Part 1 of 11		**Abbott** **James Pickering** james.pickering@abbott.com **Lake Forest, IL** **800-323-9100** www.corelaboratory.abbott	**Abbott** **James Pickering** james.pickering@abbott.com **Lake Forest, IL** **800-323-9100** www.corelaboratory.abbott	**Abbott** **James Pickering** james.pickering@abbott.com **Lake Forest, IL** **800-323-9100** www.corelaboratory.abbott
Name of analyzer		Alinity h-series	CELL-DYN Emerald†	CELL-DYN Emerald 22†
Analyzer application		diagnostic and research use	diagnostic use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint		59 × 24 × 36 in./—	13.8 × 9.8 × 13.8 in./—	13.8 × 9.8 × 13.8 in./—
Country where analyzer was designed/Manufactured		U.S./Singapore	U.S./Germany	U.S./Germany
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2023/—	2009/>800	2016/—
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		2017/>800	2008/>900	2016/—
Foreign locations where company markets analyzer		Brazil, Canada, Italy, Japan, Saudi Arabia, Spain, U.K., Vietnam, more (installed in the aforementioned countries)	Brazil, Canada, Italy, Japan, Saudi Arabia, Spain, U.K., Vietnam, more (installed in the aforementioned countries)	Brazil, Canada, Italy, Japan, Saudi Arabia, Spain, U.K., Vietnam, more (installed in the aforementioned countries)
Human languages (other than English) supported by analyzer		Brazilian Portuguese, French, German, Italian, more	French, Italian, German, Spanish, Bulgarian, more	French, Italian, German, Spanish, Bulgarian, more
Analyzer list price		—	—	$64,000
• Analyzer acquisition options		purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement
Training included with purchase/Total time for basic training per operator		yes/21 hours (at customer site or vendor office [user's choice])	yes/— (at customer site)	yes/— (at customer site)
• Follow-up training available		yes (extra charge)	yes (extra charge)	yes (extra charge)
Parameters that analyzer tests and reports		%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, more	%&# lymphocytes, %&# neutrophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC, more	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		no	no	no
Analytical measurement range for body fluid		—	—	—
Precision for body fluid		—	—	—
Accuracy for body fluid		—	—	—
Automated differential performed for body fluids		—	—	—
Tests available for research use only		WBC viability fraction, % microcytic RBCs, % macrocytic RBCs, % hypochromic RBCs, % hyperchromic RBCs, more	—	—
Differential methods used		advanced MAPSS technology	electrical impedance counting	Uni-Flow optical technology
Analytical measurement range:	• WBC count/RBC count	WBC: 0.04–447.00 × 10^3 cells/µL/RBC: 0.01–8.08 × 10^6 cells/µL	WBC: 0.4–96.1 K/µL/RBC: 0.22–7.61 M/µL	WBC: 0.4–90 K/µL/RBC: 1.2–8.3 M/µL
	• Hemoglobin/Platelets	Hb: 0.15–24.1 g/dL/PLT: 0.46–5,325 × 10^3 cells/µL	Hb: 3.3–24.6 g/dL/PLT: 9–1,375 K/µL	Hb: 5.5–22 g/dL/PLT: 11–1,485 K/µL
	• Hematocrit/Reticulocytes	Hct: 4.92–86.0% (MCV: 51.4–131.0 fL)/RET: 0.05–644 × 10^3 cells/µL	Hct: 5.3–75.6%/RET: —	Hct: 12.1–66.1%/RET: —
Precision:	• WBC count/RBC count	WBC: ≤3.5% CV @ >4.0 × 10^3 cells/µL/RBC: ≤1.5% CV @ >4.00 × 10^6 cells/µL	WBC: 3.5% CV/RBC: 2.0% CV	WBC: 3.2% CV/RBC: 2.0% CV
	• Hemoglobin/Platelets	Hb: ≤1.3% CV @ >12.0 g/dL/PLT: ≤4.5% CV @ >50.00 × 10^3 cells/µL	Hb: 2.1% CV/PLT: 6.1% CV	Hb: 1.2% CV/PLT: 7.1% CV
	• Hematocrit/Reticulocytes	Hct: ≤2.0% CV for Hct >45% (MCV: ≤1.0% CV)/RET: ≤7.0% CV @ >200.00×10^3 cells/µL	Hct: 1.7% CV/RET: —	Hct: — (MCV: 0.8% CV)/RET: —
Accuracy:	• WBC count/RBC count	—	—	—
	• Hemoglobin/Platelets	—	—	—
	• Hematocrit/Reticulocytes	—	—	—
Types of test analysis cleared or approved for analyzer		—	—	—
Interfering substances:	• WBC/RBC	cryoglobulin, cryofibrinogen, fragile WBCs, nonviable WBCs, neutrophil aggregates, hemoglobin C crystals, NRBCs, platelet clumps or aggregates/RBC autoagglutinins, cold agglutinins, giant platelets, RBC fragments	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, NRBCs, platelet clumping, unlysed RBCs, clotting, smudge cells, more/cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), autoagglutination, more	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, NRBCs, platelet clumping, unlysed RBCs, clotting, more/cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), autoagglutination, more
	• Hemoglobin/Platelets	hemoglobin C crystals/RBC autoagglutinins, cold agglutinins, cryoglobulin, cryofibrinogen, giant platelets, platelet clumps or aggregates, platelet satellitism, RBC fragments, more	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high WBC count (>50,000 K/µL), more/cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic RBCs, RBC inclusions, more	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, monoclonal proteins, more/cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic RBCs, RBC inclusions, WBC fragments, more
	• Hematocrit/Reticulocytes	RBC autoagglutinins, cold agglutinins, giant platelets, platelet clumps or aggregates, more/RBC autoagglutinins, cold agglutinins, babesiosis, malaria, Heinz bodies, more	cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, more/—	cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, more/—
	• Automated differential	cryoglobulin, cryofibrinogen, fragile WBCs, nonviable WBCs, neutrophil aggregates, hemoglobin C crystals, more	platelet aggregates, NRBCs, giant platelets, cryoglobulin, incomplete lysis of RBCs, small lymphocytes, fibrin clots, more	platelet aggregates, erythroblasts, small lymphocytes, immature cells, resistant RBCs, more
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		119/119	57/57	45/45
• Max. No. of slides processed per hour if stainer included		65	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		none	none	none
Min. specimen volume open mode/Closed mode/Microsample capability		≤100 µL/≤100 µL/no	9.8 µL/—/no	17 µL/—/no
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		patient demographics, previous test results, graphics, more (customizable)/—	patient demographics, previous test results, more (customizable)/300,000 on USB, 1,500 results on internal memory	patient demographics, previous test results, histograms, more (customizable)/300,000 on USB, 1,000 records with histograms on internal memory
Analyzer performs delta checks		yes	no	no
Parameters for which flags may appear		morphological flags, including left shift, blasts, variant lymphocytes, platelet clumps, RBC fragments, more	dispersed data alerts, suspect measurand flags, count invalidation flags	dispersed data alerts, suspect parameter flags, count invalidation flags
• Flagging client selectable		combination of client and vendor selectable	yes	no
Analyzer recognizes and holds test results		yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	no	no
Scattergram display uses cell-specific color		yes	no	yes
Histogram display uses color with thresholds		yes	no	yes
LIS interface formats supported		ASTM 1394-91, ASTM 1381, HL7 version 2, HL7 version 3	proprietary (analyzer or vendor specific)	proprietary (analyzer or vendor specific)
• Middleware interface		yes (can use company's middleware or third-party middleware or connect directly to LIS)	yes (can use company's middleware or third-party middleware or connect directly to LIS)	yes (can use company's middleware or third-party middleware or connect directly to LIS)
• Information transferred to LIS via middleware or LIS interface		numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results	numeric results, flagged results
Analyzer transmits LOINC codes for results to LIS or middleware		no	no	no
Lab automation system or workcells to which analyzer has a direct interface		Abbott Diagnostics	none	none
Barcode symbologies read on specimen tube		Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, Interleaved 2 of 5, Code 93, EAN8, EAN13, EAN128, IATA, Matrix 2 of 5, more	Codabar, Code 39, Code 128, Interleaved 2 of 5, Code 39 Full ASCII, Code 93, EAN8, EAN13, EAN128, IATA, more
• Analyzer allows barcode placement per CLSI standard Auto02-A2		yes	no	no
No. of onboard reagents required for standard specimen analysis		3	2	2
• Reagents ready to use/Reagent tracking method		yes/barcode reader	yes/barcode reader	yes/barcode reader
Time required for analyzer maintenance		15 min. daily; 30 min. weekly	15 min. weekly; ~10 min. biannualy	15 min. weekly; ~10 min. quarterly
Onboard diagnostics for troubleshooting		yes	no	no
• Manufacturer can perform diagnostics via remote access		yes	no	no
Warranty provided/Cost of annual service contract (24 h/7 d)		one-year warranty/variable	one-year warranty/variable	one-year warranty/variable
Distinguishing analyzer features (supplied by company)		scalable and only 3 reagents to provide CBC results with 6-part WBC differential and NRBC; automated, scheduled maintenance; connectivity to Abbott lab automation and AlinIQ products	small sample size, reagent volumes, and physical size; averages one service call per year; easy to use; touchscreen software with intuitive icons and minimal layers	small footprint, only 3 reagents (2 of 3 stored onboard), and built-in monitor; auto start, shut down, cleaning; 5-part differential using Uni-Flow optical flow cytometry

based on May 2024 survey deadline

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

†*also marketed by distributors*

†*also marketed by distributors*

All information is supplied by the companies listed. The tabulation does not represent an endorsement by the CAP.

HEMATOLOGY ANALYZERS

Part 2 of 11	**Abbott** **James Pickering** james.pickering@abbott.com **Lake Forest, IL** **800-323-9100** www.corelaboratory.abbott	**Abbott** **James Pickering** james.pickering@abbott.com **Lake Forest, IL** **800-323-9100** www.corelaboratory.abbott	**Advanced Instruments** **Maria Martinek** maria.martinek@aicompanies.com **Norwood, MA** **800-225-4034** www.aicompanies.com
Name of analyzer	CELL-DYN Emerald 22 Autoloader†	CELL-DYN Ruby†	GloCyte Automated Cell Counter for CSF
Analyzer application	diagnostic use	diagnostic use	diagnostic and research use
Dimensions of analyzer (H × W × D)/Analyzer footprint	16.1 × 19.7 × 17 in./—	19.25 × 34 × 30.25 in./—	10.0 × 6.0 × 8.0 in./—
Country where analyzer was designed/Manufactured	U.S./Germany	U.S./Singapore	U.S./U.S.
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*	2019/—	2006/>195	2016/—
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*	—	2006/>2,100	—
Foreign locations where company markets analyzer	Brazil, Canada, Italy, Japan, Saudi Arabia, Spain, U.K., Vietnam, more (installed in the aforementioned countries)	Brazil, Canada, Italy, Japan, Saudi Arabia, Spain, U.K., Vietnam, more (installed in the aforementioned countries)	U.K. (installed in U.K.)
Human languages (other than English) supported by analyzer	French, Italian, German, Spanish, more	French, Italian, German, Spanish, Russian, more	—
Analyzer list price	$75,000	$185,000	—
• Analyzer acquisition options	purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement	purchase
Training included with purchase/Total time for basic training per operator	yes/— (at customer site)	yes/— (at customer site or vendor office [user's choice])	yes/2 hours (at customer site or vendor office [user's choice])
• Follow-up training available	yes (extra charge)	yes (extra charge)	yes
Parameters that analyzer tests and reports	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	—
Analyzer FDA cleared or approved for body fluid analysis	no	no	yes (for CSF)
Analytical measurement range for body fluid	—	—	RBC count: 2–123 cells/µL (reportable range, 2–615,644 cells/µL); TNC count: 3–123 cells/µL (reportable range, 3–6,500 cells/µL)
Precision for body fluid	—	—	RBC count: 2.7–16.3%; TNC count: 2.5–18%
Accuracy for body fluid	—	—	—
Automated differential performed for body fluids	—	—	—
Tests available for research use only	—	—	—
Differential methods used	Uni-Flow optical technology	MAPSS	—
Analytical measurement range: • WBC count/RBC count	WBC: 0.4–90 K/µL/RBC: 1.2–8.3 M/µL	WBC: 0.02–246.8 × 10^3/µL/RBC: 0.00–7.50 × 10^6/µL	WBC: — (TNC: 3–6,500 cells/µL)/RBC: 2–123 cells/µL (reportable range, 2–615,644 cells/µL)
• Hemoglobin/Platelets	Hb: 5.5–22 g/dL/PLT: 11–1,485 K/µL	Hb: 0.00–25.0 g/dL/PLT: 0.00–3,000 × 10^3/µL	—
• Hematocrit/Reticulocytes	Hct: 12.1–66.1%/RET: —	Hct: 8.3–79.8%/RET: —	—
Precision: • WBC count/RBC count	WBC: 3.2% CV/RBC: 2.0% CV	WBC: 2.4%/RBC: 1.8%	—
• Hemoglobin/Platelets	Hb: 1.2% CV/PLT: 7.1% CV	Hb: 1.4%/PLT: 3.8%	—
• Hematocrit/Reticulocytes	Hct: — (MCV: 0.8% CV)/RET: —	Hct: — (MCV: 0.8% CV)/RET: 0.2–22.9%	—
Accuracy: • WBC count/RBC count	—	—	—
• Hemoglobin/Platelets	—	—	—
• Hematocrit/Reticulocytes	—	—	—
Types of test analysis cleared or approved for analyzer	—	—	—
Interfering substances: • WBC/RBC	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, NRBCs, platelet clumping, unlysed RBCs, more/cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), autoagglutination, clotting, more	fragile WBCs, neutrophil aggregates, lytic-resistant RBCs, NRBCs, platelet clumps, cryofibrinogen, cryoglobulin paraproteins/elevated WBCs, increased numbers of giant platelets, autoagglutination, in vitro hemolysis	—
• Hemoglobin/Platelets	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, hyperbilirubinemia, more/cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic RBCs, RBC inclusions, clotting, heparin, more	elevated WBCs, increased plasma substances (triglycerides, bilirubin, in vivo hemolysis), lytic-resistant RBCs/WBC fragments, in vitro hemolysis, microcytic RBCs, cryofibrinogen, cryoglobulin, platelet clumping, more	—
• Hematocrit/Reticulocytes	cryoglobulin, cryofibrinogen, giant platelets, high WBC count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, microcytic RBCs/—	MCV: elevated WBCs, hyperglycemia, in vitro hemolysis, increased number of giant platelets/—	—
• Automated differential	platelet aggregates, erythroblasts, small lymphocytes, immature cells, resistant RBCs, more	fragile WBCs, neutrophil aggregates, lytic-resistant RBCs, NRBCs, platelet clumps, cryofibrinogen, cryoglobulin, more	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour	40/40	84/84	—
• Max. No. of slides processed per hour if stainer included	—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)	none	none	—
Min. specimen volume open mode/Closed mode/Microsample capability	21 µL/21 µL/no	150 µL/230 µL/no	60 µL/—/no
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online	patient demographics, previous test results, graphics, more (customizable)/300,000 on USB, 1,000 records with histograms on internal memory	patient demographics, previous test results, graphics, more (customizable)/10,000 results	sample type, sample appearance, sample color, accession number, result/>100,000 results
Analyzer performs delta checks	no	no	no
Parameters for which flags may appear	dispersed data alerts, suspect parameter flags, count invalidation flags	dispersed data alerts, suspect parameter flags, suspect population flags	control results out of range, expired reagents warning
• Flagging client selectable	no	yes	yes
Analyzer recognizes and holds test results	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by vendor)	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client)	yes, for potential test rerun (parameters for flags to hold samples defined by vendor)
Scattergram display uses cell-specific color	yes	yes	no
Histogram display uses color with thresholds	yes	yes	no
LIS interface formats supported	proprietary (analyzer or vendor specific)	proprietary (analyzer or vendor specific)	RS232, bidirectional
• Middleware interface	yes (can use company's middleware or third-party middleware or connect directly to LIS)	yes (can use company's middleware or third-party middleware or connect directly to LIS)	no (connects directly to LIS)
• Information transferred to LIS via middleware or LIS interface	numeric results, flagged results	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, patient orders
Analyzer transmits LOINC codes for results to LIS or middleware	no	no	yes
Lab automation system or workcells to which analyzer has a direct interface	none	none	none
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5, Code 39 Full ASCII, Code 93, EAN8, EAN13, EAN128, IATA, more	Codabar, Code 39, Code 128, Interleaved 2 of 5, ISBT	Codabar, Data Matrix, Code 39, Code 128
• Analyzer allows barcode placement per CLSI standard Auto02-A2	no	no	yes (also supports QR codes)
No. of onboard reagents required for standard specimen analysis	2	3	2
• Reagents ready to use/Reagent tracking method	yes/barcode reader	yes/barcode reader	yes/RFID, barcode reader
Time required for analyzer maintenance	15 min. weekly; ~10 min. quarterly	30 sec. daily; 5 min. weekly; 10 min. monthly	—
Onboard diagnostics for troubleshooting	no	yes	yes
• Manufacturer can perform diagnostics via remote access	no	yes	no
Warranty provided/Cost of annual service contract (24 h/7 d)	one-year warranty/variable	one-year warranty/variable	one-year warranty/—
Distinguishing analyzer features (supplied by company) **based on May 2024 survey deadline* *Note: a dash in lieu of an answer means company did not answer question or question is not applicable*	small footprint, sample size, and No. of reagents used; open tube safe sampling device; closed tube, continuous autoloading with automated rerun *†also marketed by distributors*	touch-sensitive screen, all optical technology; onboard maintenance videos; lyse-resistant RBC mode; rules-based result annotations *†also marketed by distributors*	1 cell/µL limit of detection for RBCs and TNCs; consistent turnaround time for standarization and Lean practices; disposable test cartridges eliminate carryover

Part 3 of 11	**Beckman Coulter** **Eric Pabon** epabon@beckman.com **Brea, CA** **714-993-5321** www.beckmancoulter.com	**Beckman Coulter** **Eric Pabon** epabon@beckman.com **Brea, CA** **714-993-5321** www.beckmancoulter.com	**Beckman Coulter** **Eric Pabon** epabon@beckman.com **Brea, CA** **714-993-5321** www.beckmancoulter.com
Name of analyzer	DxH 500 Hematology Analyzer†	DxH 520 Hematology Analyzer†	DxH 560 AL Hematology Analyzer†
Analyzer application	diagnostic use	diagnostic and research use	diagnostic and research use
Dimensions of analyzer (H × W × D)/Analyzer footprint	16.0 × 10.6 × 16.9 in./6.44 sq. ft.	16 × 10.6 × 16.9 in./5.02 sq. ft.	17.3 × 19.7 × 18.1 in./6.44 sq. ft.
Country where analyzer was designed/Manufactured	U.S./U.S.	U.S./U.S.	U.S./U.S.
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*	2020/>220	2019/1,250	2020/235
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*	2020/>2,000	2019/>2,015	2021/>1,250
Foreign locations where company markets analyzer	worldwide (installed worldwide)	worldwide (installed worldwide)	worldwide (installed worldwide)
Human languages (other than English) supported by analyzer	Japanese, Chinese, French, Italian, German, Spanish, Portuguese, Danish, Swedish, Greek, Czech, others	Japanese, Chinese, French, Italian, German, Spanish, Portuguese, Danish, Swedish, Greek, Czech, others	Japanese, Chinese, French, Italian, German, Spanish, Portuguese, Danish, Swedish, Greek, Czech, others
Analyzer list price	$36,000	$40,000	$53,400
• Analyzer acquisition options	purchase, lease	purchase, lease	purchase, lease
Training included with purchase/Total time for basic training per operator	yes/8 hours (at customer site and vendor office)	yes/8 hours (at customer site and vendor office)	yes/8 hours (at customer site and vendor office)
• Follow-up training available	yes (extra charge)	yes (extra charge)	yes (extra charge)
Parameters that analyzer tests and reports	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis	no	no	no
Analytical measurement range for body fluid	—	—	—
Precision for body fluid	—	—	—
Accuracy for body fluid	—	—	—
Automated differential performed for body fluids	no	no	no
Tests available for research use only	low hemoglobin density, microcytic anemia factor, more	low hemoglobin density, microcytic anemia factor, more	low hemoglobin density, microcytic anemia factor, more
Differential methods used	CBC analysis based on Coulter Principle; uses simultaneous measurements of volume, axial light loss within WBC aperture to count and size lymphocytes, monocytes, neutrophils, eosinophils, basophils	CBC analysis based on Coulter Principle; uses simultaneous measurements of volume, axial light loss within WBC aperture to count and size lymphocytes, monocytes, neutrophils, eosinophils, basophils	CBC analysis based on Coulter Principle; uses simultaneous measurements of volume, axial light loss within WBC aperture to count and size lymphocytes, monocytes, neutrophils, eosinophils, basophils
Analytical measurement range: • WBC count/RBC count	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL
• Hemoglobin/Platelets	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL
• Hematocrit/Reticulocytes	Hct: 0.0–85.0%/RET: —	Hct: 0.0–85.0%/RET: —	Hct: 0.0–85.0%/RET: —
Precision: • WBC count/RBC count	WBC: 0.20 to <1.00 $\times 10^3$ cells/µL: ≤0.15 SD; 1.00 to <3.00 $\times 10^3$ cells/µL: ≤0.17 SD; 3.00–5.00 $\times 10^3$ cells/µL: ≤5.00% CV; >5.00–7.00 $\times 10^3$ cells/µL: ≤4.00% CV; >7.00–100.00 $\times 10^3$ cells/µL: ≤3.00% CV/RBC: 1.00–3.50 $\times 10^6$ cells/µL: ≤3.00% CV; 3.50–8.00 $\times 10^6$ cells/µL: ≤2.00% CV	WBC: 0.20 to <1.00 $\times 10^3$ cells/µL: ≤0.15 SD; 1.00 to <3.00 $\times 10^3$ cells/µL: ≤0.17 SD; 3.00–5.00 $\times 10^3$ cells/µL: ≤5.00% CV; >5.00–7.00 $\times 10^3$ cells/µL: ≤4.00% CV; >7.00–100.00 $\times 10^3$ cells/µL: ≤3.00% CV/RBC: 1.00–3.50 $\times 10^6$ cells/µL: ≤3.00% CV; 3.50–8.00 $\times 10^6$ cells/µL: ≤2.00% CV	WBC: 0.20 to <1.00 $\times 10^3$ cells/µL: ≤0.15 SD; 1.00 to <3.00 $\times 10^3$ cells/µL: ≤0.17 SD; 3.00–5.00 $\times 10^3$ cells/µL: ≤5.00% CV; >5.00–7.00 $\times 10^3$ cells/µL: ≤4.00% CV; >7.00–100.00 $\times 10^3$ cells/µL: ≤3.00% CV/RBC: 1.00–3.50 $\times 10^6$ cells/µL: ≤3.00% CV; 3.50–8.00 $\times 10^6$ cells/µL: ≤2.00% CV
• Hemoglobin/Platelets	Hb: 3.00 to <5.00 g/dL: ≤4.00% CV; 5.00 to <11.00 g/dL: ≤2.00% CV; 11.00 g/dL: ≤1.50% CV/PLT: 7.0 to <25.0 $\times 10^3$ cells/µL: ≤20.00% CV; 25.0–50.0 $\times 10^3$ cells/µL: ≤15.00% CV; >50.0 to <100.0 $\times 10^3$ cells/µL: ≤10.00% CV; 100.0–200.0 $\times 10^3$ cells/µL: ≤7.50% CV; >200.00–2,000.0 ≤5.00% CV	Hb: 3.00 to <5.00 g/dL: ≤4.00% CV; 5.00 to <11.00 g/dL: ≤2.00% CV; 11.00 g/dL: ≤1.50% CV/PLT: 7.0 to <25.0 $\times 10^3$ cells/µL: ≤20.00% CV; 25.0–50.0 $\times 10^3$ cells/µL: ≤15.00% CV; >50.0 to <100.0 $\times 10^3$ cells/µL: ≤10.00% CV; 100.0–200.0 $\times 10^3$ cells/µL: ≤7.50% CV; >200.00–2,000.0 ≤5.00% CV	Hb: 3.00 to <5.00 g/dL: ≤4.00% CV; 5.00 to <11.00 g/dL: ≤2.00% CV; 11.00 g/dL: ≤1.50% CV/PLT: 7.0 to <25.0 $\times 10^3$ cells/µL: ≤20.00% CV; 25.0–50.0 $\times 10^3$ cells/µL: ≤15.00% CV; >50.0 to <100.0 $\times 10^3$ cells/µL: ≤10.00% CV; 100.0–200.0 $\times 10^3$ cells/µL: ≤7.50% CV; >200.00–2,000.0 ≤5.00% CV
• Hematocrit/Reticulocytes	Hct: 10.0–85.0%/RET: —	Hct: 10.0–85.0%/RET: —	Hct: 10.0–85.0%/RET: —
Accuracy: • WBC count/RBC count	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL	WBC: 0.20–100.00 $\times 10^3$ cells/µL/RBC: 0.20–8.00 $\times 10^6$ cells/µL
• Hemoglobin/Platelets	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL	Hb: 0.20–25.00 g/dL/PLT: 7.0–2,000.0 $\times 10^3$ cells/µL
• Hematocrit/Reticulocytes	Hct: 0.0–85.0%/RET: —	Hct: 0.0–85.0%/RET: —	Hct: 0.0–85.0%/RET: —
Types of test analysis cleared or approved for analyzer	blood count analysis	blood count analysis	blood count analysis
Interfering substances: • WBC/RBC	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs/agglutinated RBCs, unlysed RBCs, elevated WBCs, more	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs/agglutinated RBCs, unlysed RBCs, elevated WBCs, more	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs/agglutinated RBCs, unlysed RBCs, elevated WBCs, more
• Hemoglobin/Platelets	lipids >62.5 mg/dL (lipemia)/giant platelets, platelet clumps, microcytic RBCs, cryoglobulin, WBC or RBC fragments	lipids >62.5 mg/dL (lipemia)/giant platelets, platelet clumps, microcytic RBCs, cryoglobulin, WBC or RBC fragments	lipids >100.0 mg/dL (lipemia)/giant platelets, platelet clumps, microcytic RBCs, cryoglobulin, WBC or RBC fragments
• Hematocrit/Reticulocytes	agglutinated RBCs, unlysed RBCs, elevated WBCs, more/—	agglutinated RBCs, unlysed RBCs, elevated WBCs, more/—	agglutinated RBCs, unlysed RBCs, elevated WBCs, more/—
• Automated differential	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs	unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, platelet clumps, giant platelets, agglutinated WBCs
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour	60/60	60 open vial, 55 closed vial/60 open vial, 55 closed vial	60 open vial, 55 cassette/60 open vial, 55 cassette
• Max. No. of slides processed per hour if stainer included	—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)	none	none	none
Min. specimen volume open mode/Closed mode/Microsample capability	12 µL/—/yes	16.7 µL/16.7 µL/yes	16.7 µL/16.7 µL/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online	results, flags, demographics/30,000	results, flags, demographics/30,000	results, flags, demographics/30,000
Analyzer performs delta checks	yes	yes	yes
Parameters for which flags may appear	flagging limits, system messages, editing of parameters	flagging limits, system messages, editing of parameters	flagging limits, system messages, editing of parameters
• Flagging client selectable	yes	yes	yes
Analyzer recognizes and holds test results	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)
Scattergram display uses cell-specific color	yes	yes	yes
Histogram display uses color with thresholds	yes	yes	yes
LIS interface formats supported	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, IEEE MIB	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, IEEE MIB	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, IEEE MIB
• Middleware interface	no (connects directly to LIS)	no (connects directly to LIS)	no (connects directly to LIS)
• Information transferred to LIS via middleware or LIS interface	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders
Analyzer transmits LOINC codes for results to LIS or middleware	yes (also provides list of machine codes for each test and corresponding LOINC code)	yes (also provides list of machine codes for each test and corresponding LOINC code)	yes (also provides list of machine codes for each test and corresponding LOINC code)
Lab automation system or workcells to which analyzer has a direct interface	none	none	none
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, Interleaved 2 of 5
• Analyzer allows barcode placement per CLSI standard Auto02-A2	no	no	—
No. of onboard reagents required for standard specimen analysis	2 (plus 1 outside instrument)	3	3
• Reagents ready to use/Reagent tracking method	yes/barcode reader	yes/barcode reader	yes/barcode reader
Time required for analyzer maintenance	30 min. daily	30 min. daily	30 min. daily
Onboard diagnostics for troubleshooting	no	no	no
• Manufacturer can perform diagnostics via remote access	no	no	no
Warranty provided/Cost of annual service contract (24 h/7 d)	one-year warranty/variable	one-year warranty/variable	one-year warranty/variable
Distinguishing analyzer features (supplied by company)	small aspiration: 12 µL for open tube, 5-part differential, ideal for infants and difficult draws; small footprint: requires only 3 reagents for full CBC/diff	small aspiration: 16.7 µL for open tube, 5-part differential, ideal for infants and difficult draws; small footprint: requires only 3 reagents for full CBC/diff	small aspiration: 16.7 µL for open tube, 5-part differential, ideal for infants and difficult draws; small footprint: requires only 3 reagents for full CBC/diff
**based on May 2024 survey deadline* *Note: a dash in lieu of an answer means company did not answer question or question is not applicable*	*†also marketed by Medline, McKesson, Henry Schein, Thermo Fisher Scientific*	*†also marketed by Medline, McKesson, Henry Schein, Thermo Fisher Scientific*	*†also marketed by Medline, McKesson, Henry Schein, Thermo Fisher Scientific*

HEMATOLOGY ANALYZERS

Part 4 of 11	Beckman Coulter **Eric Pabon** epabon@beckman.com **Brea, CA** **714-993-5321** www.beckmancoulter.com	Beckman Coulter **Eric Pabon** epabon@beckman.com **Brea, CA** **714-993-5321** www.beckmancoulter.com	CellaVision **Scott Dunbar** scott.dunbar@cellavision.com **Durham, NC** **415-810-5994** www.cellavision.com
Name of analyzer	DxH 690T Hematology Analyzer	DxH 900 Workcell Automated Hematology Solution	DC-1†
Analyzer application	diagnostic and research use	diagnostic and research use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint	40.6 × 29.75 × 32.6 in./9.09 sq. ft.	80.5 × 67 × 33 in. (includes slide maker stainer)/18.9 sq. ft.	14.6 × 11.0 × 15.4 in./1.18 sq. ft.
Country where analyzer was designed/Manufactured	U.S./U.S.	U.S./U.S.	Sweden/Sweden
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*	2020/>530	2018/>1,200	2020/>500
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*	2020/>410	2018/>2,450	2019/>1,000
Foreign locations where company markets analyzer	worldwide (installed worldwide)	worldwide (installed worldwide)	worldwide (installed worldwide)
Human languages (other than English) supported by analyzer	Japanese, Chinese, French, Italian, German, Spanish, Portuguese, Swedish, Greek, Czech, Hungarian, others	Japanese, Chinese, French, Italian, German, Spanish, Portuguese, Swedish, Greek, Czech, Hungarian, others	German, Spanish, French, Italian, Portuguese, Japanese, simplified Chinese, traditional Chinese, Korean, Russian
Analyzer list price	$218,000 (slide maker stainer sold separately)	$690,000 (slide maker stainer sold separately)	— (slide maker stainer sold separately)
• Analyzer acquisition options	purchase, lease	purchase, lease	purchase
Training included with purchase/Total time for basic training per operator	yes/20 hours (at customer site and vendor office)	yes/20 hours (at customer site and vendor office)	yes/8 hours (at customer site and online)
• Follow-up training available	yes (extra charge)	yes (extra charge)	yes (no extra charge)
Parameters that analyzer tests and reports	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, NRBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, NRBC, WBC	%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, PLT, NRBC
Analyzer FDA cleared or approved for body fluid analysis	yes (for CSF, synovial fluid, serous fluid)	yes (for CSF, synovial fluid, serous fluid)	no
Analytical measurement range for body fluid	RBC count: 1,000–6,200,000 cells/mm^3; TNC count: 20–89,000 cells/mm^3	RBC count: 1,000–6,200,000 cells/mm^3; TNC count: 20–89,000 cells/mm^3	—
Precision for body fluid	RBC count: 10,000–15,000 cells/mm^3; TNC count: 50–2,000 cells/mm^3	RBC count: 10,000–15,000 cells/mm^3; TNC count: 50–2,000 cells/mm^3	—
Accuracy for body fluid	RBC count: 1,000–6,200,000 cells/mm^3; TNC count: 20–89,000 cells/mm^3	RBC count: 1,000–6,200,000 cells/mm^3; 20–89,000 cells/mm^3	—
Automated differential performed for body fluids	no	no	—
Tests available for research use only	body fluid mononuclear cell %, more	body fluid mononuclear cell %, more	—
Differential methods used	prepared sample transferred to multi-transducer module, with cells counted in an isometric sample stream; algorithm analysis separates WBC into 5 populations	prepared sample transferred to multi-transducer module, with cells counted in an isometric sample stream; algorithm analysis separates WBC into 5 populations	automated digital image analysis supported by artificial intelligence
Analytical measurement range: • WBC count/RBC count	WBC: 0.050–400.000 × 10^3 cells/µL/RBC: 0.005–8.500 × 10^6 cells/µL	WBC: 0.050–400.000 × 10^3 cells/µL/RBC: 0.005–8.500 × 10^6 cells/µL	—
• Hemoglobin/Platelets	Hb: 0.10–25.50 g/dL/PLT: 3.0–3,000.0 × 10^3 cells/µL	Hb: 0.10–25.50 g/dL/PLT: 3.0–3,000.0 × 10^3 cells/µL	—
• Hematocrit/Reticulocytes	Hct: —/RET: 0.000–30.000%	Hct: —/RET: 0.000–30.000%	—
Precision: • WBC count/RBC count	WBC: 05.00–2.000 × 10^3 cells/µL: ≤5.0% CV; 5.000–10.000 × 10^3 cells/µL: ≤3.0% CV/RBC: 4.500–5.500 × 10^6 cells/µL	WBC: 05.00–2.000 × 10^3 cells/µL: ≤5.0% CV; 5.000–10.000 × 10^3 cells/µL: ≤3.0% CV/RBC: 4.500–5.500 × 10^6 cells/µL	—
• Hemoglobin/Platelets	Hb: 14.00–16.00 g/dL/PLT: 10.00–15.0 × 10^3 cells/µL: ≤12.0% CV; 200.00–400.0 × 10^3 cells/µL: ≤3.5% CV	Hb: 14.00–16.00 g/dL/PLT: 10.00–15.0 × 10^3 cells/µL: ≤12.0% CV; 200.00–400.0 × 10^3 cells/µL: ≤3.5% CV	—
• Hematocrit/Reticulocytes	Hct: —/RET: 7% CV	Hct: —/RET: 7% CV	—
Accuracy: • WBC count/RBC count	WBC: 0.050–2.000 × 10^3 cells/µL ±0.1 or ±10%; >2.000–100.000 × 10^3 cells/µL ±0.2 or ±3.0%; >100.00–400.00 × 10^3 cells/µL ±5.0%/RBC: 0.005–8.500 × 10^6 cells/µL	WBC: 0.050–2.000 × 10^3 cells/µL ±0.1 or ±10%; >2.000–100.000 × 10^3 cells/µL ±0.2 or ±3.0%; >100.00–400.00 × 10^3 cells/µL ±5.0%/RBC: 0.005–8.500 × 10^6 cells/µL	—
• Hemoglobin/Platelets	Hb: 0.10–25.50 g/dL/PLT: 3.0–3,000.0 × 10^3 cells/µL	Hb: 0.10–25.50 g/dL/PLT: 3.0–3,000.0 × 10^3 cells/µL	—
• Hematocrit/Reticulocytes	—	—	—
Types of test analysis cleared or approved for analyzer	blood count analysis, body fluid analysis	blood count analysis, body fluid analysis	—
Interfering substances: • WBC/RBC	NRBCs, giant platelets, platelet clumps, malarial parasites, precipitated elevated proteins, more/very high WBC count, high concentration of very large platelets, autoagglutination	NRBCs, giant platelets, platelet clumps, malarial parasites, precipitated elevated proteins, more/very high WBC count, concentration of very large platelets, autoagglutination	—
• Hemoglobin/Platelets	severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing/giant platelets, platelet clumps, WBC and RBC fragments, electronic noise, very small RBCs	severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing/giant platelets, platelet clumps, WBC and RBC fragments, electronic noise, very small RBCs	—
• Hematocrit/Reticulocytes	very high WBC count, high concentration of very large platelets, more/erythrocyte inclusions stained by new methylene blue if sufficiently numerous within sample, more	very high WBC count, high concentration of very large platelets, more/erythrocyte inclusions stained by new methylene blue if sufficiently numerous within sample, more	—
• Automated differential	hypogranular granulocytes, agranular granulocytes, lyse-resistant RBCs, elevated triglycerides, more	hypogranular granulocytes, agranular granulocytes, lyse-resistant RBCs, elevated triglycerides, more	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour	100/100	100–300, based on module/100–300, based on module	—
• Max. No. of slides processed per hour if stainer included	—	140	—
FDA-cleared or -approved sample container types (besides potassium EDTA)	none	none	—
Min. specimen volume open mode/Closed mode/Microsample capability	165 µL/165 µL/yes	165 µL/165 µL/yes	—
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online	results, including graphics, raw data files/100,000	results, including graphics, raw data files/100,000	patient ID, cell images, cell differential/—
Analyzer performs delta checks	yes	yes	—
Parameters for which flags may appear	delta checks, reference range flags, action limit flags, critical limit flags, suspect messages, more	delta checks, reference range flags, action limit flags, critical limit flags, suspect messages, more	—
• Flagging client selectable	yes	yes	—
Analyzer recognizes and holds test results	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	—
Scattergram display uses cell-specific color	yes	yes	—
Histogram display uses color with thresholds	yes	yes	—
LIS interface formats supported	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, IEEE MIB	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, IEEE MIB	ASTM 1394-91
• Middleware interface	yes (can use company's middleware)	yes (can use company's middleware)	yes (can use Sysmex Caresphere Workflow Solution)
• Information transferred to LIS via middleware or LIS interface	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, host query for patient demographics and orders
Analyzer transmits LOINC codes for results to LIS or middleware	yes (also provides list of machine codes for each test and corresponding LOINC code)	yes (also provides list of machine codes for each test and corresponding LOINC code)	no
Lab automation system or workcells to which analyzer has a direct interface	Beckman Coulter	Beckman Coulter	—
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5, NW-7, ASTM	Codabar, Code 39, Code 128, Interleaved 2 of 5, NW-7, ASTM	Codabar, Data Matrix, Code 39, Code 128
• Analyzer allows barcode placement per CLSI standard Auto02-A2	yes	yes	— (supports QR codes)
No. of onboard reagents required for standard specimen analysis	4	4	—
• Reagents ready to use/Reagent tracking method	yes/barcode reader	yes/barcode reader	—
Time required for analyzer maintenance	30 min. daily	30 min. daily	—
Onboard diagnostics for troubleshooting	yes	yes	yes
• Manufacturer can perform diagnostics via remote access	yes	yes	yes
Warranty provided/Cost of annual service contract (24 h/7 d)	one-year warranty/variable	one-year warranty/variable	one-year warranty/—
Distinguishing analyzer features (supplied by company)	benchtop system minimizes slide reviews, maximizes lab staff time, provides cost savings for mid-volume labs	connects to DxH Slidemaker Stainer II, which prepares slides automatically on orders from LIS; labs can select criteria for blood film prep and define staining protocols	not a traditional cell counter but a digital cell morphology analyzer; presents high-quality images of preclassified cells

**based on May 2024 survey deadline*

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

†also marketed by Sysmex

All information is supplied by the companies listed. The tabulation does not represent an endorsement by the CAP.

Part 5 of 11		**CellaVision** **Scott Dunbar** scott.dunbar@cellavision.com **Durham, NC** **415-810-5994** www.cellavision.com	**Diatron** **Frank Matuszak** frank.matuszak@diatron.com **Budapest, Hungary** www.diatron.com	**Diatron** **Frank Matuszak** frank.matuszak@diatron.com **Budapest, Hungary** www.diatron.com
Name of analyzer		DM-9600†	Abacus 3 CP	Abacus 5
Analyzer application		diagnostic use	diagnostic and research use	diagnostic and research use
Dimensions of analyzer (H × W × D)/Analyzer footprint		31.1 × 22.8 × 22 in./3.48 sq. ft.	14 × 12 × 19 in./1.58 sq. ft.	18 × 16 × 20 in./2.22 sq. ft.
Country where analyzer was designed/Manufactured		Sweden/Sweden	Hungary/Hungary	Hungary/Hungary
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2015/>200	2013/56	2013/24
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		2014/>700	2013/1,500	2009/3,410
Foreign locations where company markets analyzer		worldwide (installed worldwide)	worldwide (installed worldwide)	worldwide (installed worldwide)
Human languages (other than English) supported by analyzer		German, Spanish, French, Italian, Portuguese, Japanese, simplified Chinese, traditional Chinese, Korean, Russian	Spanish, Portuguese, French, Russian	Spanish, Protuguese, French, Chinese, Russian
Analyzer list price		— (slide maker stainer sold separately)	$20,385	$31,850
• Analyzer acquisition options		purchase	purchase	purchase
Training included with purchase/Total time for basic training per operator		yes/8 hours (at customer site and online)	yes/—	yes/—
• Follow-up training available		yes (no extra charge)	—	—
Parameters that analyzer tests and reports		%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, PLT, NRBC	%&# lymphocytes, %&# monocytes, %&# neutrophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		yes, differential only (for CSF, peritoneal/ascites, pericardial fluid, pleural fluid, synovial fluid)	no	no
Analytical measurement range for body fluid		—	—	—
Precision for body fluid		—	—	—
Accuracy for body fluid		—	—	—
Automated differential performed for body fluids		yes (5-part differential)	—	—
Tests available for research use only		none	—	—
Differential methods used		automated digital image analysis supported by artificial intelligence	impedance technology	laser light scatter technology
Analytical measurement range:	• WBC count/RBC count	—	WBC: 0.95–83.45 × 10^3/µL/RBC: 0.44–7.74 × 10^6/µL	WBC: 0.2–100 × 10^3/µL/RBC: 0.36–7.19 × 10^6/µL
	• Hemoglobin/Platelets	—	Hb: 1.4–23.7 g/dL/PLT: 11–975 × 10^3/µL	Hb: 1.1–22.2 g/dL/PLT: 15–2,000 × 10^3/µL
	• Hematocrit/Reticulocytes	—	—	—
Precision:	• WBC count/RBC count	—	WBC: <2.7%/RBC: <1.7%	WBC: <2.7%/RBC: <1.7%
	• Hemoglobin/Platelets	—	Hb: <2.0%/PLT: <6.0%	Hb: <2.0%/PLT: <6.0%
	• Hematocrit/Reticulocytes	—	Hct: <1.7%/RET: —	Hct: <1.7%/RET: —
Accuracy:	• WBC count/RBC count	—	WBC: <6% or 0.30 × 10^3/µL/RBC: <6% or 0.15 × 10^6/µL	WBC: <6% or 0.30 × 10^3/µL/RBC: <6% or 0.15 × 10^6/µL
	• Hemoglobin/Platelets	—	Hb: <6% or 0.3 g/dL/PLT: <8% or 15 × 10^3/µL	Hb: <6% or 0.3 g/dL/PLT: <8% or 15 × 10^3/µL
	• Hematocrit/Reticulocytes	—	Hct: <6% or 1.0 × 10^{-2} L/L/RET: —	Hct: <6% or 1.0/RET: —
Types of test analysis cleared or approved for analyzer		—	blood count analysis	blood count analysis
Interfering substances:	• WBC/RBC	—	>5% NRBC, platelet clumps, large platelets/WBC >50 × 10^3/µL	>5% NRBC, platelet clumps, large platelets/WBC >75 × 10^3/µL
	• Hemoglobin/Platelets	—	WBC >50 × 10^3/µL, lipids >270 mg/dL/platelet clumps, large platelets	WBC >75 × 10^3/µL, lipids >280 mg/dL/platelet clumps, large platelets
	• Hematocrit/Reticulocytes	—	WBC >50 × 10^3/µL/—	WBC >75 × 10^3/µL/—
	• Automated differential	—	>5% NRBC, platelet clumps, large platelets	>5% NRBC, platelet clumps, large platelets
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		—	60/60	60/60
• Max. No. of slides processed per hour if stainer included		—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		—	none	none
Min. specimen volume open mode/Closed mode/Microsample capability		—	100 µL/100 µL/yes	110 µL/110 µL/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		patient ID, cell images, cell differential/—	demographics, test results, histograms, flags and alerts/10,000	demographics, test results, histograms, scattergrams, flags and alerts/100,000
Analyzer performs delta checks		—	no	no
Parameters for which flags may appear		—	pathologic flags, out of reference values, reagent and instrument alerts	pathologic flags (immature granulocytes, atypical lymphocytes), out of reference values, reagent and instrument alerts
• Flagging client selectable		—	no	no
Analyzer recognizes and holds test results		—	yes, for follow-up (parameters for flags to hold samples defined by vendor)	yes, for follow-up (parameters for flags to hold samples defined by vendor)
Scattergram display uses cell-specific color		—	—	yes
Histogram display uses color with thresholds		—	yes	yes
LIS interface formats supported		ASTM 1394-91	HL7 version 2, Diatron protocol version 3.1	HL7 version 2, Diatron protocol version 3.1
• Middleware interface		yes (can use Sysmex Caresphere Workflow Solution)	no (connects directly to LIS)	no (connects directly to LIS)
• Information transferred to LIS via middleware or LIS interface		numeric results, host query for patient demographics and orders	numeric results, flagged results, histograms, patient demographics	numeric results, flagged results, histograms, scatterplots, patient demographics
Analyzer transmits LOINC codes for results to LIS or middleware		no	no	no
Lab automation system or workcells to which analyzer has a direct interface		—	none	none
Barcode symbologies read on specimen tube		Codabar, Data Matrix, Code 39, Code 128	Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, Interleaved 2 of 5
• Analyzer allows barcode placement per CLSI standard Auto02-A2		— (supports QR codes)	no	yes
No. of onboard reagents required for standard specimen analysis		—	3	3
• Reagents ready to use/Reagent tracking method		—	yes/hardware key	yes/hardware key
Time required for analyzer maintenance		—	10 min. daily; 15 min. weekly; 10 min. monthly	10 min. daily; 15 min. weekly; 10 min. monthly
Onboard diagnostics for troubleshooting		yes	yes	yes
• Manufacturer can perform diagnostics via remote access		yes	no	no
Warranty provided/Cost of annual service contract (24 h/7 d)		one-year warranty/—	one-year warranty/—	one-year warranty/—
Distinguishing analyzer features (supplied by company)		not a traditional cell counter but a digital cell morphology analyzer; presents high-quality images of preclassified cells	reliable 3-part differential analyzer with 2 sampling modes (closed and open tubes); USB and barcode option to load QC target values; reading QR codes for reference input data; comprehensive QC software package	modular system (autoloader); high accuracy blood sampling (shear valve)

**based on May 2024 survey deadline*

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

†also marketed by Sysmex

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HEMATOLOGY ANALYZERS

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	HORIBA **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001** www.horiba.com	HORIBA **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001** www.horiba.com	HORIBA **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001** www.horiba.com
Name of analyzer	ABX Micros 60	ABX Micros ES60	ABX Pentra 60C+
Analyzer application	diagnostic use	diagnostic use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint	16.5 × 14.2 × 12.6 in./1.01 sq. ft.	16.9 × 14.2 × 14.2 in./1.4 sq. ft.	20.3 × 17.5 × 19 in./2.31 sq. ft.
Country where analyzer was designed/Manufactured	—/France	—/France	—/France
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*	2002/>2,000	2014/>2,000	2000/400
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*	—/>18,000	—/>18,000	—/>2,000
Foreign locations where company markets analyzer	South America, Europe, Asia, Africa, Middle East	South America, Europe, Asia, Africa, Middle East	South America, Europe, Asia, Africa, Middle East
Human languages (other than English) supported by analyzer	—	—	Spanish, Portuguese, French, German, Polish, Russian, Chinese, Japanese
Analyzer list price	— (slide maker stainer sold separately)	— (slide maker stainer sold separately)	— (slide maker stainer sold separately)
• Analyzer acquisition options	purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement
Training included with purchase/Total time for basic training per operator	yes/— (at customer site)	yes/— (at customer site)	yes/— (at customer site)
• Follow-up training available	yes (no extra charge)	yes (no extra charge)	yes (no extra charge)
Parameters that analyzer tests and reports	%&# lymphocytes, %&# monocytes, %&# granulocytes, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# lymphocytes, %&# monocytes, %&# granulocytes, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis	no	no	no
Analytical measurement range for body fluid	—	—	—
Precision for body fluid	—	—	—
Accuracy for body fluid	—	—	—
Automated differential performed for body fluids	—	—	—
Tests available for research use only	—	—	PDW, PCT, RDW-SD, ALY#, ALY%, LIC#, LIC%
Differential methods used	impedance, specific lyse action	impedance, specific lyse action	impedance with hydrofocus cytometry and cytochemistry, flow cytometry double hydrodynamic sequential system
Analytical measurement range: • WBC count/RBC count	WBC: 0–100 × 10^3/mm^3/RBC: 0–8 × 10^6/mm^3	WBC: 0–100 × 10^3/mm^3/RBC: 0–8 × 10^6/mm^3	WBC: 0–120 × 10^3/mm^3/RBC: 0–8 × 10^6/mm^3
• Hemoglobin/Platelets	Hb: 0–26 g/dL/PLT: 0–4,000 × 10^3/mm^3	Hb: 0–24 g/dL/PLT: 0–2,200 × 10^3/mm^3	Hb: 0–24 g/dL/PLT: 0–2,800 × 10^3/mm^3
• Hematocrit/Reticulocytes	Hct: 0–80%/RET: —	Hct: 0–70%/RET: —	Hct: 0–67%/RET: —
Precision: • WBC count/RBC count	WBC: <2.5% CV/RBC: <2.0% CV	WBC: <2.5% CV/RBC: <2.0% CV	WBC: <2.0% CV/RBC: <2.0% CV
• Hemoglobin/Platelets	Hb: <1.5% CV/PLT: <5.0% CV	Hb: <1.5% CV/PLT: <5.0% CV	Hb: <1.0% CV/PLT: <5.0% CV
• Hematocrit/Reticulocytes	Hct: <2.0% CV/RET: —	Hct: <2.0% CV/RET: —	Hct: <2.0% CV/RET: —
Accuracy: • WBC count/RBC count	—	—	—
• Hemoglobin/Platelets	—	—	—
• Hematocrit/Reticulocytes	—	—	—
Types of test analysis cleared or approved for analyzer	blood count analysis	blood count analysis	blood count analysis
Interfering substances: • WBC/RBC	multiple myeloma, hemolysis, platelet agglutination, chemotherapy, cryoglobulins/agglutinated RBCs, cold agglutinins	multiple myeloma, hemolysis, platelet agglutination, chemotherapy, cryoglobulins/agglutinated RBCs, cold agglutinins	multiple myeloma, hemolysis, platelet agglutination, chemotherapy, cryoglobulins/agglutinated RBCs, cold agglutinins
• Hemoglobin/Platelets	elevated lipemia, increased turbidity/RBC agglutination, chemotherapy, hemolysis, platelet agglutination	elevated lipemia, increased turbidity/RBC agglutination, chemotherapy, hemolysis, platelet agglutination	elevated lipemia, increased turbidity/RBC agglutination, chemotherapy, hemolysis, platelet agglutination
• Hematocrit/Reticulocytes	RBC agglutination/—	RBC agglutination/—	RBC agglutination/—
• Automated differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour	—/60	—/60	—/60
• Max. No. of slides processed per hour if stainer included	—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)	—	—	—
Min. specimen volume open mode/Closed mode/Microsample capability	10 µL/10 µL/yes	10 µL/10 µL/yes	CBC: 30 µL; CBC with differential: 53 µL/—/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online	—	—	—
Analyzer performs delta checks	—	no	no
Parameters for which flags may appear	—	—	—
• Flagging client selectable	combination of client and vendor selectable	combination of client and vendor selectable	combination of client and vendor selectable
Analyzer recognizes and holds test results	yes, for potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for potential test rerun (parameters for flags to hold samples defined by client or vendor)
Scattergram display uses cell-specific color	no	no	yes
Histogram display uses color with thresholds	yes	yes	yes
LIS interface formats supported	proprietary (analyzer or vendor specific), HL7 version 2, HL7 version 3	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, ASTM 1381, HL7 version 2, HL7 version 3	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, ASTM 1381, HL7 version 2, HL7 version 3, IEEE MIB
• Middleware interface	yes (can use company's middleware)	yes	no (connects directly to LIS)
• Information transferred to LIS via middleware or LIS interface	numeric results, flagged results, histograms, patient demographics, patient orders, host query for patient demographics and orders	numeric results, flagged results, histograms, patient demographics, host query for patient demographics and orders	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, host query for patient demographics and orders
Analyzer transmits LOINC codes for results to LIS or middleware	no	—	—
Lab automation system or workcells to which analyzer has a direct interface	none	none	—
Barcode symbologies read on specimen tube	—	Codabar, Data Matrix, Code 39, Code 128	Codabar, Data Matrix, Code 39, Code 128
• Analyzer allows barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of onboard reagents required for standard specimen analysis	3	3	4 (plus 1 cleaner)
• Reagents ready to use/Reagent tracking method	yes/barcode reader	yes/barcode reader	yes/barcode reader
Time required for analyzer maintenance	<10 min. daily; 10 min. weekly	10 min. weekly	10 min. weekly
Onboard diagnostics for troubleshooting	yes	yes	yes
• Manufacturer can perform diagnostics via remote access	yes	yes	yes
Warranty provided/Cost of annual service contract (24 h/7 d)	one-year warranty/—	one-year warranty/—	one-year warranty/—
Distinguishing analyzer features (supplied by company)	platelet analytical measurement range; sample tube holder with 16 tube sizes	real-time instrument status with help messages; sample tube holder with 16 tube sizes	impedance with hydrofocus cytometry and cytochemistry for differential stains, WBC nuclei, granules, and membranes; measures actual cell volume; measures cell content; sample tube holder with 16 tube sizes; multidistribution sampling system technology; sample dispensed into pretreated analysis chamber for highly reproducible results; tangential flow reagent dilution for optimal sample mixing

**based on May 2024 survey deadline*

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

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Part 7 of 11		**HORIBA** **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001** www.horiba.com	**HORIBA** **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001** www.horiba.com	**Mindray** **Anna Chen** a.chen@mindray.com **416-826-1663** www.mindray.com
Name of analyzer		ABX Pentra XL80	Yumizen H2500	BC3600†
Analyzer application		diagnostic use	diagnostic use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint		21.5 × 32.3 × 22.4 in./3.35 sq. ft.	28.7 × 34.3 × 26.4 in./6.3 sq. ft.	18 × 16 × 18 in./2 sq. ft.
Country where analyzer was designed/Manufactured		—/France	—/France	China/China
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2003/400	2024/6	2015/—
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		—/>2,000	2016/>800	2011/—
Foreign locations where company markets analyzer		South America, Europe, Asia, Africa, Middle East	South America, Europe, Asia, Africa, Middle East	worldwide (installed worldwide)
Human languages (other than English) supported by analyzer		Spanish, Portuguese, French, German, Polish, Russian, Chinese, Japanese	Spanish, Portuguese, French, German, Polish, Russian, Chinese, Japanese	—
Analyzer list price		— (slide maker stainer sold separately)	— (slide maker stainer sold separately)	—
• Analyzer acquisition options		purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, reagent rental agreement	purchase
Training included with purchase/Total time for basic training per operator		yes/— (at customer site)	yes/— (at customer site)	yes (service and technical)/5 days (at customer site or vendor office [depends on location]; virtual training available)
• Follow-up training available		yes (no extra charge)	yes (no extra charge)	yes (extra charge for service training)
Parameters that analyzer tests and reports		%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, NRBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		no	yes (for CSF, synovial fluid, serous fluid)	no
Analytical measurement range for body fluid		—	—	—
Precision for body fluid		—	—	—
Accuracy for body fluid		—	—	—
Automated differential performed for body fluids		—	yes (3-part differential)	no
Tests available for research use only		PDW, PCT, RDW-SD, ALY#, ALY%, LIC#, LIC%	PDW, PCT, MIC%, MAC%, IML#, IML%, IMM#, PIC, MFI, TNC BAS, TNC Hb, BF WBC DIF, BF WBC Hb	—
Differential methods used		impedance with hydrofocus cytometry and cytochemistry, flow cytometry double hydrodynamic sequential system	impedance, absorbancy, specific lysing, flow cytometry double hydrodynamic sequential system	electrical impedance
Analytical measurement range:	• WBC count/RBC count	WBC: 0–120 × 10^3/µL/RBC: 0–8 × 10^3/µL	WBC: 0.1–300 × 10^3/µL/RBC: —	WBC: 0.3–99.9 × 10^3/µL/RBC: 0.20–7.99 × 10^6/µL
	• Hemoglobin/Platelets	Hb: 0–24 g/dL/PLT: 0–2,800 × 10^3/µL	—	Hb: 1.0–24.9 g/dL/PLT: 10–999 × 10^3/µL
	• Hematocrit/Reticulocytes	Hct: 0–67%/RET: —	Hct: 2–87%/RET: 0.3–35%	—
Precision:	• WBC count/RBC count	WBC: <2.0% CV/RBC: <2.0% CV	WBC: <2.0% CV/RBC: <2.0% CV	WBC: ≤3.0% CV/RBC: ≤2.5% CV
	• Hemoglobin/Platelets	Hb: <1.0% CV/PLT: <5.0% CV	Hb: <1.0% CV/PLT: <3.0% CV	Hb: ≤2.0% CV/PLT: ≤6.0%
	• Hematocrit/Reticulocytes	Hct: <2.0% CV/RET: —	Hct: <2.0% CV/RET: <3.0% CV	Hct: ≤2.0% CV/RET: —
Accuracy:	• WBC count/RBC count	—	—	WBC: ±0.30 × 10^3/mL or ±5%/RBC: ±0.05 × 10^6/µL or ±5%
	• Hemoglobin/Platelets	—	—	Hb: ±0.3 g/dL or ±3%/PLT: ±10 × 10^3/µL or ±10%
	• Hematocrit/Reticulocytes	—	—	Hct: ±2% (difference) or ±5%/RET: —
Types of test analysis cleared or approved for analyzer		blood count analysis	blood count analysis, body fluid analysis, reticulocytes	blood count analysis
Interfering substances:	• WBC/RBC	multiple myeloma, hemolysis, platelet agglutination, chemotherapy, cryoglobulins/agglutinated RBCs, cold agglutinins	multiple myeloma, hemolysis, platelet agglutination, chemotherapy, cryoglobulins/agglutinated RBCs, cold agglutinins	—
	• Hemoglobin/Platelets	elevated lipemia, increased turbidity/RBC agglutination, chemotherapy, hemolysis, platelet agglutination	elevated lipemia, increased turbidity/RBC agglutination, chemotherapy, hemolysis, platelet agglutination	—
	• Hematocrit/Reticulocytes	RBC agglutination/—	RBC agglutination/parasites (malaria, babesia), platelet aggregates, hemolysis	—
	• Automated differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		—/80	—/120	60/60
• Max. No. of slides processed per hour if stainer included		—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		sodium citrate	sodium citrate	none
Min. specimen volume open mode/Closed mode/Microsample capability		CBC: 30 µL; CBC with differential: 53 µL/CBC: 30 µL; CBC with differential: 53 µL/yes	110 µL/110 µL/yes	whole blood CBC with differential: 21 µL; whole blood CBC prediluted: 20 µL/21 µL/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		—	—	histograms/40,000 results
Analyzer performs delta checks		no	yes	no
Parameters for which flags may appear		—	—	measurement, reagent, quantity not sufficient, above or below normal range or linearity, atypical lymphocytes
• Flagging client selectable		combination of client and vendor selectable	combination of client and vendor selectable	combination of client and vendor selectable
Analyzer recognizes and holds test results		yes, for follow-up and potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for follow-up, confirmatory testing, and potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for follow-up (parameters for flags to hold samples defined by client or vendor)
Scattergram display uses cell-specific color		yes	yes	—
Histogram display uses color with thresholds		yes	yes	no
LIS interface formats supported		proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, ASTM 1381, HL7 version 2, HL7 version 3, IEEE MIB	proprietary (analyzer or vendor specific), ASTM 1394-91, ASTM 1238-95, ASTM 1381, HL7 version 2, HL7 version 3, IEEE MIB	HL7 version 2, HL7 version 3
• Middleware interface		no (connects directly to LIS)	yes	no (connects directly to LIS)
• Information transferred to LIS via middleware or LIS interface		numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, host query for patient demographics and orders	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, host query for patient demographics and orders	numeric results, flagged results, patient demographics, host query for patient demographics and orders
Analyzer transmits LOINC codes for results to LIS or middleware		—	no	—
Lab automation system or workcells to which analyzer has a direct interface		none	Horiba	none
Barcode symbologies read on specimen tube		Codabar, Data Matrix, Code 39, Code 128	Codabar, Data Matrix, Code 39, Code 128	Codabar, Code 39
• Analyzer allows barcode placement per CLSI standard Auto02-A2		yes	—	—
No. of onboard reagents required for standard specimen analysis		4 (plus 1 cleaner)	5 (plus 1 cleaner)	3
• Reagents ready to use/Reagent tracking method		yes/barcode reader	yes/barcode reader	yes/barcode reader
Time required for analyzer maintenance		—	—	5 min. daily; 25 min. weekly
Onboard diagnostics for troubleshooting		yes (diagnostic programs limited to software problems)	yes	yes
• Manufacturer can perform diagnostics via remote access		yes	yes	no
Warranty provided/Cost of annual service contract (24 h/7 d)		one-year warranty/—	one-year warranty/—	two-year warranty/distributor dependent
Distinguishing analyzer features (supplied by company)		sample dispensed into pretreated analysis chamber for highly reproducible results; tangential flow reagent dilution for optimal sample mixing; customized dilution ration–samples are automatically flagged, resampled, then diluted to provide a result within an extended linearity range; impedance with hydrofocus cytometry and cytochemistry for differential stains, WBC nuclei, granules, and membranes; measures actual cell volume; measures cell content	platelet histogram contains 256 channels between 2 and 30 fL; mobile threshold moves according to RBC microcytic population in platelet analysis area and looks for the valley; extensive matrix–WBC and NRBC with associated flagging	reliable 3-part differential, cost-effective, minimal maintenance; closed-tube sampling, predilute mode available; small test volume for 16 parameters and 3 scattergrams

**based on May 2024 survey deadline*

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

†also marketed by Select Lab Practices

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HEMATOLOGY ANALYZERS

Part 8 of 11		**Mindray** **Anna Chen** a.chen@mindray.com **416-826-1663** www.mindray.com	**PixCell Medical** **Ryan Venturi** info@pixcell-medical.com **Longmont, CO** **888-615-4122** www.pixcell-medical.com	**Scopio Labs** **Lianne Trantz** lianne.trantz@scopiolabs.com **Tel Aviv, Israel** **+972 50-272-7929** www.scopiolabs.com
Name of analyzer		BC5390†	HemoScreen†	X100/X100HT with Full-Field Peripheral Blood Smear Application†
Analyzer application		diagnostic use	diagnostic use	diagnostic and research use
Dimensions of analyzer (H × W × D)/Analyzer footprint		20.6 × 22.4 × 23.2 in./2 sq. ft.	11.8 × 6.9 × 10.2 in./0.56 sq. ft.	37.5 × 36.2 × 32 in./—
Country where analyzer was designed/Manufactured		China/China	Israel/Israel	Israel/Israel
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2016/—	2018/—	2022/—
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		2012/—	2016/—	2022/—
Foreign locations where company markets analyzer		worldwide (installed worldwide)	Europe, Asia (installed in Europe, Asia)	Canada, U.K., Ireland, Europe, Israel (installed in Canada, U.K., Europe, Israel)
Human languages (other than English) supported by analyzer		—	—	—
Analyzer list price		—	—	— (slide maker stainer sold separately)
• Analyzer acquisition options		purchase	purchase, reagent rental agreement	purchase, lease
Training included with purchase/Total time for basic training per operator		yes (service and technical)/5 days (at customer site or vendor office [depends on location]; virtual training available)	yes/1 hour (at customer site)	yes/3 hours (at customer site)
• Follow-up training available		yes (extra charge for service training)	—	yes (extra charge)
Parameters that analyzer tests and reports		%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, PLT, RBC, NRBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		no	yes (for whole blood)	no
Analytical measurement range for body fluid		—	—	—
Precision for body fluid		—	—	—
Accuracy for body fluid		—	—	—
Automated differential performed for body fluids		—	yes (5-part differential)	—
Tests available for research use only		—	—	—
Differential methods used		flow cytometry	digital microscopy and computer-vision algorithms	—
Analytical measurement range:	• WBC count/RBC count	WBC: 0.3–100 × 1,000/µL/RBC: 0.2–8 × 10^6/µL	WBC: 0.25–95.0 × 10^3/µL/RBC: 1.0–8.8 × 10^6/µL	—
	• Hemoglobin/Platelets	Hb: 0.5–25.0 g/dL/PLT: 5–1,000 × 10^3/µL	Hb: 3.0–25 g/dL/PLT: 7–988 × 10^3/µL	—
	• Hematocrit/Reticulocytes	Hct: 2–75%/RET: —	Hct: 9.0–78.0%/RET: —	—
Precision:	• WBC count/RBC count	WBC: ≤0.15 SD or 3.0% CV/RBC: ≤1.5% CV	WBC: 4.0%/RBC: 1.5%	—
	• Hemoglobin/Platelets	Hb: ≤1.5% CV%/PLT: ≤7.5 SD or 5.0% CV	Hb: 1.6%/PLT: 3.5%	—
	• Hematocrit/Reticulocytes	Hct: ≤2.0% CV/RET: —	Hct: 1.6%/RET: —	—
Accuracy:	• WBC count/RBC count	—	—	—
	• Hemoglobin/Platelets	—	—	—
	• Hematocrit/Reticulocytes	—	—	—
Types of test analysis cleared or approved for analyzer		blood count analysis	blood count analysis	—
Interfering substances:	• WBC/RBC	—	no significant interference up to 50 mg/dL for bilirubin, 729 mg/dL for triglycerides/no significant interference up to 50 mg/dL for bilirubin, 729 mg/dL for triglycerides	—
	• Hemoglobin/Platelets	—	no significant interference up to 50 mg/dL for bilirubin, 729 mg/dL for triglycerides/no significant interference up to 30 mg/dL for bilirubin, 729 mg/dL for triglycerides	—
	• Hematocrit/Reticulocytes	—	no significant interference up to 50 mg/dL for bilirubin, 729 mg/dL for triglycerides/—	—
	• Automated differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		60/60	20/10	—
• Max. No. of slides processed per hour if stainer included		—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		none	—	—
Min. specimen volume open mode/Closed mode/Microsample capability		whole blood CBC with differential: 33 µL; whole blood CBC: 24 µL; prediluted: 20 µL/33 µL/yes	40 µL/40 µL/yes	—
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		scattergrams, histograms/100,000 results	none/—	none/—
Analyzer performs delta checks		no	no	—
Parameters for which flags may appear		reagent alerts, above or below normal range or linearity, atypical lymphocytes	all CBC and differential parameters, pathologic flags, range flags, measurement condition flags, parameter warning, error flags	customizable to lab procedures and clinical findings (e.g. presence of plasma cells)
• Flagging client selectable		yes	no	yes
Analyzer recognizes and holds test results		yes, for follow-up and potential test rerun (parameters for flags to hold samples defined by client or vendor)	no	yes, for potential test rerun (parameters for flags to hold samples defined by vendor)
Scattergram display uses cell-specific color		yes	no	—
Histogram display uses color with thresholds		yes	no	—
LIS interface formats supported		HL7 version 2, HL7 version 3	HL7 version 2, HL7 version 3, POCT-1A	HL7 version 2, HL7 version 3
• Middleware interface		no (connects directly to LIS)	yes (can use Radiometer Aqure, Synlab MediPOC, Siemens Healthineers POCcelerator, Telcor, Abbott RALS, RelayMed, Orchard, SCC SoftLab, others)	yes (can use Remisol, ADM, Data Innovations)
• Information transferred to LIS via middleware or LIS interface		numeric results, flagged results, patient demographics	numeric results, flagged results	numeric results, flagged results, patient demographics, host query for patient demographics and orders
Analyzer transmits LOINC codes for results to LIS or middleware		—	yes	yes (also provides list of machine codes for each test and corresponding LOINC code)
Lab automation system or workcells to which analyzer has a direct interface		none	Abbott Diagnostics, Telcor	available but not operational (to Beckman Coulter)
Barcode symbologies read on specimen tube		Codabar, Code 39	Codabar, Code 39, Code 128	—
• Analyzer allows barcode placement per CLSI standard Auto02-A2		—	— (supports QR codes)	—
No. of onboard reagents required for standard specimen analysis		3	—	—
• Reagents ready to use/Reagent tracking method		yes/barcode reader	—/barcode reader	—
Time required for analyzer maintenance		5 min. daily; 20 min. biweekly	—	—
Onboard diagnostics for troubleshooting		yes	yes	—
• Manufacturer can perform diagnostics via remote access		no	yes	yes
Warranty provided/Cost of annual service contract (24 h/7 d)		two-year warranty/distributor dependent	one-year warranty/—	—
Distinguishing analyzer features (supplied by company)		reliable 5-part differential, cost-effective, minimal maintenance; autoloader holds up to 40 samples for increased walkaway time; predilute mode available	cartridge-based, 5-part differential–CBC analyzer FDA cleared for POC use; easy to use–no calibration, reagent handling, or routine maintenance required; lab-quality results within 5 minutes	full-field digital imaging of all clinical areas of interest in the sample, from monolayer to feathered edge; built-in remote capabilities through secure hospital network for referrals, consultations, and multisite remote analysis

**based on May 2024 survey deadline*

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

†also marketed by Carolina Liquid Chemistries, Select Lab Practices

†also marketed by Thermo Fisher Scientific, Henry Schein, Medline

†also marketed by Beckman Coulter, Siemens Healthineers

Part 9 of 11		**Siemens Healthineers** **Sheryl Kirk** sheryl.kirk@siemens-healthineers.com **Tarrytown, NY** **469-390-7319** www.siemens-healthineers.com/hematology	**Sysmex Corp.** **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **888-879-7639** www.sysmex.com	**Sysmex Corp.** **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **888-879-7639** www.sysmex.com
Name of analyzer		ADVIA 560 and 560 AL Hematology System†	pocH-100i†	XN-330, XN-430, XN-530†
Analyzer application		diagnostic use	diagnostic use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint		20 × 16 × 19 in./—	10.1 × 7.3 × 13.8 in./—	XN-530: 17.7 × 17.7 × 26 in./varies by configuration
Country where analyzer was designed/Manufactured		Germany/Germany	Japan/Japan	Japan/Japan
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2015/—	2004/>2,000	2017/>1,500
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		2015/—	2003/>5,000	2015/—
Foreign locations where company markets analyzer		—	—	—
Human languages (other than English) supported by analyzer		—	—	—
Analyzer list price		— (slide maker stainer sold separately)	$21,003.84 (slide maker stainer sold separately)	— (slide maker stainer sold separately)
• Analyzer acquisition options		purchase, trade in, lease, reagent rental agreement	purchase, trade in, lease, cost per reportable contract	purchase, trade in, lease, cost per reportable contract
Training included with purchase/Total time for basic training per operator		yes/— (at customer site)	yes/— (at customer site or vendor office; virtual, instructor-led training)	yes/— (at customer site or vendor office; virtual, instructor-led training)
• Follow-up training available		yes (extra charge)	yes (no extra charge)	yes (no extra charge)
Parameters that analyzer tests and reports		%&# eosinophils, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCV, PLT, RBC, WBC	%&# lymphocytes, %&# neutrophils, Hb, Hct, MCHC, MCV, PLT, RBC, WBC	%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		no	no	no
Analytical measurement range for body fluid		—	—	—
Precision for body fluid		—	—	—
Accuracy for body fluid		—	—	—
Automated differential performed for body fluids		—	—	—
Tests available for research use only		—	—	—
Differential methods used		volumetric impedance change for WBC, RBC, platelets; light scattering basophil measurement; light scattering 4-part differential measurement for lymphocytes, monocytes, neutrophils, eosinophils; spectrophotometry for hemoglobin	direct current	fluorescent flow cytometry
Analytical measurement range:	• WBC count/RBC count	WBC: 0.20–100.0 × 10^3/µL/RBC: 0.36–7.19 × 10^6/µL	WBC: 1.0–99.9 × 10^3/µL/RBC: 0.3–7.0 × 10^6/µL	WBC: 0.04–440.00 × 10^3/µL/RBC: 0.02–8.60 × 10^6/µL
	• Hemoglobin/Platelets	Hb: 1.10–22.2 g/dL/PLT: 15.0–1,000 × 10^3/µL	Hb: 0.1–25.0 g/dL/PLT: 10–999 × 10^3/µL	Hb: 0.1–26.0 g/dL/PLT: 2–5,000 × 10^3/µL
	• Hematocrit/Reticulocytes	Hct: — (MCV: 50–120 fL)/RET: —	Hct: 10–60%/RET: —	Hct: 0.2–74.5%/RET: —
Precision:	• WBC count/RBC count	WBC: <3.4%/RBC: <2.0%	WBC: ≤3.5%/RBC: ≤2.0%	WBC: <3.0%/RBC: <1.5%
	• Hemoglobin/Platelets	Hb: <2.4%/PLT: <7.0%	Hb: ≤1.5%/PLT: ≤6.0%	Hb: <1.0%/PLT: <4.0%
	• Hematocrit/Reticulocytes	Hct: <2.0%/RET: —	Hct: ≤2.0%/RET: —	Hct: <1.5%/RET: —
Accuracy:	• WBC count/RBC count	WBC: 0.3% CV/RBC: 0.15% CV	—	—
	• Hemoglobin/Platelets	Hb: 0.3% CV/PLT: 15% CV	—	—
	• Hematocrit/Reticulocytes	Hct: 1% CV/RET: —	—	—
Types of test analysis cleared or approved for analyzer		—	—	blood count analysis, body fluid analysis
Interfering substances:	• WBC/RBC	>5 NRBCs/100 WBCs, platelet clumps, large platelets/WBC count >75.0 × 10^3/µL	lyse-resistant RBCs, cold agglutinins, cryoglobulins, platelet aggregation, NRBCs/cold agglutinins, severe microcytosis, fragmented RBCs	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 optical density for intralipid, 2,880 OD for chyle/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 optical density for intralipid, 2,880 OD for chyle
	• Hemoglobin/Platelets	WBC count >75.0 × 10^3/µL, lipids >280 mg/dL/platelet clumps, large platelets	severe lipemia, abnormal protein, leukocytosis (>100,000/µL)/platelet aggregation, giant platelets, microcytic RBCs, fragmented RBCs	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 199 mg/dL for hemolysis/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 optical density for intralipid, 2,880 OD for chyle
	• Hematocrit/Reticulocytes	WBC count >75.0 × 10^3/µL/—	cold agglutinins, severe microcytosis, fragmented RBCs/—	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 optical density for intralipid, 2,880 OD for chyle/—
	• Automated differential	>5 NRBCs/100 WBCs, platelet clumps, large platelets	—	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		60/60	30/30	60/60
• Max. No. of slides processed per hour if stainer included		—	—	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		none	none	none
Min. specimen volume open mode/Closed mode/Microsample capability		110 µL/110 µL/yes	15 µL/15 µL/yes	25 µL/25 µL/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		—/100,000	flags, histograms/100 samples	demographics, results, flags/10,000 results
Analyzer performs delta checks		no	yes	yes
Parameters for which flags may appear		pathologic (diagnostic) flags, lab limits (normal ranges), reagents alert, instrument alerts, internal buffer for reagents	flagging system suggests sample error for WBC, RBC, platelet parameters	flags for all reportable parameters deemed abnormal per lab's protocol, more
• Flagging client selectable		no	no	combination of client and vendor selectable
Analyzer recognizes and holds test results		yes, for follow-up (parameters for flags to hold samples defined by client or vendor)	no	yes, for potential test rerun
Scattergram display uses cell-specific color		yes	no	yes
Histogram display uses color with thresholds		yes	yes	yes
LIS interface formats supported		proprietary (analyzer or vendor specific)	ASTM 1381, ASTM 1394-97, RS-232C	ASTM 1381, ASTM 1394-97
• Middleware interface		no (connects directly to LIS)	yes (can use company's middleware or Data Innovations)	yes (can use company's middleware or Data Innovations)
• Information transferred to LIS via middleware or LIS interface		numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more
Analyzer transmits LOINC codes for results to LIS or middleware		yes (also provides list of machine codes for each test and corresponding LOINC code)	no (provides list of machine codes for each test and corresponding LOINC code)	yes
Lab automation system or workcells to which analyzer has a direct interface		none	none	none
Barcode symbologies read on specimen tube		Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5	Code 39, Code 128, ASTM, ITF, NW-7, JAN-8, JAN-13	Codabar, Code 39, Code 128, ITF, NW-7, ISBT 128, JAN/EAN/UPC
• Analyzer allows barcode placement per CLSI standard Auto02-A2		—	no	yes
No. of onboard reagents required for standard specimen analysis		3	2	4
• Reagents ready to use/Reagent tracking method		yes/barcode reader	yes/barcode reader	yes/RFID, barcode reader
Time required for analyzer maintenance		15–20 min. weekly	<2 min. daily; <2 min. weekly; <2 min. monthly	2 min. daily; 15 min. weekly
Onboard diagnostics for troubleshooting		no	yes	yes
• Manufacturer can perform diagnostics via remote access		yes	yes	yes
Warranty provided/Cost of annual service contract (24 h/7 d)		one-year warranty/—	one-year warranty/—	one-year warranty/—
Distinguishing analyzer features (supplied by company)		60 samples per hour, volume as low as 110 µL; measures 20 parameters and employs laser-based optical measurement to provide a 5-part WBC differential	hydrodynamic focusing, automatic floating discriminators; ISBT-compliant, data-masking software for blood donor centers; can link directly to EMR	6-part WBC differential including immature granulocyte for smaller labs; BeyondCare Quality Monitor for Hematology standard on all models

**based on May 2024 survey deadline*

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

†also marketed by Diatron

†also marketed by McKesson, Henry Schein

†also marketed by McKesson, Henry Schein

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HEMATOLOGY ANALYZERS

Part 10 of 11		**Sysmex Corp.** **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **888-879-7639** www.sysmex.com	**Sysmex Corp.** **Jill Crist** communications@sysmex.com **Lincolnshire, IL** **888-879-7639** www.sysmex.com	**Sysmex Corp.** **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **888-879-7639** www.sysmex.com
Name of analyzer		XN-350, XN-450, XN-550†	XN Series† (XN-1000, XN-2000, XN-3100, XN-9100)	XP-300†
Analyzer application		diagnostic use	diagnostic use	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint		XN-550: 17.7 × 17.7 × 26 in./varies by configuration	XN-10 module: 33.7 × 25.4 × 29.7 in./varies by configuration	14 × 16.5 × 19 in./—
Country where analyzer was designed/Manufactured		Japan/Japan	Japan/Japan	Japan/Japan
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*		2017/>2,500	2012/>6,000	2013/>1,400
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*		2015/—	2011/—	2013/>1,000
Foreign locations where company markets analyzer		—	—	—
Human languages (other than English) supported by analyzer		—	—	—
Analyzer list price		— (slide maker stainer sold separately)	$202,667 (slide maker stainer sold separately)	$33,998.80
• Analyzer acquisition options		purchase, trade in, lease, cost per reportable contract	purchase, trade in, lease, cost per reportable contract	purchase, trade in, lease
Training included with purchase/Total time for basic training per operator		yes/— (at customer site or vendor office; virtual, instructor-led training)	yes/— (at customer site or vendor office; virtual, instructor-led training)	yes/— (at customer site or vendor office; virtual, instructor-led training)
• Follow-up training available		yes (no extra charge)	yes (no extra charge)	yes (no extra charge)
Parameters that analyzer tests and reports		%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, more	%&# eosinophils, %&# immature granulocytes, %&# lymphocytes, %&# monocytes, %&# neutrophils, %&# basophils, %&# reticulocyte count, Hb, Hct, MCH, more	%&# lymphocytes, %&# neutrophils, Hb, Hct, MCH, MCHC, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis		yes (on XN-L 50 series only for CSF, peritoneal/ascites, pleural fluid, synovial fluid)	yes (for CSF, peritoneal/ascites, pleural fluid, synovial fluid)	no
Analytical measurement range for body fluid		WBC count: 0.004–10.000 × 10^3/µL; RBC count: 0.002–5.000 × 10^3/µL; TNC count: 0.004–10.000 × 10^3/µL	WBC count: 0.003–10.000 × 10^3/µL; RBC count: 0.002–5.000 × 10^6/µL; TNC count: 0.003–10.000 × 10^3/µL	—
Precision for body fluid		WBC count: ≤30.0% (0.005–0.015 × 10^3/µL), ≤20.0% (0.016–0.030 × 10^3/µL), ≤15.0% (0.031–0.050 × 10^3/µL); RBC count: ≤40.0% or ≤ 0.007 × 10^6/µL (0.003–0.050 × 10^6/µL) max.–min.; TNC count: ≤30.0% (0.005–0.015 × 10^3/µL), ≤20.0% (0.016–0.030 × 10^3/µL), ≤15.0% (0.031–0.050 × 10^3/µL)	WBC count: ≤ 10.0% (0.031–0.050 × 10^3/µL); RBC count: 40.0% (0.003–0.050 × 10^6/µL); TNC count: ≤ 10.0% (0.031–0.050 × 10^3/µL)	—
Accuracy for body fluid		WBC count: r = 0.9 or more and slope within 1±0.3; RBC count: r = 0.8 or more and slope within 1±0.3	WBC count: r = 0.9 or more; RBC count: r = 0.8 or more; TNC count: r = 0.9 or more	—
Automated differential performed for body fluids		yes (2-part differential)	yes (2-part differential)	—
Tests available for research use only		—	—	—
Differential methods used		fluorescent flow cytometry	fluorescent flow cytometry	direct current
Analytical measurement range:	• WBC count/RBC count	WBC: 0.04–440.00 × 10^3/µL/RBC: 0.02–8.60 × 10^6/µL	WBC: 0.03–440,000 × 10^3/µL/RBC: 0.01–8.60 × 10^6/µL	WBC: 1.0–99.9 × 10^3/µL/RBC: 0.3–7.0 × 10^6/µL
	• Hemoglobin/Platelets	Hb: 0.1–26.0 g/dL/PLT: 2–5,000 × 10^3/µL	Hb: 0.1–26.0 g/dL/PLT: 2–5,000 × 10^3/µL	Hb: 0.1–25.0 g/dL/PLT: 10–999 × 10^3/µL
	• Hematocrit/Reticulocytes	Hct: 0.2–74.5%/RET: —	Hct: 0.1–75.0%/RET: 0.00–30.00%	Hct: 10–60%/RET: —
Precision:	• WBC count/RBC count	WBC: <3.0%/RBC: <1.5%	WBC: ≤3%/RBC: ≤1.5%	WBC: <3.5%/RBC: <2.0%
	• Hemoglobin/Platelets	Hb: <1.0%/PLT: <4.0%	Hb: ≤1.0%/PLT: ≤4%	Hb: <1.5%/PLT: <6.0%
	• Hematocrit/Reticulocytes	Hct: <1.5%/RET: within ±20% or ±0.30	Hct: ≤1.5%/RET: ≤15%	Hct: <2.0%/RET: —
Accuracy:	• WBC count/RBC count	—	WBC: within ±3% or ±0.20 × 10^3/µL/RBC: within ±2% or ±0.03 × 10^6/µL	—
	• Hemoglobin/Platelets	—	Hb: within ±2% or ±0.2 g/dL/PLT: within ±5% or ±10 × 10^3/µL	—
	• Hematocrit/Reticulocytes	—	Hct: within ±3% or ±1.0/RET: r = 0.90 or more	—
Types of test analysis cleared or approved for analyzer		blood count analysis, body fluid analysis	blood count analysis, body fluid analysis	—
Interfering substances:	• WBC/RBC	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more	cold agglutinins, platelet clumps, cryoprotein, cryoglobulin, fibrin, giant platelets (>1 M/µL)/cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/µL), giant platelets (>1 M/µL)
	• Hemoglobin/Platelets	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, more/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, more/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more	severe lipemia, abnormal protein, leukocytosis (>100,000/µL)/platelet clumps, pseudothrombocytopenia, giant platelets, severe microcytosis, fragmented RBCs, fragmented leukocytes, cryoprotein, cryoglobulin
	• Hematocrit/Reticulocytes	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more/no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 1,010 mg/dL for hemolysis, more	no significant interference up to 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, more/—	cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/µL), severe diabetes, uremia, spherocytosis/—
	• Automated differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour		60/60	100/100	60/60
• Max. No. of slides processed per hour if stainer included		—	75	—
FDA-cleared or -approved sample container types (besides potassium EDTA)		none	none	none
Min. specimen volume open mode/Closed mode/Microsample capability		25 µL/25 µL/yes	300 µL/1 mL/yes	50 µL/—/yes
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online		demographics, results, flags/10,000 results	demographics, results, flags/100,000	patient ID, CBC values, flags, histograms/40,000 samples
Analyzer performs delta checks		yes	yes	no
Parameters for which flags may appear		flags for all reportable parameters deemed abnormal per lab's protocol, more	—	WBC histogram, RBC histogram, platelet histogram, error flags
• Flagging client selectable		combination of client and vendor selectable	combination of client and vendor selectable	no
Analyzer recognizes and holds test results		yes, for potential test rerun	yes, for potential test rerun (parameters for flags to hold samples defined by client or vendor)	yes, for potential test rerun (parameters for flags to hold samples defined by vendor)
Scattergram display uses cell-specific color		yes	yes	no
Histogram display uses color with thresholds		yes	no	no
LIS interface formats supported		ASTM 1381, ASTM 1394-97	ASTM 1394-91, ASTM 1381, data processing system	RS-232C
• Middleware interface		yes (can use company's middleware or Data Innovations)	yes (can use company's middleware or Data Innovations)	yes (can use company's middleware or Data Innovations)
• Information transferred to LIS via middleware or LIS interface		numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, histograms, scatterplots, patient demographics, patient orders, more	numeric results, flagged results, host query for patient demographics and orders
Analyzer transmits LOINC codes for results to LIS or middleware		yes	yes	no (provides list of machine codes for each test and corresponding LOINC code)
Lab automation system or workcells to which analyzer has a direct interface		none	Beckman Coulter, Siemens, Thermo Fisher, Roche, Abbott, Yaskawa	no
Barcode symbologies read on specimen tube		Codabar, Code 39, Code 128, ITF, NW-7, ISBT 128, more	Codabar, Code 39, Code 128	Codabar, Code 39, Code 128, ITF, NW-7, UPC-A, more
• Analyzer allows barcode placement per CLSI standard Auto02-A2		yes	yes	no
No. of onboard reagents required for standard specimen analysis		4	9	2
• Reagents ready to use/Reagent tracking method		yes/RFID, barcode reader	yes/RFID, barcode reader	yes/barcode reader
Time required for analyzer maintenance		2 min. daily; 15 min. weekly	20 min. daily	<2 min. daily; <2 min. weekly; <2 min. monthly
Onboard diagnostics for troubleshooting		yes	yes	yes
• Manufacturer can perform diagnostics via remote access		yes	yes	no
Warranty provided/Cost of annual service contract (24 h/7 d)		one-year warranty/—	one-year warranty/—	one-year warranty/—
Distinguishing analyzer features (supplied by company)		6-part WBC differential including immature granulocyte for smaller labs; BeyondCare Quality Monitor for Hematology standard on all models	modular and scalable; BeyondCare Quality Monitor for Hematology standard on all models	automatic floating discriminators; can link directly to EMR
**based on May 2024 survey deadline*				
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		*†also marketed by McKesson, Henry Schein*	*†also marketed by Roche, McKesson, Henry Schein*	*†also marketed by McKesson, Henry Schein*

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HEMATOLOGY ANALYZERS

Part 11 of 11

Sysmex Corp.
Madelaine Dintelman
communications@sysmex.com
Lincolnshire, IL
888-879-7639 www.sysmex.com

Name of analyzer	XW-100†
Analyzer application	diagnostic use
Dimensions of analyzer (H × W × D)/Analyzer footprint	13.8 × 7.3 × 18.1 in./—
Country where analyzer was designed/Manufactured	Japan/Japan
First year analyzer was sold in U.S./Approximate No. of units installed in U.S.*	2018/>500
First year analyzer sold outside U.S./Approximate No. of units installed outside U.S.*	—
Foreign locations where company markets analyzer	—
Human languages (other than English) supported by analyzer	—
Analyzer list price	$7,150
• Analyzer acquisition options	purchase
Training included with purchase/Total time for basic training per operator	yes/—
• Follow-up training available	yes (no extra charge)
Parameters that analyzer tests and reports	%&# lymphocytes, %&# neutrophils, Hb, Hct, MCV, PLT, RBC, WBC
Analyzer FDA cleared or approved for body fluid analysis	no
Analytical measurement range for body fluid	—
Precision for body fluid	—
Accuracy for body fluid	—
Automated differential performed for body fluids	—
Tests available for research use only	—
Differential methods used	direct current with hydrodynamic focusing for all parameters except hemoglobin, which is measured photometrically
Analytical measurement range: • WBC count/RBC count	WBC: 1–63.2 × 10^3/µL/RBC: 0.3–7.0 × 10^6/µL
• Hemoglobin/Platelets	Hb: 0.1–25 g/dL/PLT: 10–999 × 10^3/µL
• Hematocrit/Reticulocytes	Hct: 10–60%/RET: —
Precision: • WBC count/RBC count	WBC: <3.5%/RBC: <2.0%
• Hemoglobin/Platelets	Hb: <1.5%/PLT: <6.0%
• Hematocrit/Reticulocytes	Hct: <2.0%/RET: —
Accuracy: • WBC count/RBC count	—
• Hemoglobin/Platelets	—
• Hematocrit/Reticulocytes	—
Types of test analysis cleared or approved for analyzer	—
Interfering substances: • WBC/RBC	—
• Hemoglobin/Platelets	—
• Hematocrit/Reticulocytes	—
• Automated differential	—
Throughput: max. CBCs per hour/Max. CBCs with differentials per hour	—
• Max. No. of slides processed per hour if stainer included	—
FDA-cleared or -approved sample container types (besides potassium EDTA)	—
Min. specimen volume open mode/Closed mode/Microsample capability	—/15 µL/no
Types of patient data archived/Max. No. of archived patient data accessible when analyzer online	none/—
Analyzer performs delta checks	no
Parameters for which flags may appear	—
• Flagging client selectable	no
Analyzer recognizes and holds test results	no
Scattergram display uses cell-specific color	no
Histogram display uses color with thresholds	no
LIS interface formats supported	—
• Middleware interface	—
• Information transferred to LIS via middleware or LIS interface	—
Analyzer transmits LOINC codes for results to LIS or middleware	no
Lab automation system or workcells to which analyzer has a direct interface	—
Barcode symbologies read on specimen tube	proprietary barcodes
• Analyzer allows barcode placement per CLSI standard Auto02-A2	no
No. of onboard reagents required for standard specimen analysis	2
• Reagents ready to use/Reagent tracking method	—
Time required for analyzer maintenance	15 min. daily
Onboard diagnostics for troubleshooting	no (diagnostic programs not limited to software problems)
• Manufacturer can perform diagnostics via remote access	no
Warranty provided/Cost of annual service contract (24 h/7 d)	—
Distinguishing analyzer features (supplied by company)	CLIA-waived CBC; simple operation

*based on May 2024 survey deadline

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

†also marketed by McKesson

All information is supplied by the companies listed. The tabulation does not represent an endorsement by the CAP.