk sorter)
Other robotic products, components to which system or product is linked	Thermo automation, Lab Interlink/Labotix, IDS, FlexLab, FlexLab a3600, Labotix, enGen and Roche CCM/8100 automation track lines	none (standalone bulk sorter)
Automated recapper or sealer available	no	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—	—
• Recaps, seals multiple size tubes simult./Containers device accommodates	—	—
• Maintenance required	—	—
Automated storage and retrieval available	yes	no
• Model/Dimen. (H x W x D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	XN9000-TS-10/5.7 x 3.3 x 4.3 ft./—/up to 500 tubes; XN9000-10-H/5.7 x 3.3 x 4.3 ft./—/up to 1,000 tubes	—
• Containers device accommodates/Connects to the track	13 x 75/yes	—
• Room temperature/Minimum and maximum number of tubes stored per module	yes/375–875	—
• Multiple size tubes can be stored in the same module/Maintenance required	no/monthly	—
• Refrigerated storage and retrieval capability	no	—
Longitudinal upgrade pathway or plan to protect users' investments	XN HW/middleware SW scalable across configurations and sites	accepts wide range of container types and label configurations
Average time to install/Who provides service, support/Hours support is available	~3 days/Sysmex/24–7	<1 week/manufacturer/24–7
On-site biomedical engineer required/User group meets regularly	no/yes	no/no
List price	—	\$340,000
Individual list prices for components:		
• Process control SW/Transportation systems/Auto. centrifugation	—	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval	—	—
• Specimen integrity monitor/Automated aliquot	—	—
• Instrument (analyzer) interfaces/Automated recap	—	—
Distinguishing features (supplied by company)	scalable, modular automation hardware and decision logic software; automatic work-load balancing and repeat/reflex testing capabilities; configuration options that offer multidiscipline integrated workstations, including integrated and walkaway sample sorting/archiving, hematology and HbA1c testing, slidemaking/staining, automated smear review, and TLA connection	configuration available to sort frozen specimens and maintain at –20°C
* For basic building 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 17 of 17	Yaskawa America, Motoman Robotics Division Craig Rubenstein craig.rubenstein@motoman.com 100 Automation Way, Miamisburg, OH 45342 949-263-2648 www.motoman.com/labauto/
See captodayonline.com/productguides for an interactive version of guide	
Name of system/First year installed/No. of contracts signed in 2016 No. of live sites installed in N. America/Europe/Asia, Australia	AutoSorter 1200/2013/1 3/0/0
Automation products that are available:	
• Preanalytical processor/Total laboratory automation	yes/no
• Automated functions: Accessioning/Track load/Centrifugation/Decapping	yes/yes/yes/yes
• Rack specific sort/Aliquot/Tube relabeling/Resealing	yes/yes/no/yes
• Storage retrieval/Intelligent sample routing	yes/yes
• SW: Dedicated process control/Middleware control using LIS/Architecture	yes/yes/open
• Company has dedicated automation support team/Remote system monitoring	yes/yes
Software features/functionality:	
• Patient demographics and insurance data/Rules-based architecture	—/automation SW feature
• Supports data retrieval/Internet connectivity	automation SW feature/automation SW feature
• Online real-time help system/QC/Stats and management reports	automation SW feature/automation SW feature/automation SW feature
• Evaluates validity and releasability of results from automated analyzers	—
• Specimen tracking/Priority processing/Random-access spec. movement	automation SW feature/automation SW feature/automation SW feature
• Supports accession number redundancy (duplicate specimen ID)	automation SW feature
• Supports specimen carrier and level identification	automation SW feature
• Unique barcode number per container required	automation SW feature
• Specimen routing/Multistop routing (one tube to multiple workstations)	automation SW feature/automation SW feature
• Specimen scheduling/Instrument scheduling	—
• Routes test to workstation/Automatic reflex, repeat, dilutions	automation SW feature/—
• Supports multiple HW configuration/Supports other proprietary transport. HW	automation SW feature/automation SW feature
• Sample storage and retrieval SW/Supports approved CLSI standards	automation SW feature/automation SW feature
LIS(s) and versions interfaced and live with LAS/How LIS(s) are interfaced with LAS/ Can use LOINC to identify tests when communicating with LIS	Cerner Classic and Millennium, SCC, Triple G/HL7/yes
Transportation systems available	yes
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—/—/yes
• Containers device accommodates/Average throughput in cm per second	16, 13 × 100; 16, 13 × 75; most 75–100 mm height, 12–16 mm diameter/50
• Supports automatic rerouting for reflex, repeat, dilutions	no
• Modular HW/Installed options/Device can operate in track and manual mode	yes/floor mounted/yes
• Required utilities/Required maintenance	compressed air, electricity/daily, quarterly, annually
• Carrier type/Scalable system	single specimen container per carrier/yes (process 800–9,000 tubes per hour)
Automated centrifugation available	no
• Model/Dimensions (H × W × D)/Conforms to CLSI Stand. Auto 1-5	—
• Maximum throughput per hour/Containers device accommodates	—
• Can identify tube types for custom programmed rate and spin times per run	—
• More than one centrifuge can be connected to track system	—
• For multiunit centrifuge: each centrifuge operates independently for rate and time	—
• Maintenance required	—
Automated input/accessioning available	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoSorter 1200/70 × 75 × 32 in./yes/1,200
• Containers device accommodates/Dedicated lanes for stat samples	16, 13 × 100; 16, 13 × 75; most 75–100 mm height, 12–16 mm diameter/no
• Maximum No. of samples that can be loaded/Maintenance required	>1,200/daily, quarterly, annually
Automated decapping available	no
• 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	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoSorter 1200/70 × 75 × 32 in./yes/1,200
• Containers device accommodates/Software can sort by	16, 13 × 100; 16, 13 × 75; most 75–100 mm height, 12–16 mm diameter/ specimen, method, output priority
Specimen integrity monitor available	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—
• Containers device accommodates/Maintenance required	—
Automated aliquoting available	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—
• Containers device accommodates	—
• Inspects samples for barcode/Detects and reports clots in specimen	—
• Detects and reports quantity not sufficient specimens/Maintenance required	—
Instrument (analyzer) interfaces:	
• Rules-based instrument interface control subsystem	no
• Process control of instrument via control subsystem	—
Physical/hardware (instrument/specimen) interface:	
• Hematology/Chemistry/Coagulation	track interface/track interface/track interface
• Immunoassay/Urinalysis	track interface/track interface
Instruments to which your system or product is interfaced	—
Other robotic products, components to which system or product is linked	—
Automated recapper or sealer available	no
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	—
• Recaps, seals multiple size tubes simult./Containers device accommodates	—
• Maintenance required	—
Automated storage and retrieval available	yes
• Model/Dimen. (H × W × D)/Conforms to CLSI Stand. Auto 1-5/Avg. throughput**	AutoSorter 1200/70 × 75 × 32 in./yes/1,200
• Containers device accommodates/Connects to the track	16, 13 × 100; 16, 13 × 75, most 75–100 mm height, 12–16 mm diameter/yes
• Room temperature/Minimum and maximum number of tubes stored per module	yes/~1,600
• Multiple size tubes can be stored in the same module/Maintenance required	yes/daily, quarterly, annually
• Refrigerated storage and retrieval capability	yes
Longitudinal upgrade pathway or plan to protect users' investments	backward compatibility (transportation, data connectivity) two generations min.
Average time to install/Who provides service, support/Hours support is available	5 days/Yaskawa America/24–7
On-site biomedical engineer required/User group meets regularly	no/no
List price	\$240,000
Individual list prices for components:	
• Process control SW/Transportation systems/Auto. centrifugation	—
• Auto. input, accession/Auto. decap/Auto. sort/Auto. storage and retrieval	—
• Specimen integrity monitor/Automated aliquot	—
• Instrument (analyzer) interfaces/Automated recap	—
Distinguishing features (supplied by company)	10- to 15-year equipment service life; array of designs; customize, design, or develop new instruments to meet unique requirements; U.S. based, financially sound, well resourced to provide productivity support

* For basic building block unit

** Average throughput in specimen containers per hour per device not applicable.

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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