Part 1 of 13	Abbott Diagnostics **Ihab Zidan** ihab.zidan@abbott.com **Abbott Park, IL** +4916090785918 www.abbottdiagnostics.com	Abbott Diagnostics **Christy Thiessen** christy.thiessen@abbott.com **Abbott Park, IL** 800-323-9100 www.abbottdiagnostics.com	Abbott Diagnostics **Christy Thiessen** christy.thiessen@abbott.com **Abbott Park, IL** 800-323-9100 www.abbottdiagnostics.com
Name of instrument	Alinity h-series	CELL-DYN Emerald*	CELL-DYN Emerald 22*
First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022	—/2017/—	2009/2008/—	2016/2016/—
No. units installed in U.S./Outside U.S./List price†	—/>700/—	>1,700/>2,800/$30,000	—/—/$64,000
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	—	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, lymph %&#, gran %&#, mid %&#, RDW, MPV	standard menu plus: RDW, MPV, mono %&#, lymph %&#, eos %&#, baso %&#
Tests submitted for 510(k) clearance/Tests in development	—/WBC, RBC, Hb, Hct, MCV, MCH, MCHC, Plt, neut %&#, mono %&#, lymph %&#, eos %&#, baso %&#, more	—	—
Tests for research use only	RDW-SD, microcytic RBC%, macrocytic RBC%, hypochromic RBC%, hyperchromic RBC%, HDW, CHCM, cHGB, MCVr, more	—	—
Tests unique to analyzer	—	—	—
Differential method(s) used	advanced MAPSS (multi-angle polarized scatter separation) technology using seven light scatter detectors and one fluorescent detector	electrical impedance counting	UNI-FLOW Optical Technology
Analytical measurement range: • WBC count/RBC count	0.04–447.00×10^3 cells/µL/0.01–8.08×10^6 cells/µL	0.4–96.1 K/µL/0.22–7.61 M/µL	0.4–90 K/µL/1.2–8.3 M/µL
• Hemoglobin/Platelet	0.15–24.1 g/dL/0.46–$5,325 \times 10^3$ cells/µL	3.3–24.6 g/dL/9–1,375 K/µL	5.5–22 g/dL/11–1,485 K/µL
• MCV (fL) or Hct (%)	51.4–131.0 fL (MCV), 9.42–86.0% (Hct)	48.8–115 fL (MCV), 5.3–75.6% (Hct)	53.2–118.4 fL (MCV), 12.1–66.1% (Hct)
• Reticulocytes	0.05–644×10^3 cells/µL	—	—
Precision: • WBC count/RBC count	≤ 3.5 CV% @ $>4.0 \times 10^3$ cells/µL/≤ 1.5 CV% @ $>4.00 \times 10^6$ cells/µL	3.5% (95% confidence limit)/2.0% (95% confid. limit)	3.2% CV/2.0% CV
• Hemoglobin/Platelet	≤ 1.3 CV% @ >12.0 g/dL/≤ 4.5 CV% @ $>50.00 \times 10^3$ cells/µL	2.1% (95% confidence limit)/6.1% (95% confid. limit)	1.2% CV/7.1% CV
• MCV or Hct	≤ 1.0 CV% (MCV), ≤ 2.0 CV% for Hct >45%	0.8% MCV (95% confid. limit), 1.7% Hct (95% confid. limit)	0.8% CV (MCV)
• Reticulocytes	≤ 7.0 CV% @ $>200.00 \times 10^3$ cells/µL	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances: • WBC	cryoglobulin, cryofibrinogen, fragile WBCs, nonviable WBCs, neutrophil aggregates, hemoglobin C crystals, NRBCs, PLT clumps/aggregates	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, nucleated red cells, platelet clumping, unlysed red cells, clotting, smudge cells, uremia plus immunosuppressants	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, nucleated red cells, platelet clumping, unlysed red cells, clotting, smudge cells, uremia plus immunosuppressants
• RBC	RBC autoagglutinins, cold agglutinins, giant PLTs, RBC fragments	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells
• MCV or Hct	RBC autoagglutinins, cold agglutinins, giant PLTs, PLT clumps/aggregates, hyperglycemia	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, more	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, more
• Platelet	RBC autoagglutinins, cold agglutinins, cryoglobulin, cryofibrinogen, giant PLTs, PLT clumps/aggregates, PLT satellitism, RBC fragments, more	cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic red cells, red cell inclusions, white cell fragments, clotting, giant platelets, heparin, platelet, more	cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic red cells, red cell inclusions, white cell fragments, clotting, giant platelets, heparin, platelet, more
• Hemoglobin	hemoglobin C crystals	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high white cell count (>50,000 K/µL), hyperbilirubinemia, lipemia, monoclonal proteins, clotting	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high white cell count (>50,000 K/µL), hyperbilirubinemia, lipemia, monoclonal proteins, clotting
• Reticulocytes	RBC autoagglutinins, cold agglutinins, babesiosis, malaria, basophilic stippling, giant PLTs, PLT clumps/aggregates, Howell-Jolly bodies, Heinz bodies, RBC autofluorescence	—	—
Interfering substances: differential	cryoglobulin, cryofibrinogen, fragile WBCs, nonviable WBCs, neutrophil aggregates, hemoglobin C crystals, NRBCs, PLT clumps/aggregates	platelet aggregates, NRBCs, giant platelets, cryoglobulin, incomplete lysis of RBCs, small lymphocytes, fibrin clots, shift in WBC cell distrib. due to EDTA anticoagulant equilibration	platelet aggregates, erythroblasts, small lymphocytes, immature cells, resistant RBCs, giant or hypersegmented neutrophils, bands
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	—/119	57/57	45/45
Minimum specimen volume open/Closed/Sample dead volume closed	≤ 100 µL/≤ 100 µL/dependent on tube	9.8 µL/—/—	17 µL/—/—
Microsample capability	yes	no	no
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	yes/>139	no/—	no/—
• Slide maker stainer sold separately or combined unit	sold as combined unit	—	—
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/no	yes/no
Maximum amount of archived data accessible when system online	—	300,000 on USB and 1,500 results on internal memory	300,000 on USB and 1,000 records with histograms on internal memory
No. specimens for which numeric results saved in memory at once	most recent 100,000 results	300,000 on USB and 1,500 results on internal memory	300,000 on USB and 1,000 records with histograms on internal memory
No. specimens for which histo/cytogram results saved in memory at once	most recent 100,000 results	300,000 on USB and 1,500 results on internal memory	300,000 on USB and 1,000 records with histograms on internal memory
Instrument performs delta checks	yes	no	no
Parameters for which flags may appear	morphological flags including PLT clump, left shift, blast, variant LYM, RBC fragments, more	dispersional data alerts, suspect measurand flags, and count invalidation flags	dispersional data alerts, suspect parameter flags, and count invalidation flags
Flagging is operator selectable	operator and vendor selectable	yes	yes
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	no	no
Parameters for flags for holding samples defined by user or vendor	user and vendor	user	user
Scattergram display: cell-specific color	yes	no	yes
Histogram display: color with thresholds	yes	no	yes
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	ASTM 1394-91, ASTM 1381, HL7	proprietary	proprietary
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	numeric and flag results, instrument to LIS	numeric and flag results, instrument to LIS
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	no/no/no	no/no/no	no/no/no
Interface available or planned to automated specimen-handling system	Abbott, Inpeco	no	no
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, Interleaved 2 of 5, Chinese post, Code 93, EAN8, EAN13, EAN128, IATA, Industrial 2 of 5, Italian pharmaceutical, Matrix 2 of 5, MSI/Plessey, more	Codabar, Code 39, Code 128, Interleaved 2 of 5, Chinese post, Code 39 full ASCII, Code 93, EAN8, EAN13, EAN128, IATA, Industrial 2 of 5, Italian pharmaceutical, Matrix 2 of 5, more
Accommodates barcode placement per CLSI standard Auto02-A2	yes	no	no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	1 (Alinity hq module)/3 CBC/diff, 1 retic	1/2	1/2
Time required for daily, weekly, monthly maintenance	daily: 0 (automatic) for Alinity hq, hs modules; weekly: 0 (automatic) for Alinity hq, hs modules	daily: none; weekly: ~15 min.; biannually: ~10 min.	daily: none; weekly: 15 minutes; quarterly: ~10 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	no/no	no/no
Manufacturer can perform diagnostics via modem	no	no	no
Distinguishing features (supplied by company)	high productivity, scalable systems that use only 3 reagents to provide CBC results with 6-part WBC differential and nRBC; duplicate reagents onboard, automated daily and weekly maintenance; seamless connectivity to Accelerator a3600 lab automation system and AlinIQ middleware	small: sample size, reagent volumes used, and physical size; reliable: averages one service call per year; easy to use: system has touchscreen software with intuitive icons and minimal layers	small physical footprint, only 3 reagents used (2 of 3 reagents stored onboard), and built-in monitor; automated start-up, shut down, and cleaning; 5-part differential using UNI-FLOW optical flow cytometry technology with a patented lyse allowing for clear separation of the 5 WBC populations

†does not include slide maker stainers

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

*refer to CELL-DYN Emerald operator's manual for warnings, limitations, and precautions

*refer to CELL-DYN Emerald 22 operator's manual for warnings, limitations, and precautions

Part 2 of 13	Abbott Diagnostics **Christy Thiessen** christy.thiessen@abbott.com **Abbott Park, IL** **800-323-9100** www.abbottdiagnostics.com	Abbott Diagnostics **Christy Thiessen** christy.thiessen@abbott.com **Abbott Park, IL** **800-323-9100** www.abbottdiagnostics.com	Abbott Diagnostics **Christy Thiessen** christy.thiessen@abbott.com **Abbott Park, IL** **800-323-9100** www.abbottdiagnostics.com
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	CELL-DYN Emerald 22 Autoloader* 2019/—/— —/—/\$75,000	CELL-DYN Ruby* 2006/2006/— >550/>2,700/\$185,000	CELL-DYN Sapphire* 2005/2005/— >165/>750/\$250,000
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: RDW, MPV, mono %&#, lymph %&#, eos %&#, baso %&#	standard menu plus: MPV, RDW, retic %&#, neut %&#, mono %&#, lymph %&#, eos %&#, baso %&#	standard menu plus: MPV, RDW, retic %&#, IRF, NRBC %&#, CD61, CD3T %&#, CD4T %&#, CD8T %&#, 4/8, neut %&#, mono %&#, lymph %&#, eos %&#, baso %&#
Tests submitted for 510(k) clearance/Tests in development Tests for research use only Tests unique to analyzer	— — —	— — atypical depolarization flag	— — CD61 for PLTs, CD3/4, CD3/8 (immuno T cell)
Differential method(s) used	UNI-FLOW Optical Technology	MAPSS (multi-angle polarized scatter separation)	MAPSS (multi-angle polarized scatter separation), three-color fluorescence
Analytical measurement range: • WBC count/RBC count • Hemoglobin/Platelet • MCV (fL) or Hct (%) • Reticulocytes	0.4–90 K/µL/1.2–8.3 M/µL 5.5–22 g/dL/11–1,485 K/µL 53.2–118.4 fL (MCV), 12.1–66.1% (Hct) —	0.02–246×10^3/µL/0.00–7.50×10^6/µL 0.00–25.0 g/dL/0.00–3,000 × 10^3/µL 58–139 (MCV), 8.3–79.8% (Hct) 	0.40–285.5×10^3/µL/0.22–9.06×10^6/µL 0.7–24.8 g/dL/11.0–2,083 × 10^3/µL 22.1–209.5 fL (MCV) 0.0–1,408 × 10^3/µL
Precision: • WBC count/RBC count • Hemoglobin/Platelet • MCV or Hct • Reticulocytes	3.2% CV/2.0% CV 1.2% CV/7.1% CV 0.8% CV (MCV) —	2.4%/1.8% 1.4%/3.8% 0.8% (MCV) 0.2–22.9%	<2.7%/≤1.5% ≤1.0%/≤4.0% ≤1.0% (MCV) ≤15.0%
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	neut% r=1.00, slope=0.97, y=1.88; lymph% r=0.99, slope=1.00, y=0.30; mono% r=0.92, slope=0.96, y=0.42; eos% r=0.97, slope=0.93, y=0.22; baso% r=0.63, slope=0.26, y=0.04	neut% r=0.983, slope=0.97, y=-1.98; lymph% r=0.921, slope=0.95, y=0.94; mono% r=0.711, slope=1.10, y=1.93; eos% r=0.952, slope=1.04, y=0.01; baso% r=0.146, slope=0.18, y=1.22	neut% r=0.942, slope=0.947, y=0.446; lymph% r=0.936, slope=0.943, y=2.811; mono% r=0.623, slope=1.057, y=0.851; eos% r=0.446, slope=1.024, y=0.288; baso% r=0.232, slope=0.257, y=0.350
Interfering substances: • WBC	cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, nucleated red cells, platelet clumping, unlysed red cells, clotting, smudge cells, uremia plus immunosuppressants	fragile WBC, neutrophil aggregates, lytic-resistant RBCs, NRBCs, PLT clumps, cryofibrinogen, cryoglobulin paraproteins	PLT clumps, neutrophil aggregates, HbC crystals, lyse-resistant RBCs, cryoglobulin, cryofibrinogen, fragile WBC, NRBCs
• RBC	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells	elevated WBC, increased numbers of giant PLTs, autoagglutination, in vitro hemolysis	autoagglutination, cold agglutinins, elevated WBC, giant PLTs, hemolysis, sm WBC
• MCV or Hct	cryoglobulin, cryofibrinogen, giant platelets, high white cell count (>50,000 K/µL), hyperglycemia (>600 mg/dL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells	MCV: elevated WBC, hyperglycemia, in vitro hemolysis, increased number of giant PLTs	autoagglutination, cold agglutinins, elevated WBC, giant PLTs, hemolysis, hyperglycemia, leukocytosis with macrocytic anemia
• Platelet	cryoglobulin, cryofibrinogen, in vivo and in vitro hemolysis, microcytic red cells, red cell inclusions, white cell fragments, clotting, giant platelets, heparin, platelet clumping, platelet satellitosis	WBC fragments, in vitro hemolysis, microcytic RBCs, cryofibrinogen, cryoglobulin, PLT clumping, increased number of giant PLTs	auto and cold agglutinins, cryoglobulin, cryofibrinogen, giant PLT, micro RBCs, PLT clumps, RBC fragments, WBC fragments, PLT satellitism
• Hemoglobin	carboxyhemoglobin (>10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high white cell count (>50,000 K/µL), hyperbilirubinemia, lipemia, monoclonal proteins, clotting	elevated WBC, increased plasma substances (triglycerides, bilirubin, in vivo hemolysis), lytic-resistant RBCs	lipids>700 mg/dL, WBCs>250 × 10^9/L, bilirubin>33 mg/dL, HbC crystals
• Reticulocytes	—	—	autoagglutinins, babesiosis, basophilic stippling, cold agglutinins, giant PLTs, Howell-Jolly bodies, malaria, PLT clumps, RBC autofluorescence, Heinz bodies
Interfering substances: differential	platelet aggregates, erythroblasts, small lymphocytes, immature cells, resistant RBCs, giant or hypersegmented neutrophils, bands	fragile WBC, neutrophil aggregates, lytic-resistant RBCs, NRBCs, PLT clumps, cryofibrinogen, cryoglobulin, paraproteins	see WBC
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour Minimum specimen volume open/Closed/Sample dead volume closed Microsample capability Instrument prepares microscope slides automatically/No. of automatic slide makers installed	40/40 21 µL/21 µL/500 µL no no/—	84/84 150 µL/230 µL/1.2 mL no no/—	105/105 120 µL/120 µL/0.5 mL, 0.3 mL for 10.25 × 64 mm tubes yes no/—
• Slide maker stainer sold separately or combined unit	—	—	—
Instrument archives patient data/Archiving is patient specific Maximum amount of archived data accessible when system online	yes/yes 300,000 on USB and 1,000 records with histograms on internal memory	yes/yes 10,000 results	yes/yes 10,000 results
No. specimens for which numeric results saved in memory at once	300,000 on USB and 1,000 records with histograms on internal memory	10,000 results	10,000 results
No. specimens for which histo/cytogram results saved in memory at once	300,000 on USB and 1,000 records with histograms on internal memory	10,000 results	10,000 results
Instrument performs delta checks Parameters for which flags may appear	no dispersional data alerts, suspect parameter flags, and count invalidation flags	no NRBC, FWBC, NWBC, RRBC, band, IG, blast, variant lymph, RBC morph., DFLT, MCHC, LRI, URI, LURI, ATYPDEP, high-low interp. message, WBC	yes band, IG, blast, variant lymph, nvWBC, rstRBC, IR, PLT clump, ASYM, FP, CD61 agglutination, clot detected, aspiration, short sample
Flagging is operator selectable Tags and holds results for follow-up, confirmatory testing, or rerun Parameters for flags for holding samples defined by user or vendor Scattergram display: cell-specific color Histogram display: color with thresholds User interface can display choice of specimen or result information	no yes vendor yes yes yes	yes yes user yes yes yes	yes yes user yes yes yes
LIS interface formats supported Information transferred via LIS interface	proprietary numeric and flag results, instrument to LIS	proprietary numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	ASTM 1394 numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test Interface available or planned to automated specimen-handling system Barcode symbologies read on specimen tube	no/no/no no Codabar, Code 39, Code 128, Interleaved 2 of 5, Chinese post, Code 39 Full ASCII, Code 93, EAN8, EAN13, EAN128, IATA, Industrial 2 of 5, Italian pharmaceutical, Matrix 2 of 5, MSI/Plessey, UK/Plessey, Telepen, TriOptic, S-Code, UPC A, UPC E	no/no/no no Codabar, Code 39, Code 128, Interleaved 2 of 5, ISBT	no/no/no no Codabar, Code 39, Code 128, Interleaved 2 of 5
Accommodates barcode placement per CLSI standard Auto02-A2	no	no	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required Time required for daily, weekly, monthly maintenance Onboard diagnostics for troubleshooting/Limited to software problems Manufacturer can perform diagnostics via modem	1/2 daily: none; weekly: 15 minutes; quarterly: ~10 minutes no/no no	1/3 daily: ~30 seconds; weekly: ~5 min.; monthly: ~10 min. yes/no yes	0/4 daily: ~30 seconds; weekly: ~10 min.; monthly: ~5 min. yes/no yes
Distinguishing features (supplied by company)	small: number of reagents used, footprint, sample size; safe, open tube sampling device; closed tube, continuous autoloading with automated rerun	touch-sensitive screen, all optical technology; onboard maintenance videos; lyse-resistant RBC mode; rules-based result annotations	4 optical and 3 fluorescent detectors provide multiple scatterplot analysis; 2D optical platelets prevent interferences; fluorescent analysis of reticulocytes, NRBCs, and 3-color monoclonal analysis; OpenFlow MAb test selections; touch-sensitive screen, interfaces to Accelerator a3600 track system

†does not include slide maker stainers

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

*refer to CELL-DYN Emerald 22 Autoloader operator's manual for warnings, limitations, and precautions

*refer to CELL-DYN Ruby operator's manual for warnings, limitations, and precautions

*refer to CELL-DYN Sapphire operator's manual for warnings, limitations, and precautions

Part 3 of 13	Advanced Instruments Julie Mackenzie glocyte@aicompanies.com Norwood, MA 781-320-9000 www.aicompanies.com	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com Miami, FL 305-380-3800 www.beckmancoulter.com	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com Miami, FL 305-380-3800 www.beckmancoulter.com
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	GloCyte Automated Cell Counter for CSF 2016/2018/— —	DxH Connected Workcell 2014/2014/— 100/200/$690,000	DxH SMS II 2018/2018/>15 13/9/$177,100
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	RBC, TNC	standard menu plus: IRF, MPV, MRV, NRBC %&#, RDW-CV, RDW-SD, automated retic #, retic %; body fluids: total nucleated count, RBC count for synovial, serous, CSF fluids, and slidemaking; early sepsis identification (when enabled): MDW	—
Tests submitted for 510(k) clearance/Tests in development	—	—/immature granulocytes, body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, more	—
Tests for research use only	—	retic and extended retic panel: automated retic %&#, MRV, IRF; extended platelet panel: MPV; extended RBC panel: NRBC %&#, RDW-CV, RDW-SD; extended sepsis panel: MDW; more	—
Tests unique to analyzer	—	extended retic panel: MRV; direct count MPV, MCV, MDW; body fluid: BAL fluids; Early Sepsis Indicator; MDW	—
Differential method(s) used	—	biophysical characterization with 5 angles of light scatter for size and refractive capabilities, direct volume, conductivity for intracellular and nuclear complexity, more	—
Analytical measurement range: • WBC count/RBC count	TNC: 3–123 cells/µL (reportable range, 3–6,500 cells/µL)/ 2–123 cells/µL (reportable range, 2–615,644 cells/µL)	0.050–400.000/0.005–8.500	—
• Hemoglobin/Platelet	—	0.10–25.50/3.0–3,000.0	—
• MCV (fL) or Hct (%)	—	50.00–150.00 (MCV) for measuring range, 0.00–85.00 (Hct) for operating range	—
• Reticulocytes	—	0.000–30.000	—
Precision: • WBC count/RBC count	TNC: 2.5–18.0% repeatability CV/ 2.7–16.3% repeatability CV	≤3.0%/≤1.5%	—
• Hemoglobin/Platelet	—	≤1.5%/≤3.5%	—
• MCV or Hct	—	≤1.0% (MCV)	—
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	neut= ±2.0; lymph, mono= ±3.0; eso, baso= ±1.0 or 10%, whichever is greater	—
Interfering substances: • WBC	—	possibly precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant red cells, giant platelets, platelet clumps, more	none
• RBC	—	very high WBC count, high concentration of very large platelets, autoagglutinins	none
• MCV or Hct	—	very high WBC count, high concentration of very large platelets, autoagglutinins	none
• Platelet	—	platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise	none
• Hemoglobin	—	severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing	none
• Reticulocytes	—	—	—
Interfering substances: differential	—	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, lyse-resistant red cells, very small or multipopulation lymphocytes	none
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	CSFs: ~12/—	300/300	140 slides/—
Minimum specimen volume open/Closed/Sample dead volume closed	60 µL/—/—	165 µL/165 µL/400 µL or 250 µL for MAP tubes	90 µL/90 µL/250–400 µL
Microsample capability	—	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	yes/—	yes/—
• Slide maker stainer sold separately or combined unit	—	sold separately ($165,000)	—
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/yes	no/no
Maximum amount of archived data accessible when system online	—	up to 100,000 patient results including graphics	—
No. specimens for which numeric results saved in memory at once	>100,000 results	up to 100,000	—
No. specimens for which histo/cytogram results saved in memory at once	—	up to 100,000	—
Instrument performs delta checks	—	yes	no
Parameters for which flags may appear	control results out of range, expired reagents warning	P flag appears on slide with aspiration errors	—
Flagging is operator selectable	no	yes	—
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	no
Parameters for flags for holding samples defined by user or vendor	vendor	user and vendor	—
Scattergram display: cell-specific color	no	yes	no
Histogram display: color with thresholds	no	yes	no
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	RS232, bidirectional	ASTM 1394, ASTM 1238, IEEE MIB, CLSI LIS01-A2	ASTM 1394, ASTM 1238, IEEE MIB, CLSI LIS1-A, CLSI LIS2-A
Information transferred via LIS interface	numeric and flag results, instrument to LIS; patient orders, LIS to instrument—broadcast	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders (available with release of Workcell)	patient demographics, LIS to instrument—broadcast; host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	yes/yes/—	yes/yes/yes	no/no/no
Interface available or planned to automated specimen-handling system	no	Beckman Coulter	Beckman Coulter
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5, Data Matrix	Codabar, Code 39, Code 128, Interleaved 2 of 5, NW7, ASTM	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5, NW7
Accommodates barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	0/2 (RBC and TNC reagents)	1/4	1 preloaded cube with up to 30 cleaning cycles/3 (can vary): stain, buffer, diluent
Time required for daily, weekly, monthly maintenance	minimal annual maintenance required	daily: 30 minutes; weekly: none; monthly: none	daily: up to 20 min.; weekly: up to 30 min.; monthly: as needed
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	no	yes	yes
Distinguishing features (supplied by company)	1 cell/µL limit of detection for RBC and TNC; consistent turnaround time for standarization and for Lean practices; disposable test cartridges eliminate carryover for infectious samples	Workcell has redundant power supplies, monitors, computers, and track systems for independent modular functionality if needed; workload-balancing, proprietary magnetic track system has zero daily, weekly, monthly, yearly maintenance	hemasphere technology analyzes to overcome variations in blood characteristics to produce an exceptional monolayer smear; flexible rule writing allows for up to 16 slides seamlessly triggered by customizable CBC or specific flag results; blood detector for sample check, flagging directly on slide to note aspiration integrity gaps alerting user

†does not include slide maker stainers

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

HEMATOLOGY ANALYZERS

Part 4 of 13	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com Miami, FL 305-380-3800 www.beckmancoulter.com	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com Miami, FL 305-380-3800 www.beckmancoulter.com	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com Miami, FL 305-380-3800 www.beckmancoulter.com
Name of instrument	DxH 520	DxH 560 AL	DxH 690T
First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022	2019/2018/>300	2020/2021/>150	2019/2019/>150
No. units installed in U.S./Outside U.S./List price†	>20/>700/$30,000	45/142/$52,000	0/10/$218,000
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: RDW, RDW-SD, MPV	standard menu plus: MPV, RDW-SD, RDW-CV	standard menu plus: retic and extended retic panel: retic %&#, MRV, IRF; extended platelet panel: MPV; extended RBC panel: NRBC %&#, RDW-CV, RDW-SD, more
Tests submitted for 510(k) clearance/Tests in development	—	—	—/immature granulocytes
Tests for research use only	IMM %&#, LHD, MAF, PCT, PDW	IMM %&#, LHD, MAF, PCT, PDW	body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter, reticulocytes %&#, low hemoglobin density, more
Tests unique to analyzer	—	—	extended retic panel: MRV; direct count MPV, MCV, MDW, Early Sepsis Indicator: MDW
Differential method(s) used	optical bench with Coulter digital impedance	flow cytometry with proprietary dynamic gating	near-native biophysical cell characterization with 5 angles of light scatter for size and refractive capabilities, direct volume Coulter principle, more
Analytical measurement range: • WBC count/RBC count • Hemoglobin/Platelet • MCV (fL) or Hct (%) • Reticulocytes	$0.20–100.00 \times 10^3$ cells/µL/$0.20–8.00 \times 10^6$ cells/µL 0.20–25.00 g/dL/$7.0–2000.0 \times 10^3$ cells/µL 50.0–150.0 fL (MCV) —	0.20–100.00/.20–8.00 0.20–25.00/7.0–2000.0 50.0–150.0 (MCV), 0.0–85.0 (Hct)	$0.050–400.00 \times 10^3$ cells/µL/$0.005–8.500 \times 10^6$ cells/µL 0.10–25.50 g/dL/$3.0–3,000.0 \times 10^3$ cells/µL 50.00–150.00 fL (MCV, direct measure) 0.000–30.000
Precision: • WBC count/RBC count	≤0.20 SD when $0.20–3.00 \times 10^3$ cells/µL, ≤6.00% CV when $>3.00 \times 10^3$ cells/µL/≤3.00% CV @ $3.50–8.00 \times 10^6$ cells/µL	≤0.20 SD when $0.20–3.00 \times 10^3$ cells/µL, ≤6.00% CV when $>3.00 \times 10^3$ cells/µL/≤3.00% CV @ $3.50–8.00 \times 10^6$ cells/µL/≤0.20 SD when $0.20–3.00 \times 10^3$ cells/µL, ≤6.00% CV when $>3.00 \times 10^3$ cells/µL/≤3.00% CV @ $3.50–8.00 \times 10^6$ cells/µL	≤3.0%/≤1.5%
• Hemoglobin/Platelet	≤3% @ 11≤5 g/dL, ≤3% @ 5≤11 g/dL, ≤1.5% @ ≥11 g/dL/≤10.00% CV @ 100.0–200.0, ≤20.00% CV @ 7.00–100.0	≤3% @ 11≤5 g/dL, ≤3% @ 5≤11 g/dL, ≤1.5% @ ≥11 g/dL/≤10.00% CV @ 100.0–200.0, ≤20.00% CV @ 7.00–100.0/≤3% @ 11≤5 g/dL, ≤3% @ 5≤11 g/dL, ≤1.5% @ ≥11 g/dL/≤10.00% CV @ 100.0–200.0, ≤20.00% CV @ 7.00–100.0	≤1.5%/≤3.5% @ $100.0–200.0 \times 10^3$ cells/µL
• MCV or Hct	≤1.0% (MCV)	≤1.0% (MCV)	≤1.0% (MCV)
• Reticulocytes	—	—	<0.25 SD @ 0.00–2.00%, <0.70 SD @ 1.500–4.000%, <7% CV @ 4.000–15.000%
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	NE, LY, MO ±3.00; EO ±1.5; BA ±1.0 or 10%, whichever is greater	NE, LY, MO ±3.00; EO ±1.5; BA ±1.0 or 10%, whichever is greater	neut ±2.0; lymph, mono ±3.0; eso and baso ±1.0 or 10%, whichever is greater
Interfering substances: • WBC	possibly unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, PLT clumps, giant PLTs, agglutinated white cells	possibly unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, PLT clumps, giant PLTs, agglutinated white cells	possibly precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL
• RBC	possibly agglutinated red cells, unlysed RBCs, elevated WBCs, more	possibly agglutinated red cells, unlysed RBCs, elevated WBCs, more	possibly very high WBC count, high concentration of very large platelets, autoagglutinins
• MCV or Hct	possibly agglutinated red cells, unlysed RBCs, elevated WBCs, more	possibly agglutinated red cells, unlysed RBCs, elevated WBCs, more	possibly very high WBC count, high concentration of very large platelets, autoagglutinins
• Platelet	possibly giant PLTs, platelet clumps, microcytic RBCs, cryoglobulin, white or red cell fragments	possibly giant PLTs, platelet clumps, microcytic RBCs, cryoglobulin, white or red cell fragments	possibly platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise
• Hemoglobin	possibly lipids >62.5 mg/dL (lipemia)	possibly lipids >62.5 mg/dL (lipemia)	possibly severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing
• Reticulocytes	—	—	erythrocyte inclusions stained by new methylene blue, if sufficiently numerous within a sample, more
Interfering substances: differential	possibly unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, PLT clumps, giant PLTs, agglutinated white cells	possibly unlysed RBCs, NRBCs, cryoglobulin, cryofibrinogen, PLT clumps, giant PLTs, agglutinated white cells	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, more
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	55 closed-tube samples, 60 open-tube samples/55 closed-tube samples, 60 open-tube-samples	55 closed-tube samples, 60 open-tube samples/55 closed-tube samples, 60 open-tube samples	100/100
Minimum specimen volume open/Closed/Sample dead volume closed	16.7 µL/16.7 µL/1 mL standard tube or 375 µL MAP microtainer	16.7 µL/16.7 µL/1 mL standard tube or 375 µL MAP microtainer	165 µL/165 µL/400 µL or 250 µL with MAP tubes
Microsample capability	yes	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	no/—	no/—
• Slide maker stainer sold separately or combined unit	sold separately	sold separately	sold separately ($165,000) or combined
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/yes	yes/yes
Maximum amount of archived data accessible when system online	30,000 patient results	30,000 patient results	up to 60,000 patient results
No. specimens for which numeric results saved in memory at once	30,000 patient results	30,000 patient results	up to 60,000 patient results
No. specimens for which histo/cytogram results saved in memory at once	30,000 patient results	30,000 patient results	up to 60,000 patient results
Instrument performs delta checks	—	no	yes
Parameters for which flags may appear	definitive range, measurement range, normal range, edited sample, low confidence result, H and H check fail, action limits, reference limits	definitive range, measurement range, normal range, edited sample, low confidence result, H and H check fail, action limits, reference limits	suspect messages: Abn hemoglobin, cellular inter, dimorphic reds, giant platelets, imm grans, left shift, LY blast, MO blast, NE blast, NRBC, RBC frag/micro, more
Flagging is operator selectable	operator and vendor selectable	operator and vendor selectable	operator and vendor selectable
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	yes
Parameters for flags for holding samples defined by user or vendor	user	user	user
Scattergram display: cell-specific color	yes	yes	yes (3D scatter and surface plots for flow modules)
Histogram display: color with thresholds	yes	yes	yes
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	IEEE MIB, CLSI LIS01-A2, CLSI LIS02-A2	IEEE MIB, CLSI LIS01-A2, CLSI LIS02-A2	ASTM 1394-91, ASTM 1238-95, IEEE MIB, CLSI LIS01-A2
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/Listing of machine codes and corresponding LOINC for each test	no/no/no	no/no/no	yes/yes/yes
Interface available or planned to automated specimen-handling system	no	no	Beckman Coulter, Roche
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5, NW7, ISBT 128 (donor ID only)	Codabar, Code 39, Code 128, Interleaved 2 of 5, NW7, ISBT 128 (donor ID only)	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5, NW7
Accommodates barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	1 preloaded bottle/2 (CBC, diff)	1 preloaded bottle/2 (CBC, diff)	1 preloaded cube with up to 30 cleaning cycles/3 (CBC, diff, retic [optional])
Time required for daily, weekly, monthly maintenance	daily: 5 min.; weekly: none; monthly: 15 min.	daily: 5 min.; weekly: none; monthly: 15 min.	daily: none (autonomous); weekly: none; monthly: none
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	no	no	yes
Distinguishing features (supplied by company)	small aspiration: 16.7 µL for a closed tube, 5-part differential instrument, ideal for infants and difficult draws; small footprint: requires only 2 reagents for a full CBC/diff; reliable: less than 1 service call per year on average	small aspiration: 16.7 µL for a closed tube, 5-part differential instrument, ideal for infants and difficult draws; 50 tube load and walkaway capacity; integrated touchscreen and only one external reagent	DataFusion uses real-time analytics and bypasses special modes, avoiding reruns; industry-leading accuracy, precision and low backgrounds with 93% first-pass technology; FDA-cleared Early Sepsis Indicator for early sepsis detection

†*does not include slide maker stainers*

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

Part 5 of 13	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com **Miami, FL** **305-380-3800** www.beckmancoulter.com	Beckman Coulter Kanochia Johnson kjohnson05@beckman.com **Miami, FL** **305-380-3800** www.beckmancoulter.com	CellaVision **Ken Childs** ken.childs@cellavision.com **Durham, NC** **919-806-4420** www.cellavision.com
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price[†]	DxH 800 2008/2008/— >2,000/>1,500/$229,000	DxH 900 2018/2018/>350 80/240/$259,600	CellaVision DC-1 2021/2019/— —
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: IRF, MPV, MRV, NRBC %&#, RDW-CV, RDW-SD, automated retic #, retic %; body fluids: total nucleated count, RBC count for synovial, serous, CSF fluids	standard menu plus: retic and extended retic panel: automated retic %&#, MRV, IRF; extended platelet panel: MPV; extended RBC panel: NRBC %&#, RDW-CV, RDW-SD; body fluids: total nucleated count	mono, lymph, eos, baso; WBCs: seg, band, baso, eos, mono, lymph, promyelo, myelo, metamyelo, blast, lymph variant form, NRBC, giant PLT, PLT clumps; RBCs: polychromatic cells, hypochromatic cells, anisocytosis, microcytosis, macrocytosis, poikilocytosis; PLT: PLT estimate
Tests submitted for 510(k) clearance/Tests in development	—	—/body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, more	—
Tests for research use only	body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, low hemoglobin density, microcytic anemia factor, mean sphered cell volume, plateletcrit, more	body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, low hemoglobin density, microcytic anemia factor, mean sphered cell volume, plateletcrit, more	—
Tests unique to analyzer	—	extended retic panel: MRV; direct count MPV, MCV, MDW, Early Sepsis Indicator: MDW (when enabled)	—
Differential method(s) used	Automated Intelligent Morphology using volume, conductivity, 5 angles of light scatter, digital signal processing, advanced algorithm applications, more	near-native biophysical cell characterization with 5 angles of light scatter for size and refractive capabilities, direct count Coulter principle, more	automated brightfield microscopy, image analysis, AI
Analytical measurement range: • WBC count/RBC count • Hemoglobin/Platelet • MCV (fL) or Hct (%) • Reticulocytes	0.050–400.000/0.005–8.500 0.10–25.50/3.0–3,000.0 50.00–150.00 (MCV) for measuring range, 0.00–85.00 (Hct) for operating range 0.000–30.000	0.050–400.000×10^3 cells/µL/0.005–8.500×10^6 cells/µL 0.10–25.50 g/dL/3.0–$3,000.0 \times 10^3$ cells/µL 50.00–150.00 fL 0.000–30.000	— — — —
Precision: • WBC count/RBC count • Hemoglobin/Platelet • MCV or Hct • Reticulocytes	≤3.0%/≤1.5% ≤1.5%/≤3.5% ≤1.0% (MCV) —	≤3.0%/≤1.5% ≤1.5%/≤3.5% ≤1.0% (MCV) —	— — — —
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	neut= ±2.0; lymph, mono= ±3.0; eso, baso= ±1.0 or 10%, whichever is greater	neut= ±2.0; lymph, mono= ±3.0; eso, baso= ±1.0 or 10%, whichever is greater	seg neu% $y = 0.9904x + 0.37$; lymph% $y = 0.998x + 0.12$; mono% $y = 0.9983x + 0.24$; eos% $y = 0.9912x + 0.03$; baso% $y = 0.9427 + 0.08$
Interfering substances: • WBC	precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL in size	possibly precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL	—
• RBC	very high WBC count, high concentration of very large platelets, autoagglutinins	possibly very high WBC count, high concentration of very large platelets, autoagglutinins	—
• MCV or Hct	very high WBC count, high concentration of very large platelets, autoagglutinins	possibly very high WBC count, high concentration of very large platelets, autoagglutinins	—
• Platelet	platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise	possibly platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise	—
• Hemoglobin	severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing	possibly severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing	—
• Reticulocytes	—	—	—
Interfering substances: differential	elevated triglycerides, precipitated elevated proteins	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, lyse-resistant red cells, very small or multipopulation lymphocytes	—
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour Minimum specimen volume open/Closed/Sample dead volume closed Microsample capability Instrument prepares microscope slides automatically/No. of automatic slide makers installed • Slide maker stainer sold separately or combined unit	>100/>90 165 µL/165 µL/250–400 µL yes yes/— —	300 samples/300 samples 165 µL/165 µL/250–400 µL yes no/— —	—/10 slides — — no/— sold separately
Instrument archives patient data/Archiving is patient specific Maximum amount of archived data accessible when system online No. specimens for which numeric results saved in memory at once No. specimens for which histo/cytogram results saved in memory at once Instrument performs delta checks Parameters for which flags may appear Flagging is operator selectable Tags and holds results for follow-up, confirmatory testing, or rerun Parameters for flags for holding samples defined by user or vendor Scattergram display: cell-specific color	yes/no up to 100,000 patient results including graphics up to 100,000 patient results including graphics up to 100,000 patient results including graphics yes flags can be created and customized for all results yes yes user and vendor yes	yes/yes up to 100,000 patient results including graphics up to 100,000 patient results including graphics up to 100,000 patient results including graphics yes — yes yes user and vendor yes (WBC, nRBC, reticulocyte)	yes/no unlimited 1,500 — no — — yes — yes, can be imported from the LIS and displayed in the user interface
Histogram display: color with thresholds User interface can display choice of specimen or result information	yes yes	yes (WBC, RBC, PLT) yes	— yes
LIS interface formats supported Information transferred via LIS interface	CLSI LIS01-A2 numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders (available with release of Workcell)	CLSI LIS01-A2 numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	ASTM 1394-91 numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/Listing of machine codes and corresponding LOINC for each test Interface available or planned to automated specimen-handling system Barcode symbologies read on specimen tube Accommodates barcode placement per CLSI standard Auto02-A2	yes/yes/yes Beckman Coulter Codabar, Code 39, Code 128, Interleaved 2 of 5, NW7 yes	yes/yes/yes Beckman Coulter Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5, NW7 yes	no/no/no no Codabar, Code 39, Code 128, Interleaved 2 of 5, DataMatrix, QR no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required Time required for daily, weekly, monthly maintenance Onboard diagnostics for troubleshooting/Limited to software problems Manufacturer can perform diagnostics via modem	1 preloaded cube with up to 30 cleaning cycles/3 (CBC/diff incl. Coulter Plt, retic, extended retic panel) daily: none (autonomous); weekly: none; monthly: none yes/no yes	1 preloaded cube with up to 30 cleaning cycles/3 (CBC/diff incl. Coulter Plt, retic, extended retic panel) yes/no yes	0/0 daily: none; weekly: 5 min. yes/no no
Distinguishing features (supplied by company)	Automated Intelligent Morphology provides 3 independent counts for RBC, WBC, PLT; blast flagging by cell lineage; reliable MPV and reliable hemoglobin with few interferences; 48–72 hour sample stability on CBC parameters	DataFusion uses real-time analytics and bypasses special modes, avoiding reruns; platelets achieve industry-leading accuracy, precision, and low backgrounds with first-pass technology; near-native state RBC analysis throughout the maturation cycle for direct read and accurate indices	network use allows remote review of blood smears and linking of multiple CellaVision analyzers in multiple locations; WBC and other nucleated cells classified into 18 categories; RBC morphology characterized by 6 categories; leverages high-speed robotics and digital imaging to automatically locate and capture high-quality images of cells

[†]does not include slide maker stainers

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

Part 6 of 13	CellaVision **Ken Childs** ken.childs@cellavision.com **Durham, NC** **919-806-4420** www.cellavision.com	Clinical Diagnostic Solutions sales@boule.com **Plantation, FL** **954-791-1773** www.cdsolinc.com	Diatron MI **Frank Matuszak** frank.matuszak@diatron.com **Medley, FL** **833-228-7931** www.diatron.com
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	CellaVision DM9600/DM1200 2004/2003/— —/—/~$135,000–$175,000	Medonic M-Series 2006/—/— >2,000/>25,000/—	Abacus 3CP 2013/2013/— 56/1,039/$20,385
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	neut %&#, mono, lymph, eos, baso, segmented, bands, blast, promyelocytes, myelocytes, metamyelocytes, variant lymphocytes, plasma cells, giant platelets, platelet clumps, erythroblasts, more	WBC, RBC, HGB, Hct, MCV, MCH, MCHC, PLT, gran %&#, mid, lymph, RDW, MPV	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, mono, lymph, RDW%, MPV, GRA %&#
Tests submitted for 510(k) clearance/Tests in development Tests for research use only Tests unique to analyzer	— — analysis of cytocentrifuged samples, body fluids (reported parameters: neutrophils, eosinophils, lymphocytes, macrophages, including monocytes), other (basophils, lymphoma cells, atypical lymphocytes, blast cells, tumor cells)	— — micropipette adaptor for capillary sampling	— — —
Differential method(s) used	light microscopy, image analysis, artificial neural networks	impedance	volumetric impedance method, light absorbance for HGB measurement
Analytical measurement range: • WBC count/RBC count	—	0.5–80.0/0.5–7.00	0.95–83.45/0.44–7.74
• Hemoglobin/Platelet	—	2.0–23.0/30–1,800	1.4–23.7/11–975
• MCV (fL) or Hct (%)	—	—	—
• Reticulocytes	—	—	—
Precision: • WBC count/RBC count	—	7.0×10^9/L, ≤1.8% (OT CV)/4.59×10^{12}/L, ≤0.9% (OT CV)	<2.7%/<1.7%
• Hemoglobin/Platelet	—	14.3 g/dL, ≤0.8% (OT CV)/239×10^9/L, ≤3.0% (OT CV)	<2.0%/<6%
• MCV or Hct	—	MCV: 86.8 fL/≤0.5% (OT CV)	<1.7% (MCV and Hct)
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	seg neut% y=0.97x+1.3, r= 0.987; lymph% y=0.97x +1.2, r= 0.979; eos% y=1.01+0.1, r=0.960; mono% y=0.97+0.2, r=0.941; band neut% y=0.87x+0.1, r=0.917	—	—
Interfering substances: • WBC	—	NRBCs, unlysed RBCs, hemolysis, leukemias, chemotherapy, cryoglobulins, multiple myeloma, lymphocyte count interference	>5 NRBCs/100 WBCs, PLT clumps, large PLTs
• RBC	—	leukocytosis with concurrent anemia, agglutinated RBCs, cold agglutinins	WBC count >50.0 × 10^3/μL
• MCV or Hct	—	red blood cell agglutination, WBC, thrombocytosis	WBC count >50.0 × 10^3/μL
• Platelet	—	microcytosis, agglutinated RBCs, giant platelets in excessive numbers, chemotherapy, hemolysis, ACD blood, RBC inclusions, platelet agglutination	PLT clumps/large PLTs
• Hemoglobin	—	unlysed RBCs, leukocytosis, lipemia, hyperproteinemia, hyperbilirubinemia, fetal blood	WBC count >50.0 × 10^3/μL, lipids >270 mg/dL
• Reticulocytes	—	—	—
Interfering substances: differential	—	factors that affect WBC plus: large lymphocytes, atypical lymphocytes, blasts, basophils in excessive numbers, metamyelocytes, myelocytes, promyelocytes, blasts and plasma cells in excessive numbers	>5 NRBCs/100 WBCs, PLT clumps, large PLTs
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour Minimum specimen volume open/Closed/Sample dead volume closed Microsample capability Instrument prepares microscope slides automatically/No. of automatic slide makers installed • Slide maker stainer sold separately or combined unit	—/35 differentials — — — —	>60/>60 <110 μL/<250 μL/1 mL yes no/— —	60/60 100 μL/100 μL/— no no/— —
Instrument archives patient data/Archiving is patient specific Maximum amount of archived data accessible when system online No. specimens for which numeric results saved in memory at once No. specimens for which histo/cytogram results saved in memory at once Instrument performs delta checks Parameters for which flags may appear	yes/no unlimited ~4,000 — no —	no/no — >1,000 samples >1,000 samples no —	yes/no 10,000 results 10,000 results 10,000 results no range flags, measurement condition flags, parameter warning, error flags
Flagging is operator selectable Tags and holds results for follow-up, confirmatory testing, or rerun Parameters for flags for holding samples defined by user or vendor Scattergram display: cell-specific color Histogram display: color with thresholds User interface can display choice of specimen or result information	— — — — — —	yes no user no yes yes	no yes vendor no yes yes
LIS interface formats supported Information transferred via LIS interface	ASTM 1394 numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	through middleware numeric and flag results, histograms and scatterplots, instrument to LIS	HL7, Diatron Serial Communication numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test Interface available or planned to automated specimen-handling system Barcode symbologies read on specimen tube	no/no/yes (for peripheral blood) — Codabar, Code 39, Code 128, Interleaved 2 of 5, QR, DataMatrix	no/no/no — —	no/no/no no Codabar, Code 39, Code 128, Interleaved 2 of 5
Accommodates barcode placement per CLSI standard Auto02-A2	—	yes	no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required Time required for daily, weekly, monthly maintenance	none/1 daily: none; weekly: 5 minutes	1/2 daily: <2 minutes; monthly: 10 minutes; 6 months: 75 minutes	1/3 daily: 10 minutes; weekly: 15 minutes; monthly: 10 minutes
Onboard diagnostics for troubleshooting/Limited to software problems Manufacturer can perform diagnostics via modem	yes/no no	yes/no no	no/no no
Distinguishing features (supplied by company)	fully automated slide handling and oiling available in 2 models; performs peripheral blood and body fluid differentials; WBC and other nucleated cells classified into 18 categories; RBC morphology characterized for 22 categories; network use allows remote review of blood smears and linking of multiple analyzers in multiple locations	micropipette adaptor for capillary sampling; 3-part diff with auto sampling capability; no weekly maintenance	reliable 3-part diff analyzers with 2 sampling modes (cap-piercing mode for closed-tube sampling and another for open tubes); operator safety: self-cleaning procedures minimize daily maintenance; user-friendly, easy-to-operate, high-resolution touchscreen; USB and barcode option to load QC target values; capable of reading QR codes for reference input data; confidence: system uses easy-to-understand warning messages and sample flags, employs a comprehensive QC SW package

†does not include slide maker stainers

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

Part 7 of 13	Diatron MI Frank Matuszak frank.matuszak@diatron.com Medley, FL 833-228-7931 www.diatron.com	HORIBA Medical Susan Behnke susan.behnke@horiba.com Irvine, CA 888-903-5001 ext. 4553 www.horiba.com/us/en/medical	HORIBA Medical Susan Behnke susan.behnke@horiba.com Irvine, CA 888-903-5001 ext. 4553 www.horiba.com/us/en/medical
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	Abacus 5 2013/2009/— 35/3,120/$31,850	Pentra XLR 2016/2015/— —/—/$77,500	Pentra 60C+ Hematology Analyzer 2000/2000/— >350/>600/$47,313
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: RDW-SD, RDW-CV, MPV	standard menu plus: retic %&#, IRF%, CRC%	standard menu plus: RDW, MPV
Tests submitted for 510(k) clearance/Tests in development	—	—	—
Tests for research use only	—	PCT, PDW, ATL, LIC	PCT, PDW, ATL, LIC
Tests unique to analyzer	—	automatic dilution for over-range WBC and platelet	
Differential method(s) used	laser light scatter technology, impedance method, light absorbance	DHSS technology combining cytochemistry, focused flow impedance, light absorbance	DHSS technology combining cytochemistry, focused flow impedance, light absorbance principles of measurement
Analytical measurement range: • WBC count/RBC count	0.2–100/0.36–7.19	0–120 (120–360 with CDR)/0–8	0–120/0–8
• Hemoglobin/Platelet	1.1–22.2/15–2,000	0–24/0–1,900; 1,900–3,800, Hb >2 g/dL with CDR	0–24/0–1,900
• MCV (fL) or Hct (%)	—	0–67% (Hct)	0–67% (Hct)
• Reticulocytes	—	0–42%	—
Precision: • WBC count/RBC count	<2.7%/<1.7%	<2%/<2%	<2%/<2%
• Hemoglobin/Platelet	<2.0%/<6%	<1%/<5%	<1%/<5%
• MCV or Hct	<1.7% (MCV and Hct)	<2% (Hct)	<2% (Hct)
• Reticulocytes	—	<12%	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	neut% r=0.99, lymph% r=0.98, mono% r=0.96, eos% r=0.89, baso% r=0.54
Interfering substances: • WBC	>5 NRBCs/100 WBCs, PLT clumps, large PLTs	NRBCs, PLT clumps, lyse-resistant RBCs	NRBCs, PLT clumps, lyse-resistant RBCs
• RBC	WBC count >75.0 × 10³/µL	cold agglutinins	cold agglutinins
• MCV or Hct	WBC count >75.0 × 10³/µL	Hct: extreme leukocytosis	Hct: extreme leukocytosis
• Platelet	PLT clumps/large PLTs	microcytes, PLT clumps	microcytes, PLT clumps
• Hemoglobin	WBC count >75.0 × 10³/µL, lipids >280 mg/dL	extreme lipemia, leukocytosis	extreme lipemia, leukocytosis
• Reticulocytes	—	same as for RBC	—
Interfering substances: differential	>5 NRBCs/100 WBCs, PLT clumps, large PLTs	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	60/60	80/80	60/60
Minimum specimen volume open/Closed/Sample dead volume closed	110 µL/110 µL/—	30 µL for CBC, 53 µL for CBC and differential, 35 µL for reticulocyte/100 µL/—	30 µL for CBC, 53 µL for CBC and differential/30 µL for CBC and 53 µL for CBC and differential/—
Microsample capability	no	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	no/—	no/—
• Slide maker stainer sold separately or combined unit	—	—	—
Instrument archives patient data/Archiving is patient specific	yes/no	yes/yes	yes/yes
Maximum amount of archived data accessible when system online	100,000 results	10,000 sample results with graphics and numerical data	10,000 sample results with graphics and numerical data
No. specimens for which numeric results saved in memory at once	100,000 results	unlimited with backup	unlimited with backup
No. specimens for which histo/cytogram results saved in memory at once	100,000 results	unlimited with backup	unlimited with backup
Instrument performs delta checks	no	yes	no
Parameters for which flags may appear	pathological flags, lab limits (normal ranges), reagents alert, instrument alerts	all CBC and diff parameters have flags	all CBC and diff parameters have flags
Flagging is operator selectable	no	no	no
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	yes
Parameters for flags for holding samples defined by user or vendor	vendor	vendor	vendor
Scattergram display: cell-specific color	yes	yes	yes
Histogram display: color with thresholds	yes	yes	yes
User interface can display choice of specimen or result information	no	no	no
LIS interface formats supported	HL7, Diatron Serial Protocol	proprietary, ASTM 1394, HL7	ASTM 1394 and 1238, HL7
Information transferred via LIS interface	histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, patient orders, LIS to instrument—broadcast; host query for patient demographics and orders	numeric and flag results, histograms and scatter-plots, instrument to LIS; patient demographics, LIS to instrument—broadcast
LOINC codes transmitted with all results/Sent in message to LIS/Listing of machine codes and corresponding LOINC for each test	no/no/no	no/no/no	no/no/no
Interface available or planned to automated specimen-handling system	no	no	no
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, Interleaved 2 of 5	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5
Accommodates barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	1/3	2/6	2/5
Time required for daily, weekly, monthly maintenance	daily: 10 minutes; weekly: 15 minutes; monthly: 10 minutes	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	no/no	yes/yes	yes/yes
Manufacturer can perform diagnostics via modem	no	no	yes, with Data Manager
Distinguishing features (supplied by company)	compact, benchtop 5-part laser WBC differential analyzer provides accurate and precise results; 2 sampling modes (cap-piercing mode for closed-tube sampling and another for open tubes); field upgradeable with optional autosampler with built-in barcode reader; sample capacity: 100 tubes; user friendly and easy to operate: easy-to-follow, intuitive icon user interface	customized dilution ratio for over-range WBC up to 360 × 10³/mm³ and platelet up to 5,600 x 10³/mm³; auto rerun of patient results based on customized criteria; autovalidation of patient results based on customized criteria; can connect to Lite^DM Patient Data Manager, which interfaces with third-party medical devices	reliable 5-part WBC differential technology; mean time between failures more than 200 days; small footprint; small sample size of 53 µL; can connect to Lite^DM Patient Data Manager, which interfaces with third-party medical devices

†does not include slide maker stainers

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

Part 8 of 13	HORIBA Medical **Susan Behnke** susan.behnke@horiba.com **Irvine, CA** **888-903-5001 ext. 4553** www.horiba.com/us/en/medical	Mindray **Anna Chen** a.chen@mindray.com **Redmond, WA** **425-881-0361 ext. 3305** www.mindraynorthamerica.com	Mindray **Anna Chen** a.chen@mindray.com **Redmond, WA** **425-881-0361 ext. 3305** www.mindraynorthamerica.com
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	Pentra XL 80 2004/2003/— >250/>900/$76,808	BC-5390 2016/2012/— 24/1,612/—	BC-3600 2015/2011/— 78/4,120/—
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: automatic dilution of over-range results (WBC × 3, RBC/Hgb/PLT × 2), RDW, MPV	standard menu plus: RDW-CV, RDW-SD, MPV, mono %&#, lymph %&#, eos %&#, baso %&#	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, gran %&#, lymph %&#, mid %&#, MPV, RDW
Tests submitted for 510(k) clearance/Tests in development Tests for research use only Tests unique to analyzer	— PCT, PDW, ATL, LIC automatic dilution protocol	— — —	none/none none none
Differential method(s) used	DHSS technology combining cytochemistry, focused flow impedance, light absorbance	flow cytometry, light scatter	impedance method for WBC, RBC, MCV, RDW, PLT, MPV and WBC 3-part differential determination, colorimetric method for HGB determination
Analytical measurement range: • WBC count/RBC count	0–120/0–8	0.3–200/0.2–8.0	0.3–99.9/0.20–7.99
• Hemoglobin/Platelet	0–24/0–1,900 (>2 g/dL Hb)	0.5–25/5–2,000	1.0–24.9/10–999
• MCV (fL) or Hct (%)	0–2,800 (<2 g/dL Hb), 0–67% (Hct)	2–75% (Hct)	—
• Reticulocytes	—	—	—
Precision: • WBC count/RBC count	<2%/<2%	<0.15 (SD) or 3.0% (CV)/<1.5%	WBC ≥4.0: ≤3.0% CV%; 1.0 ≤WBC ≤2.0: ≤7.0% CV%/ ≤2.5% CV%
• Hemoglobin/Platelet	<1%/<5%	<1.5%/<7.5 (SD) or 5% (CV)	≤2.0% CV%/PLT ≥150: ≤6.0% CV%; 20 ≤PLT≤ 50: ≤20.0% CV%
• MCV or Hct	<2% (Hct)	<1.5% (MCV)	≤2.0 CV% (MCV), ≤2.5% CV% (Hct)
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	neut% r=0.99, lymph% r=0.98, mono% r=0.96, eos% r=0.89, baso% r=0.54	neu%: ±5.00 or ±10.0%; lym%: ±4.00 or ±10.0%; mon%: ±3.00 or ±10.0%; eos%: ±2.00 or ±10.0%; bas%: ±1.00 or ±10.0%	—
Interfering substances: • WBC	NRBCs, PLT clumps, lyse-resistant RBCs	platelet aggregation, lyse-resistant erythrocytes, erythroblasts, cold agglutinin, cryoglobulin, giant platelets, lipemia, chylomicronemia	certain unusual RBC abnormalities that resist lysing, nucleated RBCs, fragmented WBCs, unlysed particles, very large or aggregated platelets
• RBC	cold agglutinins	cold agglutinin, fragmented erythrocytes, leukocytosis, giant platelets	very high WBC count, high concentration of very large platelets, agglutinated RBCs and smaller RBC
• MCV or Hct	Hct: extreme leukocytosis	RBC fragments, very high WBC count, high concentration of very large platelets, microclots, RBC rouleaux or agglutinates (autoagglutination)	very high WBC count, high concentration of very large platelets, agglutinated RBCs, RBC fragments
• Platelet	microcytes, PLT clumps	PLT aggregation or PLT satellitism, giant platelets, microcytosis, fragmented erythrocytes	very small red blood cells near the upper PLT threshold, cell fragments, clumped platelets as with oxalate or heparin, platelet fragments or cellular debris near the lower platelet threshold
• Hemoglobin	extreme lipemia, leukocytosis	leukocytosis, lipemia, chylomicronemia, abnormal protein	very high WBC count, severe lipemia, certain unusual RBC abnormalities that resist lysing, anything that increases the turbidity of the sample such as elevated levels of triglycerides
• Reticulocytes	—	—	—
Interfering substances: differential	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia	lysis-resistant RBC, NRBC, PLT aggregates, giant PLT	known factors that affect the WBC count as listed above, high triglycerides that can affect lysing
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	80/80	60/60	60/60
Minimum specimen volume open/Closed/Sample dead volume closed	30 µL for CBC/53 µL for CBC and differential/0.5 mL	100 µL/33 µL, predilute 20 µL/1 mL	100 µL/21 µL, predilute 20 µL/1 mL
Microsample capability	yes	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	no/—	no/—
• Slide maker stainer sold separately or combined unit	—	—	—
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/yes	no/no
Maximum amount of archived data accessible when system online	10,000 sample results with graphics and numerical data	100,000 results	40,000 results
No. specimens for which numeric results saved in memory at once	unlimited with backup	100,000	40,000
No. specimens for which histo/cytogram results saved in memory at once	unlimited with backup	100,000	40,000
Instrument performs delta checks	yes	yes	no
Parameters for which flags may appear	all CBC and diff parameters have flags	immature gran? Abn/atypical lym? RBC agglutination? iron deficiency? PLT clump? NRBC? blasts? RBC lyse resist? leukocytosis, leukopenia, anemia, anisocytosis, more	—
Flagging is operator selectable	no	operator and vendor selectable	no
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	no
Parameters for flags for holding samples defined by user or vendor	vendor	—	—
Scattergram display: cell-specific color	yes	yes	no
Histogram display: color with thresholds	yes	yes	yes
User interface can display choice of specimen or result information	no	yes	no
LIS interface formats supported	proprietary, ASTM 1394 and 1238, HL7	HL7	HL7
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	no/no/no	yes/yes/yes	yes/yes/no
Interface available or planned to automated specimen-handling system	no	none	—
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5	Codabar, Code 39, Code 93, Code 128, Interleaved 2 of 5, UPC/EAN	Codabar, Code 39, Code 128
Accommodates barcode placement per CLSI standard Auto02-A2	yes	—	—
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	2/5	1/4	1/4
Time required for daily, weekly, monthly maintenance	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes	daily: <10 minutes	daily: <10 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	no/yes	yes/no	yes/no
Manufacturer can perform diagnostics via modem	no	yes	no
Distinguishing features (supplied by company)	compact 5-part differential instrument with autoloader and autodilution capability, auto rerun feature, autovalidation; can connect to Lite^DM Patient Data Manager, which interfaces with third-party medical devices	60 QC files; maximum 40 samples autoloader capacity, sample adaptors for pediatric and predilution samples; operation software with built-in data-management functions, 3 modes of operation: autoloader and opened and closed tube; customizable patient reports; only 1 maintenance reagent	10.4-inch all-in-one Glance color touchscreen, touch-button maintenance procedures, and low sample requirement; 40,000 patient results storage, close-tube sampling, open-tube sampling for pediatric samples; 3 types of sample adaptors, barcoded reagent, and 5 minutes daily start-up and maintenance

†*does not include slide maker stainers*

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

Part 9 of 13	PixCell Medical **Ryan Venturi** info@pixcell-medical.com **Longmont, CO** **888-615-4122** www.pixcell-medical.com	Siemens Healthineers **Sheryl Kirk** sheryl.kirk@siemens-healthineers.com **Tarrytown, NY** **469-390-7319** siemens-healthineers.com/hematology	Siemens Healthineers **Sheryl Kirk** sheryl.kirk@siemens-healthineers.com **Tarrytown, NY** **469-390-7319** siemens-healthineers.com/hematology
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	HemoScreen 2018/2016/—	Advia 360 Hematology System 2015/2015/—	Advia 560/560AL Hematology System 2015/2015/—
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso) Tests submitted for 510(k) clearance/Tests in development Tests for research use only Tests unique to analyzer	standard menu plus: MPV, RDW — — —	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, lymph, MID, GRA, MID%, GRA%, MPV, RDW-CV — — —	WBC, RBC, Hb, Hct, MCV, MCH, PLT, neut %&#, mono, lymph, eos, baso — — —
Differential method(s) used	digital microscopy and computer-vision algorithms	volumetric impedance change for WBC, RBC, PLT; lytic reagents with impedance method for 3 subpopulations; spectrophotometry for HGB	volumetric impedance change for WBC, RBC, PLT; light scattering baso measurement; light scattering 4-diff measurement LYM, MON, NEU, EOS; spectrophotometry for HGB
Analytical measurement range: • WBC count/RBC count	0.5–80.0×10^3/µL/1.0–8.8×10^6/µL	0.0–85.00/0.00–8.00	0.20–100.0/0.36–7.19
• Hemoglobin/Platelet	3.0–25.0 g/dL/20–800×10^3 /µL	0.0–25.00/0–1,000	1.10–22.2/15.0–1,000
• MCV (fL) or Hct (%)	9.0–78.0% (Hct)	50–120 (MCV)	50–120 (MCV)
• Reticulocytes	—	—	—
Precision: • WBC count/RBC count	4.0%/1.5%	<4.0%/<2.5%	<3.4%/<2.0%
• Hemoglobin/Platelet	1.6%/3.5%	<2.4%/<7.0%	<2.4%/<7.0%
• MCV or Hct	1.6% (Hct)	<2.0% (MCV)	<2.0% (MCV)
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances: • WBC	no significant interference up to 50 mg/dL bilirubin, 729 mg/dL triglycerides	>5 NRBCs/100 WBCs, PLT clumps, large PLTs	>5 NRBCs/100 WBCs, PLT clumps, large PLTs
• RBC	no significant interference up to 50 mg/dL bilirubin, 729 mg/dL triglycerides	WBC count >75.0 × 103/µL	WBC count >75.0 × 103/µL
• MCV or Hct	no significant interference up to 50 mg/dL bilirubin, 729 mg/dL triglycerides	WBC count >75.0 × 103/µL	WBC count >75.0 × 103/µL
• Platelet	no significant interference up to 30 mg/dL bilirubin, 729 mg/dL triglycerides	PLT clumps, large PLTs	PLT clumps, large PLTs
• Hemoglobin	no significant interference up to 50 mg/dL bilirubin, 729 mg/dL triglycerides	WBC count >75.0 × 103/µL, lipids >280 mg/dL	WBC count >75.0 × 103/µL, lipids >280 mg/dL
• Reticulocytes	—	—	—
Interfering substances: differential	—	> 5 NRBCs/100 WBCs, PLT clumps, large PLTs	> 5 NRBCs/100 WBCs, PLT clumps, large PLTs
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour Minimum specimen volume open/Closed/Sample dead volume closed Microsample capability Instrument prepares microscope slides automatically/No. of automatic slide makers installed • Slide maker stainer sold separately or combined unit	20/10 40 µL/40 µL/— yes no/— —	60/60 100 µL/100 µL/— no no/— sold separately	60/60 100 µL/100 µL/— yes no/— sold separately
Instrument archives patient data/Archiving is patient specific Maximum amount of archived data accessible when system online No. specimens for which numeric results saved in memory at once No. specimens for which histo/cytogram results saved in memory at once Instrument performs delta checks Parameters for which flags may appear	yes/no 1,000 1,000 — no all CBC and differential parameters have flags; pathological flags, range flags, measurement condition flags, parameter warning, error flags	yes/no 100,000 results 100,000 100,000 yes out-of-range flags, measurement condition flags (warnings); flagging on WBC and HGB channels; flagging on RBC/PLT channel/warning flags of differential parameters	yes/no 100,000 results 100,000 100,000 yes pathological (diagnostic) flags; lab limits (normal ranges); reagents alert (3 measurement pre-alert online reagent replacement); instrument alerts, internal buffer for reagents
Flagging is operator selectable Tags and holds results for follow-up, confirmatory testing, or rerun Parameters for flags for holding samples defined by user or vendor Scattergram display: cell-specific color Histogram display: color with thresholds User interface can display choice of specimen or result information	no no vendor no no yes	operator and vendor selectable yes user yes yes yes	— yes user yes yes yes
LIS interface formats supported Information transferred via LIS interface	HL7, POCT-1A numeric and flag results, instrument to LIS	proprietary numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	proprietary numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test Interface available or planned to automated specimen-handling system Barcode symbologies read on specimen tube Accommodates barcode placement per CLSI standard Auto02-A2	yes/yes/yes no Codabar, Code 39, Code 128, Interleaved 2 of 5 —	yes/yes/yes no Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5 no	yes/yes/yes no Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5 no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required Time required for daily, weekly, monthly maintenance Onboard diagnostics for troubleshooting/Limited to software problems Manufacturer can perform diagnostics via modem	0/0 none yes/no yes	1/3 daily: automated; weekly: 15–20 minutes yes/no yes	1/3 daily: automated; weekly: 15–20 minutes no/no yes
Distinguishing features (supplied by company)	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 obtained within 5 minutes from a drop of venous or capillary blood	measures 16 parameters including 3-part WBC differential; efficient manual sampling of open and closed tubes; 60 samples per hour, volume as low as 100 µL	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; aids in interpreting disease state information with 2 scattergrams and 2 histograms per result

†does not include slide maker stainers

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

Part 10 of 13	Siemens Healthineers **Sheryl Kirk** sheryl.kirk@siemens-healthineers.com **Tarrytown, NY** **469-390-7319** siemens-healthineers.com/hematology	Sight Diagnostics **Kevin Lee** sales-us@sightdx.com **Brooklyn, NY** www.sightdx.com/us	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	Advia 2120i Hematology System 2008/2008/— 698/3,900/$245,700	Sight OLO 2019/2018/— —	pocH-100i 2004/2003/— >2,000/>5,000/$19,085
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: CHCM, RDW, HDW, CH, CHDW, LUC, NRBC, MPV, PDW, PCT, RETIC, MCVr, MCVg, CHCMg, CHCMr, CHg, CHr, large PLT, 9 RBC morphology classification flags, more	standard menu plus: RDW, neut %, mono %, lymph %, eos %, baso %	WBC, RBC, HGB, HCT, MCV, MCH, MCHC, PLT, neut %&#, lymph %&#, MXD %&#, RDW-SD, RDW-CV, MPV
Tests submitted for 510(k) clearance/Tests in development	—/sepsis, MPC, MPM	—	—
Tests for research use only	IRF, CSF eos, MPC, MPM, PCDW, PCT, PDW, PLT N, PLT X, PLT Y, PMDW, P count–2D, R count–2D, RBC Count–2D, RtcPlts%, RtcPltsCount, RtcPltsThreshold, RtcPlt VI, more	—	—
Tests unique to analyzer	chartable RBC morphology, large PLT enumeration, CHr, CHCM, HDW, CHDW, CHCMr, CHg, MPC, MPM, CSF: WBC, RBC, PMN, MN, neut, lymph, mono	—	absolute neutrophil count
Differential method(s) used	peroxidase WBC: peroxidase cytochem. staining with light scatter and absorption; baso: cytochem. stripping with 2-angle laser light scatter	digital microscopy and computer-vision algorithms	direct current
Analytical measurement range: • WBC count/RBC count	0.02–400 × 103/µL/0–7.0 × 106/µL	0.18–100.13 10^3/µL/1.22–7.55 10^6/µL	1.0–99.9/0.3–7.0
• Hemoglobin/Platelet	0–22.5 g/dL/5–3,500 × 103/µL	4.0–21.75 g/dL/18–1,028.5 10^3/µL	0.1–25.0/10–999
• MCV (fL) or Hct (%)	30–180 (MCV)	15.2–63.7% (Hct)	10–60 (Hct)
• Reticulocytes	0.2–24.5%	—	—
Precision: • WBC count/RBC count	2.7%/1.2%	4.1%/2.1%	≤3.5%/≤2.0%
• Hemoglobin/Platelet	0.93%/2.93%	1.9%/4.8%	≤1.5%/≤6.0%
• MCV or Hct	0.78% (MCV)	2.2% (Hct)	≤2.0% (Hct)
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	neut% r=0.997, y=1.02x–0.6; lymph% r=0.997, y=1.00x+0.8; mono% r=0.943, y=0.85x–0.3; eos% r=0.979, y=0.87x+0.2; baso% r=0.772, y=0.67x+0.0; luc% r=0.994, y=0.92+0.6	—	neut% r=0.98, lymph% r=0.99, MXD% r=0.75, neut# r=1.00, lymph# r=1.00, MXD# r=0.90
Interfering substances: • WBC	incomplete RBC lysis (peroxidase only)	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	lyse-resistant RBCs, cold agglutinins, cryoglobulins, PLT aggregation, NRBCs
• RBC	cold agglutinins, extreme sickle cell	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	cold agglutinins, severe microcytosis, fragmented RBCs
• MCV or Hct	—	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	cold agglutinins, fragmented RBCs, leukocytosis (>100,000/µL)
• Platelet	—	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	PLT aggregation, giant PLTs, microcytic RBCs, fragmented RBCs
• Hemoglobin	extreme lipemia, high WBC, extremely high bilirubin; colorimetric: none with cellular Hgb	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	severe lipemia, abnormal protein, leukocytosis (>100,000/µL)
• Reticulocytes	—	—	—
Interfering substances: differential	incomplete RBC lysis, complete myeloperoxidase deficiency	monoclonal gammopathies, lipemia, chylemia, hyperbilirubinemia, sulfhemoglobinemia, methemoglobinemia, carboxyhemoglobinemia, more	—
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	120/120	5/5	30/30
Minimum specimen volume open/Closed/Sample dead volume closed	175 µL/175 µL/<300 µL (tube-size dependent)	~30 µL/—/—	15 µL/15 µL/15 µL
Microsample capability	yes	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	yes/—	no/—	no/—
• Slide maker stainer sold separately or combined unit	sold separately ($107,016)	—	—
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/no	yes/yes
Maximum amount of archived data accessible when system online	10,000 patient results, incl. graphics	50,000 results	100 samples
No. specimens for which numeric results saved in memory at once	10,000 patient results, incl. graphics	50,000	100 samples
No. specimens for which histo/cytogram results saved in memory at once	10,000 patient results, incl. graphics	—	100 samples
Instrument performs delta checks	yes	no	yes
Parameters for which flags may appear	left shift, atypical lymphocytes, blasts, immature grans, myeloperoxidase deficiency, aniso, micro, macro, Hgb variation, hypo, hyper, NRBC, RBC fragments, RBC, more	IG, blasts, atypical LYM, nRBCs, PLT clumps, giant PLT, RBC agglutination, high reticulocytes, low reticulocytes, WBC agglutination, dual RBC population, more	flagging system suggests sample error for WBC, RBC, PLT parameters
Flagging is operator selectable	operator and vendor selectable	no	no
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	no	no
Parameters for flags for holding samples defined by user or vendor	user	vendor	vendor
Scattergram display: cell-specific color	yes	no	no
Histogram display: color with thresholds	yes	no	yes
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	proprietary, ASTM 1394-91, ASTM 1238-95, ASTM 1381, Atellica Data Manager provides HL7 compatibility	HL7	RS-232C
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	numeric and flag results, instrument to LIS	numeric and flag results, histograms and scatterplots, patient demographics, orders, host query for patient demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	no/no/yes	no/no/no	no/no/yes
Interface available or planned to automated specimen-handling system	Siemens, Sysmex	none	—
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, ASTM, Interleaved 2 of 5, JAN (8 and 13), ISBT 128	Codabar, Code 39, Code 128, Interleaved 2 of 5, QR	Code 39, Code 128, ASTM, ITF, NW7, JAN-8, JAN-13
Accommodates barcode placement per CLSI standard Auto02-A2	yes	—	no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	5/3	0/0	1/2
Time required for daily, weekly, monthly maintenance	daily: none; weekly: automated wash sequence; monthly: 15 minutes	daily: none; weekly: none; monthly: none	daily: <2 minutes; weekly: <2 minutes; monthly: <2 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	yes	yes	yes
Distinguishing features (supplied by company)	dual WBC counts with a linearity of up to 400,000; CSF true zero; laser technology provides direct cellular Hgb for RBCs and reticulocytes; 2D optical PLT analysis eliminates interference from RBC fragments and inclusion of large PLTs	2 drops of blood (27 µL) from finger prick or venous sample for patients 3 months or older with any clinical condition; results in less than 10 min. without the need for user calibration, external reagents management, or routine maintenance; minimal training required, touchscreen instructions, automatic internal QC and fail-safe system	hydrodynamic focusing, automatic floating discriminators, ISBT-compliant, data-masking software for blood donor centers; optional upgrade to pocHi Plus or pocHi Linc available (data manager and small LIS); ability to directly link to EMR

†does not include slide maker stainers

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

Part 11 of 13	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us
Name of instrument	XN-330, XN-430, XN-530	XN-350, XN-450, XN-550	XN-1000 Series
First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022	2017/2016/—	2017/2015/—	2012/2011/>175
No. units installed in U.S./Outside U.S./List price†	>650/—/$71,000–$106,000	>1,450/>3,200/$75,000–$110,000	>1,500/>450/$202,667
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: IG %&#, MPV, RDW-CV, RDW-SD	standard menu plus: IG %&#, MPV, RDW-CV, RDW-SD	standard menu plus: NRBC %&#, IG %&#, MPV, PLT-F, IPF, RDW-CV, RDW-SD, retic %&#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&#, PMN %&#
Tests submitted for 510(k) clearance/Tests in development	—	—	—
Tests for research use only	—	—	—
Tests unique to analyzer	immature granulocyte on every sample; models available through authorized distributors for POL and clinic market	immature granulocyte on every sample, optional reticulocyte and body fluid licenses available	IG %&#, PLT-F, IPF, RET-He; body fluids: two-part differential MN %&#, PMN %&#
Differential method(s) used	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light
Analytical measurement range: • WBC count/RBC count	0.00–440.00/0.00–8.60	0.00–440.00/0.00–8.60	0.00–440.00/0.00–8.60
• Hemoglobin/Platelet	0.0–26.0/0–5,000	0.0–26.0/0–5,000	0.0–26.0/0–5,000
• MCV (fL) or Hct (%)	0.0–75.0% (Hct)	0.0–75.0% (Hct)	0.0–75.0% (Hct)
• Reticulocytes	—	—	0.00–30.00
Precision: • WBC count/RBC count	<3.0%/<1.5%	<3.0%/<1.5%	<3.0%/<1.5%
• Hemoglobin/Platelet	<1.0%/<4.0%	<1.0%/<4.0%	<1.0%/<4.0%
• MCV or Hct	<1.5% (Hct)	<1.5% (Hct)	<1.5% (Hct)
• Reticulocytes	—	RET %: within ±20% or ±0.30	RET %: ±20% or ±0.3
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances: • WBC	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 OD 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 OD 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 OD for intralipid, 2,880 OD for chyle
• 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, 30.320 OD 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 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• MCV or Hct	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 OD 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 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• Platelet	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 OD 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 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• Hemoglobin	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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 199 mg/dL for hemolysis
• Reticulocytes	—	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 1010 mg/dL for hemolysis, 30.320 OD for intralipid, 2,880 OD for chyle	system may erroneously report a high reticulocyte count with erythrocyte aggregation (cold agglutinin), giant platelets, possibility of PLT clumps, fragmented leukocytes, more
Interfering substances: differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	60/60	60/60	100/100
Minimum specimen volume open/Closed/Sample dead volume closed	25 µL/25 µL/1 mL	25 µL/25 µL/1 mL	88 µL/88 µL/1 mL
Microsample capability	yes	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	no/—	no/—
• Slide maker stainer sold separately or combined unit	—	—	sold separately ($180,950)
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/yes	yes/yes
Maximum amount of archived data accessible when system online	10,000 patient results	100,000 patient results	100,000 samples
No. specimens for which numeric results saved in memory at once	10,000	100,000	100,000
No. specimens for which histo/cytogram results saved in memory at once	10,000	100,000	100,000
Instrument performs delta checks	yes	yes	yes
Parameters for which flags may appear	abnormal (user-defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer-generated ex: left shift?, PLT clumps?) flags for all reportable parameters deemed abnormal per lab's protocol, more	abnormal (user-defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer-generated ex: left shift?, PLT clumps?) flags for all reportable parameters deemed abnormal per lab's protocol, more	abnormal (user-defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer-generated ex: left shift?, PLT clumps?) flags for all reportable parameters deemed abnormal per lab's protocol, more
Flagging is operator selectable	operator and vendor selectable	—	yes
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	yes
Parameters for flags for holding samples defined by user or vendor	—	—	user and vendor
Scattergram display: cell-specific color	yes	yes	yes
Histogram display: color with thresholds	yes	yes	yes
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	XN series ASTM 1381-95/ASTM 1894-97 or XN series ASTM 1381-02/ASTM 1894-97	XN series ASTM 1381-95/ASTM 1894-97 or XN series ASTM 1381-02/ASTM 1894-97	ASTM 1394-91, HL7
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	yes/yes/no	yes/yes/no	no/no/yes
Interface available or planned to automated specimen-handling system	no	no	no
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC
Accommodates barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	1/4	1/4	1/5 cubitainer reagents, 4 fluorescent dye cartridges
Time required for daily, weekly, monthly maintenance	daily: 2 minutes; weekly: 15 minutes	daily: 2 minutes; weekly: 15 minutes	daily: <1 minute (operator time)
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	yes	yes	yes
Distinguishing features (supplied by company)	6-part WBC differential including immature granulocyte for smaller labs; onboard rules provide efficient repeat testing based on user's criteria; standardization of reagents and controls with existing Sysmex XN-Series analyzers; BeyondCare Quality Monitor for Hematology, a QC and calibration management program standard on all models	6-part WBC differential including immature granulocyte for smaller labs; low WBC mode for improved reliability of analysis; optional reticulocyte and body fluid licenses available; onboard rules provide efficient repeat and reflex testing based on user's criteria; standardization of reagents and controls with existing Sysmex XN-Series analyzers; BeyondCare Quality Monitor for Hematology, a QC and calibration management program standard on all models	reportable parameters include IG %&#, RET-He, fluorescent PLT, body fluid with 2-part differential; onboard preloaded decision rules including automated rerun-reflex capabilities; optional wagons for complete reagent management; compatible with optional RU-20 reagent unit that allows for use of concentrated Cellpack

†*does not include slide maker stainers*

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

Part 12 of 13	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Jill Crist** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Jill Crist** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	XN-2000 Series 2012/2011/>95 >1,000/>450/$402,667	XN-3100 Series 2017/2017/>60 >500/>25/$562,667 (includes slide maker stainer)	XN-9100 Series 2017/2017/50 >500/>50/varies based on configuration
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	standard menu plus: NRBC %&#, IG %&#, MPV, PLT-F, IPF, RDW-CV, RDW-SD, retic %&#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&#, PMN %&#	standard menu plus: NRBC %&#, IG %&#, MPV, PLT-F, IPF, RDW-CV, RDW-SD, retic %&#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&#, PMN %&#	standard menu plus: NRBC %&#, IG %&#, MPV, PLT-F, IPF, RDW-CV, RDW-SD, retic %&#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&#, PMN %&#
Tests submitted for 510(k) clearance/Tests in development	—	—	—
Tests for research use only	—	—	—
Tests unique to analyzer	IG %&#, PLT-F, IPF, RET-He; body fluids: two-part differential MN %&#, PMN %&#	IG %&#, PLT-F, IPF, RET-He; body fluids: two-part differential MN %&#, PMN %&#	IG %&#, PLT-F, IPF, RET-He; body fluids: 2-part differential MN %&#, PMN %&#
Differential method(s) used	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light
Analytical measurement range: • WBC count/RBC count • Hemoglobin/Platelet • MCV (fL) or Hct (%) • Reticulocytes	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct) 0.00–30.00	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct) 0.00–30.00	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct) 0.00–30.00
Precision: • WBC count/RBC count • Hemoglobin/Platelet • MCV or Hct • Reticulocytes	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct) RET %: ± 20% or ± 0.3	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct) RET %: ± 20% or ± 0.3	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct) RET %: = ± 20% or ± 0.3
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances: • WBC	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 OD 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 OD 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 OD for intralipid, 2,880 OD for chyle
• 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, 55.980 OD 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, 55.980 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• MCV or Hct	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 55.980 OD 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, 55.980 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• Platelet	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 55.980 OD 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, 55.980 OD 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, 55.980 OD for intralipid, 2,880 OD for chyle
• Hemoglobin	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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 199 mg/dL for hemolysis
• Reticulocytes	system may erroneously report a high reticulocyte count with erythrocyte aggregation (cold agglutinin), giant platelets, possibility of PLT clumps, fragmented leukocytes, more	system may erroneously report a high reticulocyte count with erythrocyte aggregation (cold agglutinin), giant platelets, possibility of PLT clumps, fragmented leukocytes, malaria, Howell-Jolly body	system may erroneously report a high reticulocyte count with erythrocyte aggregation (cold agglutinin), giant platelets, possibility of PLT clumps, fragmented leukocytes, malaria, Howell-Jolly body
Interfering substances: differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour	200/200	varies by configuration/varies by configuration	>100, varies by configuration/>100, varies by configuration
Minimum specimen volume open/Closed/Sample dead volume closed	88 µL/88 µL/1 mL	88 µL/88 µL/1 mL	88 µL/88 µL/1 mL
Microsample capability	yes	yes	yes
Instrument prepares microscope slides automatically/No. of automatic slide makers installed	no/—	yes/1	yes/configurable
• Slide maker stainer sold separately or combined unit	sold separately ($180,950)	sold as combined unit	sold separately ($180,950) or combined
Instrument archives patient data/Archiving is patient specific	yes/yes	yes/yes	yes/yes
Maximum amount of archived data accessible when system online	100,000 samples	100,000 samples	100,000 samples
No. specimens for which numeric results saved in memory at once	100,000	100,000	100,000
No. specimens for which histo/cytogram results saved in memory at once	100,000	100,000	100,000
Instrument performs delta checks	yes	yes	yes
Parameters for which flags may appear	abnormal (user-defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer-generated ex: left shift?, PLT clumps?) flags all reportable parameters deemed abnormal per lab's protocol, more	abnormal (user-defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer-generated ex: left shift?, PLT clumps?) flags for all reportable parameters deemed abnormal per lab's protocol, more	abnormal (user defined ex: neutrophilia, anisocytosis) and/or suspect (analyzer generated ex: left shift?, PLT clumps?) flags for all reportable parameters deemed abnormal per lab's protocol, more
Flagging is operator selectable	yes	yes	yes
Tags and holds results for follow-up, confirmatory testing, or rerun	yes	yes	yes
Parameters for flags for holding samples defined by user or vendor	user and vendor	user and vendor	user and vendor
Scattergram display: cell-specific color	yes	yes	yes
Histogram display: color with thresholds	yes	yes	yes
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	ASTM 1394-91, HL7	ASTM 1394-91, HL7	ASTM 1394-91, HL7
Information transferred via LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	no/no/yes	no/no/yes	no/no/yes
Interface available or planned to automated specimen-handling system	no	no	Abbott, Ortho Clinical, Roche, Siemens, Beckman Coulter
Barcode symbologies read on specimen tube	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC
Accommodates barcode placement per CLSI standard Auto02-A2	yes	yes	yes
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required	1/5 cubitainer reagents, 4 fluorescent dye cartridges	1/5 cubitainer reagents, 4 fluorescent dye cartridges	1/5 cubitainer reagents, 4 fluorescent dye cartridges
Time required for daily, weekly, monthly maintenance	daily: <1 minute (operator time)	<3 minutes (operator time), ~15 minutes (analyzer time)	<3 minutes (operator time), ~15 minutes (analyzer time)
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	yes	yes	yes
Distinguishing features (supplied by company)	fully integrated co-primary hematology solution consisting of 2 analytical modules connected with a single sampler, providing maximum productivity and efficiency with workload balancing; reportable parameters include IG %&#, RET-He, fluorescent PLT, body fluid with 2-part differential, onboard preloaded decision rules including automated rerun-reflex capabilities; optional wagons for complete reagent management; compatible with optional RU-20 reagent unit that allows for use of concentrated Cellpack	co-primary hematology solution: 2 analytical modules plus a fully integrated 5th-generation slidemaker/stainer (SP-50); integration of the DI-60 automated cell image system, providing preclassification for WBC, RBC, and PLT estimates; compatible with optional RU-20 reagent unit that allows for use of concentrated Cellpack; optional configuration (XN-20) possesses the white cell precursor channel (WPC), which differentiates a single flag (blast/abnormal lymphocytes) into 2 distinct flags (blasts and abnormal lymphocytes)	scalable, modular system that can be configured as an island of automation or connected to TLA systems; integration of the DI-60 automated cell image system providing preclassification for WBC, RBC, and PLT estimates; tube sorter/archiver (TS-10) and A1c testing (Bio-Rad Variant II Turbo Link) provide complete testing efficiencies; optional configuration (XN-20) possesses the white cell precursor channel (WPC), which differentiates a single flag (blast/abnormal lymphocytes) into 2 distinct flags (blasts and abnormal lymphocytes)

†does not include slide maker stainers

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

Part 13 of 13	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us	Sysmex America **Madelaine Dintelman** communications@sysmex.com **Lincolnshire, IL** **800-379-7639** www.sysmex.com/us
Name of instrument First year installed in U.S./Outside U.S./No. of units sold Sept. 2021–Aug. 2022 No. units installed in U.S./Outside U.S./List price†	XN-V Series* 2017/2017/10 35/28/varies by configuration	XP-300 2013/2013/— >1,400/>1,000/$28,405	XW-100 2018/—/— 250/—/$6,500
Menu of chartable tests (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	WBC, RBC, Hb, Hct, MCV, MCH, PLT, neut %&#, mono, lymph, eos, baso, NRBC %&#, MPV, PLT-F, PLT-O, IPF, RDW-CV, RDW-SD, retic %&#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&#, PMN %&#	WBC, RBC, HGB, HCT, MCV, MCH, MCHC, PLT, neut %&#, lymph %&#, MXD %&# (mono, eos, baso), RDW-SD, RDW-CV, MPV	WBC, RBC, HGB, HCT, MCV, PLT, other WBC %&#, LYM %&#, NEUT %&#
Tests submitted for 510(k) clearance/Tests in development Tests for research use only Tests unique to analyzer	— not FDA cleared for human use; for research use only PLT-F, PLT-O, IPF, RET-He; body fluids: 2-part differential MN %&#, PMN %&#	— — absolute neutrophil count	— — direct current with hydrodynamic focusing for all parameters except hemoglobin, which is measured photometrically
Differential method(s) used	fluorescent flow cytometry with side fluorescent light, forward-scattered and side-scattered light	direct current	adaptive cluster analysis
Analytical measurement range: • WBC count/RBC count	0.00–440.00/0.00–8.60	1.0–99.9/0.3–7.0	1–63.2/0.3–7.0
• Hemoglobin/Platelet	0.0–26.0/0–5,000	0.1–25.0/10–999	0.1–25/10–999
• MCV (fL) or Hct (%)	0.0–75.0% (Hct)	10–60 (Hct)	10–60% (Hct)
• Reticulocytes	—	—	—
Precision: • WBC count/RBC count	<3.0%/<1.5%	<3.5%/<2.0%	<3.5%/<2.0%
• Hemoglobin/Platelet	<1.0%/<4.0%	<1.5%/<6.0%	<1.5%/<6.0%
• MCV or Hct	<1.5% (Hct)	<2.0% (Hct)	<2.0% (Hct)
• Reticulocytes	—	—	—
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	neut% r=0.98, lymph% r=0.99, MXD% r=0.75, neut# r=1.00, lymph# r=1.00, MXD# r=0.90	—
Interfering substances: • WBC	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 OD for intralipid, 2,880 OD for chyle	cold agglutinins, PLT clumps, cryoprotein, cryoglobulin, fibrin, giant PLTs (>1 M/μL)	—
• 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, 55.980 OD for intralipid, 2,880 OD for chyle	cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/μL), giant PLTs (>1 M/μL)	—
• MCV or Hct	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 55.980 OD for intralipid, 2,880 OD for chyle	cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/μL), severe diabetes, uremia, spherocytosis	—
• Platelet	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 55.980 OD for intralipid, 2,880 OD for chyle	PLT clumps, pseudothrombocytopenia, giant PLTs, severe microcytosis, fragmented RBCs, fragmented leukocytes, cryoprotein, cryoglobulin	—
• Hemoglobin	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 199 mg/dL for hemolysis	severe lipemia, abnormal protein, leukocytosis (>100,000/μL)	—
• Reticulocytes	—	—	—
Interfering substances: differential	—	—	—
Throughput: max. CBCs per hour/Max. CBCs and differentials per hour Minimum specimen volume open/Closed/Sample dead volume closed Microsample capability Instrument prepares microscope slides automatically/No. of automatic slide makers installed • Slide maker stainer sold separately or combined unit	100/100 88 μL/88 μL/1 mL yes yes/— —	60/60 50 μL/—/— yes no/— —	— —/15 μL/1 mL no no/— —
Instrument archives patient data/Archiving is patient specific Maximum amount of archived data accessible when system online No. specimens for which numeric results saved in memory at once No. specimens for which histo/cytogram results saved in memory at once Instrument performs delta checks Parameters for which flags may appear Flagging is operator selectable Tags and holds results for follow-up, confirmatory testing, or rerun Parameters for flags for holding samples defined by user or vendor Scattergram display: cell-specific color Histogram display: color with thresholds User interface can display choice of specimen or result information	yes/yes 30,000 30,000 30,000 yes — — yes — yes yes yes	yes/no 40,000 samples 40,000 40,000 no WBC histogram, RBC histogram, PLT histogram, error flags no yes vendor no yes yes	no/no — 100 — no WBC, RBC, PLT, HGB, HCT no no vendor no no no
LIS interface formats supported Information transferred via LIS interface	proprietary, XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97 numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for demographics and orders	RS-232C numeric and flag results; patient orders, LIS to instrument—broadcast; host query for patient demographics and orders	— —
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test Interface available or planned to automated specimen-handling system Barcode symbologies read on specimen tube Accommodates barcode placement per CLSI standard Auto02-A2	yes/yes/no no Codabar, Code 39, Code 128, ITF, NW7, ISBT 128, JAN/EAN/UPC yes	no/no/yes — Codabar, Code 39, Code 128, ITF, NW-7, UPC-A, UPC-E, JAN-8, JAN-13 no	no/no/no no proprietary system (barcodes only) no
No. of cleaning or maintenance reagents required/No. of routine liquid reagents required Time required for daily, weekly, monthly maintenance Onboard diagnostics for troubleshooting/Limited to software problems Manufacturer can perform diagnostics via modem	— daily: <1 minute (operator time) yes/no yes	1/2 daily: <2 minutes; weekly: <2 minutes; monthly: <2 minutes yes/no —	1/2 (1 diluent, 1 lyse) daily: 15 minutes no/no —
Distinguishing features (supplied by company)	customizable, manual gating, low maintenance, remote diagnostics, online QC, fluorescent optical platelets; discrete testing, reagent monitoring, customized chartable report formats; for use in toxicology, research, and veterinary reference labs; available in XN-1000, XN-2000, and XN-3100 configurations	automatic floating discriminators, optional upgrade to XP-300 Plus or XP-300 Linc available (data manager and small LIS); ability to directly link to EMR	CLIA-waived CBC; contains several safety measures to protect the integrity of patient results; simple operation

†does not include slide maker stainers

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

*XN-V Series is not FDA cleared for human use; for research use only.