

Part 1 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	
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide				
Name of instrument	CELL-DYN Emerald*	CELL-DYN Emerald 22*	CELL-DYN Ruby*	
First year installed in U.S./Outside U.S./No. of units sold in 2017	2009/2008/—	2016/2016/—	2006/2006/—	
No. units installed in U.S./Outside U.S./List price	>1,700/>2,800/\$30,000	—/—/\$64,000	>550/>2,700/\$185,000	
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	standard menu (left) plus: RDW, MPV	standard menu (left) plus: MPV, RDW, retic %&#	
FDA-cleared tests not clinically released	—	—	—	
Tests not available but submitted for 510(k) clearance	—	—	—	
Tests in development	—	—	—	
Tests for research use only	—	—	—	
Tests unique to analyzer	—	—	atypical depolarization flag	
Differential method(s) used	impedance counting	UNI-FLOW Optical Technology	MAPSS (multi-angle polarized scatter separation)	
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	0.4–96.1 K/μL/0.22–7.61 M/μL	0.02–246 × 10 <sup>3</sup> /μL/0.00–7.50 × 10 <sup>6</sup> /μL	
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	3.5% (95% confidence limit)/2.0% (95% confid. limit)	2.4%/1.8%	
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	0.2–0.9% CV/2.2–5.2% CV	1.4%/3.8%	
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	<p>cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, nucleated red cells, platelet clumping, unlysed red cells, clotting, smudge cells, uremia plus immunosuppressants</p> <p>cryoglobulin, cryofibrinogen, giant platelets, high white cell count (&gt;50,000 K/μL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells</p> <p>cryoglobulin, cryofibrinogen, giant platelets, high white cell count (&gt;50,000 K/μL), hyperglycemia (&gt;600 mg/dL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells, reduced red cell deformability, swollen red cells</p> <p>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</p> <p>carboxyhemoglobin (&gt;10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high white cell count (&gt;50,000 K/μL), hyperbilirubinemia, lipemia, monoclonal proteins</p>	<p>cryoglobulin, cryofibrinogen, heparin, monoclonal proteins, nucleated red cells, platelet clumping, unlysed red cells, clotting, smudge cells, uremia plus immunosuppressants</p> <p>cryoglobulin, cryofibrinogen, giant platelets, high white cell count (&gt;50,000 K/μL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells</p> <p>cryoglobulin, cryofibrinogen, giant platelets, high white cell count (&gt;50,000 K/μL), hyperglycemia (&gt;600 mg/dL), autoagglutination, clotting, in vitro hemolysis, microcytic red cells, reduced red cell deformability, swollen red cells</p> <p>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</p> <p>carboxyhemoglobin (&gt;10%), cryoglobulin, cryofibrinogen, in vivo hemolysis, heparin, high white cell count (&gt;50,000 K/μL), hyperbilirubinemia, lipemia, monoclonal proteins</p>	<p>fragile WBC, neutrophil aggregates, lytic-resistant RBCs, NRBCs, PLT clumps, cryofibrinogen, cryoglobulin</p> <p>elevated WBC, increased numbers of giant PLTs, autoagglutination, in vitro hemolysis</p> <p>MCV: elevated WBC, hyperglycemia, in vitro hemolysis, increased number of giant PLTs</p> <p>WBC fragments, in vitro hemolysis, microcytic RBCs, cryofibrinogen, cryoglobulin, PLT clumping, increased number of giant PLTs</p> <p>elevated WBC, increased plasma substances (triglycerides, bilirubin, in vivo hemolysis), lytic-resistant RBCs</p> <p>fragile WBC, neutrophil aggregates, lytic-resistant RBCs, NRBCs, PLT clumps, cryofibrinogen, cryoglobulin, paraproteins</p>
Interfering substances: differential	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, NRBCs, giant platelets, cryoglobulin, incomplete lysis of RBCs, small lymphocytes, fibrin clots, shift in WBC cell distrib. due to EDTA anticoagulant equilibration	fragile WBC, neutrophil aggregates, lytic-resistant RBCs, NRBCs, PLT clumps, cryofibrinogen, cryoglobulin, paraproteins	
Maximum CBCs per hour/Maximum CBCs and differentials per hour	57/57	45/45	84/84	
Minimum specimen volume open/Closed/Sample dead volume closed	9.8 μL/—/—	17 μL/—/—	150 μL/230 μL/1.2 mL	
Microsample capability	no	no	no	
Prepares microscope slides automatically or flags problems for slide prep	yes	yes	yes	
Number of automatic slidemakers available/List price	—	—	—/\$125,000	
Archives patient data/Previous patient results incl. with recent results	yes/no	yes/no	yes/yes	
Maximum 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	10,000 results	
No. specimens for which numeric results saved in memory at once	300,000 on USB and 1,500 results on internal memory	300,000 on USB and 1,000 records with histograms on internal memory	10,000 results	
No. specimens for which histo/cytogram results saved in memory at once	300,000 on USB and 1,500 results on internal memory	300,000 on USB and 1,000 records with histograms on internal memory	10,000 results	
Performs delta checks	no	no	no	
Tags and holds results for follow-up, confirmatory testing, or rerun	no	no	yes	
Parameters for flags for holding samples defined by user or vendor	no	no	user or vendor	
Scattergram display: cell-specific color	no	yes	yes	
Histogram display: color with thresholds	no	yes	yes	
User interface can display choice of specimen or result information	yes	yes	yes	
LIS interface formats supported	proprietary (instrument or vendor specific)	proprietary (instrument or vendor specific)	LIS1/LIS2 CLSI	
Information transferred on LIS interface	numeric and flag results, instrument to LIS	numeric and flag results, instrument to LIS	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	no/no/no	
Interface available or planned to automated specimen-handling system	none	none	none	
Barcode symbologies read on specimen tube	Codabar, codes 39 and 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, UK/Plessey, Telepen, TriOptic, S-Code, UPC A, UPC E	Codabar, codes 39 and 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	Codabar, codes 39 and 128, Interleaved 2 of 5, ISBT	
Accommodates barcode placement per CLSI standard AUTO02-A2	yes	yes	yes	
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/2	1/2	1/3	
Time required for daily, weekly, monthly maintenance	daily: none; monthly: ~5 min.; biannually: ~10 min.	weekly: 15 minutes; quarterly: 2 minutes	daily: 30 seconds; weekly: 5 minutes; monthly: 10 minutes (times are estimated)	
Onboard diagnostics for troubleshooting/Limited to software problems	no/no	no/no	yes/no	
Manufacturer can perform diagnostics via modem	no	no	yes	
Distinguishing features (supplied by company)	small: sample size, reagent volumes used, and physical size; reliable: system 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	touch-sensitive screen, all optical technology; onboard maintenance videos; lyse-resistant RBC mode; rules-based result annotations	
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>	<i>*refer to CELL-DYN Emerald operator's manual for warnings, limitations, and precautions</i>	<i>*refer to CELL-DYN Emerald 22 operator's manual for warnings, limitations, and precautions</i>	<i>*refer to CELL-DYN Ruby operator's manual for warnings, limitations, and precautions</i>	

Part 2 of 13	<b>Abbott Diagnostics</b> <b>Christy Thiessen</b> christy.thiessen@abbott.com <b>Abbott Park, IL</b> <b>800-323-9100</b> www.abbottdiagnostics.com	<b>Beckman Coulter</b> <b>Matthew Rhyner</b> mnrhyner@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com	<b>Beckman Coulter</b> <b>Matthew Rhyner</b> mnrhyner@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com	
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide				
Name of instrument	CELL-DYN Sapphire*	Coulter Ac•T 5diff Family; Ac•T 5diff AL	DxH Connected Workcell	
First year installed in U.S./Outside U.S./No. of units sold in 2017	2005/2005/—	2001/2000/—; 2003/2003/—	2014/2014/—	
No. units installed in U.S./Outside U.S./List price	>165/>750/\$250,000	>1,400/>3,900 combined inside, outside of U.S./\$38,500 (OV and CP), \$54,500 (AL)	100/200/\$690,000	
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> </ul>	standard menu (left) plus: MPV, RDW, retic %&#, IRF, NRBC %&#, CD61, CD3T %&#, CD4T %&#, CD8T %&#, 4/8	standard menu (left) plus: IRF, MPV, MRV, NRBC %&#, RDW-CV, RDW-SD, automated retic #, retic %; body fluids: total nucleated count and RBC count for synovial, serous, CSF fluids, and slidemaking	
<ul style="list-style-type: none"> <li>• Laboratory</li> <li>• Flags</li> </ul>	—	—	—	
FDA-cleared tests not clinically released	band, IG, blast, variant lymph, nvWBC, rstRBC, IR, PLT clump, ASYM, FP, CD61 agglutination, clot detected aspiration, short sample	complete operator selectable flagging	suspect, system, and exception messages for samples requiring review	
Tests not available but submitted for 510(k) clearance	—	—	—	
Tests in development	—	—	—	
Tests for research use only	—	PCT, PDW, IMM, ATL	body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, low hemoglobin density, microcytic anemia factor, mean spheroid cell volume, plateletcrit, platelet distribution width, reticulocyte distribution width, more	
Tests unique to analyzer	CD61 for PLTs, CD3/4, CD3/8 (immuno T-cell)	—	—	
Differential method(s) used	MAPSS (multi-angle polarized scatter separation) and three-color fluorescence	ACV technology combining cytochemistry, focused flow impedance, and light absorbance principles of measurement	Automated Intelligent Morphology using volume, conductivity, and five angles of light scatter, digital signal processing, advanced algorithm applications, high-definition cellular resolution, DataFusion	
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	0.0–250.0 × 10 <sup>3</sup> /μL/0.0–7.50 × 10 <sup>6</sup> /μL 1.0–25.0 g/dL/0.0–2,000 × 10 <sup>3</sup> /μL 37.0–179.0 fL (MCV) 0.0–1,500 × 10 <sup>3</sup> /μL	OV: 0.4–90.0/0.23–7.70; CP: 0.4–91.3/0.30–8.0; AL: 0.4–120.0/0.3–8.0 OV: 0–22.9/4–1,000; CP: 0.0–22.0/10.0–1,000; AL: 1.3–24.0/10.0–1,000 (100.0–1,900) OV: 1.8–55.9, 56.0–63.8 (Hct); CP: 1.8–55.9, 56.0–63.8 (Hct); AL: 2.0–67.0 (Hct)	0.050–400.000/0.005–8.500 0.10–25.50/3.0–3,000.0 0.00–85.00 (Hct) for operating range, 50.00–150.00 (MCV) for measuring range 0.000–30.000
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<2.7%/≤1.5% ≤1.0%/≤4.0% ≤1.0% (MCV)	<2%/<2% <1%/<5% <2.0% (Hct)	≤3.0%/≤1.5% ≤1.5%/≤3.5% ≤1.0% (MCV)
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	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	not available in NCCLS H-20A format	neut= ±2.0; lymph, mono= ±3.0; eso, baso= ±1.0 (or 10%, whichever is greater)	
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	PLT clumps, neutrophil aggregates, HbC crystals, lyse-resistant RBCs, cryoglobulin, cryofibrinogen, fragile WBC, NRBCs autoagglutination, cold agglutinins, elevated WBC, giant PLTs, hemolysis, sm WBC autoagglutination, cold agglutinins, elevated WBC, giant PLTs, hemolysis, hyperglycemia auto and cold agglutinins, cryoglobulin, cryofibrinogen, giant PLT, micro RBCs, PLT clumps, RBC fragments, WBC fragments, PLT satellitism lipids>700 mg/dL, WBCs>250 × 10 <sup>9</sup> /L, bilirubin>33 mg/dL, HbC crystals	NRBCs, PLT clumps, large PLTs, lyse-resistant RBCs cold agglutinins, PLT clumps, WBC overlinearity Hct: lipemic samples, high WBC, cold agglutinins RBC and WBC fragments elevated WBC, lipemia	precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL in size very high WBC count, high concentration of very large platelets, autoagglutinins very high WBC count, high concentration of very large platelets, autoagglutinins platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing
Interfering substances: differential	see WBC	lyse-resistant RBCs, NRBCs, lipemia	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, lyse-resistant red cells, very small or multipopulation lymphocytes	
Maximum CBCs per hour/Maximum CBCs and differentials per hour	105/105	60/60; 80/80	300/300	
Minimum specimen volume open/Closed/Sample dead volume closed	120 μL/120 μL/0.5 mL, 0.3 mL for 10.25 × 64 mm tubes	30 μL for CBC and 53 μL for CBC and differential/30 μL for CBC and 53 μL for CBC and differential/varies by tube size	165 μL/165 μL/300–400 μL	
Microsample capability	yes	yes	yes	
Prepares microscope slides automatically or flags problems for slide prep	yes	no	yes	
Number of automatic slidemakers available/List price	—/\$125,000	—	—/DxH SMS \$165,000	
Archives patient data/Previous patient results incl. with recent results	yes/yes	yes/yes	—/yes	
Maximum archived data accessible when system online	10,000 results	10,000 samples	90,000 standalone	
No. specimens for which numeric results saved in memory at once	10,000 results	10,000 samples	90,000 standalone	
No. specimens for which histo/cytogram results saved in memory at once	10,000 results	10,000 samples	90,000	
Performs delta checks	yes	no	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 or vendor	user or vendor	yes	
Scattergram display: cell-specific color	yes	no	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	proprietary; proprietary ASTM	CLSI LIS1-A	
Information transferred on LIS interface	numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	numeric and flag results, histograms and differential plots, 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 (available with release of workcell)	
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	none	no	Beckman Coulter	
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, Interleaved 2 of 5	Codabar, codes 39 and 128, Interleaved 2 of 5, EAN 8 and 13	Codabar, codes 39 and 128, Interleaved 2 of 5, NW7	
Accommodates barcode placement per CLSI standard AUTO02-A2	yes	yes	yes	
No. of cleaning or maintenance reagents/No. of routine liquid reagents	0/4	5/4	1/4	
Time required for daily, weekly, monthly maintenance	daily: 30 seconds; weekly: 10 minutes; monthly: 5 minutes (times are estimated)	none	automated shutdown programmable with <1 minute user time daily	
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no	
Manufacturer can perform diagnostics via modem	yes	no	yes	
Distinguishing features (supplied by company)	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	quantitative 5-part WBC differential; aspirates only 30 μL of sample; requires small space footprint and runs quietly; AL has auto repeat based on decision rules	reduces turnaround time without the need for track-based automation; Automated Intelligent Morphology provides 3 independent counts for RBC, WBC, PLT; blast flagging by cell lineage; reliable MPV and reliable hemoglobin with few interferences	
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>	<i>*refer to CELL-DYN Sapphire operator's manual for warnings, limitations, and precautions</i>			

Part 3 of 13	<b>Beckman Coulter</b> <b>Matthew Rhyner</b> mnrhyner@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com	<b>Beckman Coulter</b> <b>Matthew Rhyner</b> mnrhyner@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com	<b>Beckman Coulter</b> <b>Mirta Gamez</b> mgamez@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	DxH 600	DxH 800	Unicel DxH 900
First year installed in U.S./Outside U.S./No. of units sold in 2017	2013/2013/—	2008/2008/—	2018/2018/>96 (Q2 2018)
No. units installed in U.S./Outside U.S./List price	>600/>100/\$209,000	>2,000/>1,500/\$229,000	55/29/\$259,600
Test menu: <ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> </ul>	standard menu (left) plus: IRF, MPV, MRV, NRBC %&#, RDW-CV, RDW-SD, automated retic #, retic %; body fluids: total nucleated count and RBC count for synovial, serous, CSF fluids	standard menu (left) plus: IRF, MPV, MRV, NRBC %&#, RDW-CV, RDW-SD, automated retic #, retic %; body fluids: total nucleated count and RBC count for synovial, serous, and CSF fluids	standard menu (left) 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, RBC count for synovial, serous, CSF, and BAL fluids
<ul style="list-style-type: none"> <li>• Laboratory</li> <li>• Flags</li> </ul>	— suspect, system, and exception messages for samples requiring review	— flags and codes for values requiring review: suspect, system, and exception messages for samples requiring review	— suspect messages: Abn hemoglobin, cellular inter, dimorphic redds, giant platelets, imm grans, left shift, LY blast, MO blast, NE blast, NRBC, RBC frag/micro, red cell aggl, sickled cells, variant LY, H&H check; customizable definitive messages and system messages; unlimited customizable lab flagging: free text for direction at the scope
FDA-cleared tests not clinically released	—	—	—
Tests not available but submitted for 510(k) clearance	—	—	Early Sepsis Indicator
Tests in development	—	—	immature granulocyte: IG%
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, platelet distribution width, reticulocyte distribution width, 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, platelet distribution width, reticulocyte distribution width (RDWR and RDWR-SD), red cell size factor, unhosted red cells %&#, leukocyte estimates (UWROP, WDOP, WNOP, WROP), cell population data research parameters	body fluid mononuclear %&#, body fluid polymorphonuclear %&#, early granulated cells %&#, high light scatter reticulocytes %&#, low hemoglobin density, microcytic anemia factor, mean sphered cell volume, plateletcrit, platelet distribution width, reticulocyte distribution width, more
Tests unique to analyzer	—	—	extended retic panel: MRV; direct count MPV, MCV, MDW, CMD parameters
Differential method(s) used	Automated Intelligent Morphology using volume, conductivity, and 5 angles of light scatter, digital signal processing, advanced algorithm applications, high-definition cellular resolution, DataFusion	Automated Intelligent Morphology using volume, conductivity, and 5 angles of light scatter, digital signal processing, advanced algorithm applications, high-definition cellular resolution, DataFusion	biophysical characterization of blood cells with 5 light-scatter angles, digital conductivity, and enhanced Coulter Principle; WBC flagging
Analytical measurement range: <ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	0.050–400.000/0.005–8.500 0.10–25.50/3.0–3,000.0 50.00–150.00 (MCV)	0.050–400.000/0.005–8.500 0.10–25.50/3.0–3,000.0 0.00–85.00 (Hct) for operating range, 50.00–150.00 (MCV) for measuring range 0.000–30.000	0.050–2.000 × 10 <sup>3</sup> cells/μL/0.005–8.500 × 10 <sup>6</sup> cells/μL 0.10–25.50 g/dL/3.0–3,000.0 × 10 <sup>3</sup> cells/μL 50.00–150.00 fL
Precision: <ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	≤3.0%/≤1.5% ≤1.5%/≤3.5% ≤1.0% (MCV)	≤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)	neut= ±2.0; lymph, mono= ±3.0; eso, baso= ±1.0 (or 10%, whichever is greater)
Interfering substances: <ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL in size very high WBC count, high concentration of very large platelets, autoagglutinins very high WBC count, high concentration of very large platelets, autoagglutinins platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing	precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL in size very high WBC count, high concentration of very large platelets, autoagglutinins very high WBC count, high concentration of very large platelets, autoagglutinins platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing	possibly: precipitated elevated proteins, cryoglobulin, fragmented white cells, agglutinated white cells, lyse-resistant RBCs, giant PLTs, PLT clumps, unlysed particles >35 fL possibly: very high WBC count, high concentration of very large platelets, autoagglutinins possibly: very high WBC count, high concentration of very large platelets, autoagglutinins possibly: platelet clumps, white cell fragments, very small red cells, red cell fragments, giant platelets, electronic noise possibly: severe lipemia, heparin, certain unusual RBC abnormalities that resist lysing
Interfering substances: differential	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, lyse-resistant red cells, very small or multipopulation lymphocytes	elevated triglycerides, precipitated elevated proteins	elevated triglycerides, precipitated elevated proteins, hypogranular granulocytes, agranular granulocytes, lyse-resistant red cells, very small or multipopulation lymphocytes
Maximum CBCs per hour/Maximum CBCs and differentials per hour	>100/>90	>100/>90	300 samples/300 samples
Minimum specimen volume open/Closed/Sample dead volume closed	165 μL/165 μL/250–400 μL	165 μL/165 μL/250–400 μL	165 μL/165 μL/250–400 μL
Microsample capability	yes	yes	yes
Prepares microscope slides automatically or flags problems for slide prep	yes	yes	no
Number of automatic slidemakers available/List price	—/DxH SMS \$165,000	—/DxH SMS \$165,000	—
Archives patient data/Previous patient results incl. with recent results	—/no	yes/no	yes/yes
Maximum archived data accessible when system online	40,000 standalone	40,000 standalone	50,000 patient results w/histograms, scatterplots, demographics
No. specimens for which numeric results saved in memory at once	40,000 standalone	40,000 standalone	50,000 patient results w/histograms, scatterplots, demographics
No. specimens for which histo/cytogram results saved in memory at once	40,000	40,000	50,000 patient results w/histograms, scatterplots, demographics
Performs delta checks	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	yes	yes	yes
Scattergram display: cell-specific color	yes	yes	yes (WBC, nRBC, reticulocyte)
Histogram display: color with thresholds	yes	yes	yes (WBC, RBC, PLT)
User interface can display choice of specimen or result information	yes	yes	yes
LIS interface formats supported	CLSI LIS01-A2	CLSI LIS01-A2	CLSI LIS01-A2
Information transferred on 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 (available with release of workcell)	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)	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	yes/yes/yes	yes/yes/yes	yes/yes/yes
Interface available or planned to automated specimen-handling system	Beckman Coulter	Beckman Coulter	Beckman Coulter
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, interleaved 2 of 5, NW7	Codabar, codes 39 and 128, interleaved 2 of 5, NW7	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5, NW7
Accommodates barcode placement per CLSI standard AUT002-A2	yes	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	5/7	5/7	1 pre-loaded cube with up to 30 cleaning cycles/3 for CBC/diff incl. Coulter Plt, 1 for retic, extended retic panel
Time required for daily, weekly, monthly maintenance	automated shutdown programmable with <1 minute user time daily	automated shutdown programmable with <1 minute user time daily	daily: 30 min.; weekly: none; monthly: none; as needed
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)	Automated Intelligent Morphology provides 3 independent counts for RBC, WBC, PLT; blast flagging by cell lineage; reliable MPV and reliable hemoglobin with few interferences; upper-level linearity for body fluids minimizes dilution steps; 48–72 hour sample stability on CBC parameters	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
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>			

Part 4 of 13	<b>Beckman Coulter</b> <b>Mirta Gamez</b> mgamez@beckman.com <b>Miami, FL</b> <b>305-380-3800</b> www.beckmancoulter.com	<b>CellaVision</b> <b>Ken Childs</b> ken.childs@cellavision.com <b>Durham, NC</b> <b>919-806-4420</b> www.cellavision.com	<b>Clinical Diagnostic Solutions</b> sales@cdsolinc.com <b>Plantation, FL</b> <b>954-791-1773</b> www.cdsolinc.com
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	Unicel DxH SMS II	CellaVision DM9600/DM1200	Medonic M-Series
First year installed in U.S./Outside U.S./No. of units sold in 2017	2018/2018/—	2004/2003/—	2006/—/250
No. units installed in U.S./Outside U.S./List price	13/9/\$177,100	—/—/\$135,000–\$175,000	2,000/>25,000/\$21,089
Test menu: • Chartable (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; RBC morphology pre-characterizations include anisocytosis, poikilocytosis, polychromasia, microcytosis, macrocytosis, hypochromia	WBC, RBC, HGB, Hct, MCV, MCH, MCHC, PLT, gran %&#, mid, lymph, RDW, MPV
• Laboratory	—	—	—
• Flags	P flag printed on slide to denote blood detector detected aspiration error	—	—
FDA-cleared tests not clinically released	—	—	—
Tests not available but 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)	micro-pipette adaptor for capillary sampling
Differential method(s) used	—	light microscopy, image analysis, and artificial neural networks	impedance
Analytical measurement range: • WBC count/RBC count	—	—	0.5–80.0/0.5–7.00
• Hemoglobin/Platelet	—	—	2.0–23.0/30–1,800
• MCV (fL) or Hct (%)	—	—	—
• Reticulocytes	—	—	—
Precision: • WBC count/RBC count	—	—	7.0 × 10 <sup>9</sup> /L, ≤1.8% (OT CV)/4.59 × 10 <sup>12</sup> /L, ≤0.9% (OT CV)
• Hemoglobin/Platelet	—	—	14.3 g/dL, ≤0.8% (OT CV)/239 × 10 <sup>9</sup> /L, ≤3.0% (OT CV)
• MCV or Hct	—	—	MCV: 86.8 fL/≤0.5% (OT CV)
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	none	—	NRBCs, unlysed RBCs, hemolysis, leukemias, chemotherapy, cryoglobulins, multiple myeloma, lymphocyte count interference
• RBC	none	—	leukocytosis with concurrent anemia, agglutinated RBCs, cold agglutinins
• MCV or Hct	none	—	red blood cell agglutination, WBC, thrombocytosis
• Platelet	none	—	microcytosis, agglutinated RBCs, giant platelets in excessive numbers, chemotherapy, hemolysis, ACD blood, RBC inclusions, platelet agglutination
• Hemoglobin	none	—	unlysed RBCs, leukocytosis, lipemia, hyperproteinemia, hyperbilirubinemia, fetal blood
Interfering substances: differential	none	—	factors that affect WBC (above) plus: large lymphocytes, atypical lymphocytes, blasts, basophils in excessive numbers, metamyelocytes, myelocytes, promyelocytes, blasts and plasma cells in excessive numbers
Maximum CBCs per hour/Maximum CBCs and differentials per hour	140 slides/—	—/35 differentials	>60/>60
Minimum specimen volume open/Closed/Sample dead volume closed	90 µL/90 µL/250–400 µL	—	<110 µL/<250 µL/1 mL
Microsample capability	yes	—	yes
Prepares microscope slides automatically or flags problems for slide prep	yes	—	no
Number of automatic slidemakers available/List price	—/\$177,000	—	—
Archives patient data/Previous patient results incl. with recent results	no/no	yes/no	no/no
Maximum archived data accessible when system online	—	unlimited	—
No. specimens for which numeric results saved in memory at once	—	~4,000	>1,000 samples
No. specimens for which histo/cytogram results saved in memory at once	—	—	>1,000 samples
Performs delta checks	no	no	no
Tags and holds results for follow-up, confirmatory testing, or rerun	no	—	no
Parameters for flags for holding samples defined by user or vendor	no	—	user-definable ranges
Scattergram display: cell-specific color	no	—	no
Histogram display: color with thresholds	no	—	yes
User interface can display choice of specimen or result information	yes	—	yes
LIS interface formats supported	ASTM 1394, ASTM 1238, IEEE MIB, CLSI LIS1-A, CLSI LIS2-A	ASTM 1394	XML/Serial
Information transferred on LIS interface	patient demographics, 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; host query for patient demographics and orders	numeric and flag results, histograms and scatterplots, 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/yes (for peripheral blood)	no/no/no
Interface available or planned to automated specimen-handling system	Beckman Coulter	—	—
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5, NW7	Codabar, codes 39 and 128, Interleaved 2 of 5, QR, DataMatrix	—
Accommodates barcode placement per CLSI standard AUTO02-A2	yes	—	—
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1 pre-loaded cube with up to 30 cleaning cycles/3 (can vary): stain, buffer, diluent	none/1	1/1
Time required for daily, weekly, monthly maintenance	daily: up to 20 min.; weekly: up to 30 min.; monthly: as needed	daily: none; weekly: 5 minutes	daily: a few minutes; monthly: 10 minutes; 6 months: 75 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/no
Manufacturer can perform diagnostics via modem	yes	no	no
Distinguishing features (supplied by company)	hemisphere 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	fully automated slide handling and oiling available in two models for medium and large laboratories; performs peripheral blood and body fluid differentials; WBC and other nucleated cells classified into 18 different categories; RBC morphology characterized for 6 categories; network use allows remote review of blood smears and linking of multiple analyzers in multiple locations	micro-pipette adaptor for capillary sampling; only 3-part diff with auto sampling capability; no weekly maintenance
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>			

Part 5 of 13	<b>Diatron MI</b> <b>Frank Matuszak</b> frank.matuszak@diatron.com <b>Medley, FL</b> <b>833-228-7931</b> www.diatron.com	<b>Diatron MI</b> <b>Frank Matuszak</b> frank.matuszak@diatron.com <b>Medley, FL</b> <b>833-228-7931</b> www.diatron.com	<b>HORIBA Medical</b> <b>Jim Knowles</b> jim.knowles@horiba.com <b>Irvine, CA</b> <b>888-903-5001 ext. 4553</b> www.horiba.com/us/en/medical	
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide				
Name of instrument	Abacus 3CP	Abacus 5	Pentra XLR	
First year installed in U.S./Outside U.S./No. of units sold in 2017	2013/2013/481	2013/2009/658	2016/2015/—	
No. units installed in U.S./Outside U.S./List price	56/1,039/\$20,385	35/3,120/\$31,850	—/—/\$77,500	
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	<ul style="list-style-type: none"> <li>• WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, mono, lymph, RDW%, MPV, GRA%, GRA#</li> </ul>	<ul style="list-style-type: none"> <li>• standard menu (left) plus: RDW-SD, RDW-CV, MPV</li> </ul>	
	—	—	—	
FDA-cleared tests not clinically released	—	—	—	
Tests not available but submitted for 510(k) clearance	—	—	—	
Tests in development	—	—	—	
Tests for research use only	—	—	—	
Tests unique to analyzer	—	—	automatic dilution for over range WBC and platelet	
Differential method(s) used	volumetric impedance method, light absorbance for HGB measurement	laser light scatter technology, impedance method, light absorbance	DHSS technology combining cytochemistry, focused flow impedance, and light absorbance	
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	<ul style="list-style-type: none"> <li>• 0.95–83.45/0.44–7.74</li> <li>• 1.4–23.7/11–975</li> <li>• —</li> <li>• —</li> </ul>	<ul style="list-style-type: none"> <li>• 0–120 (120–360 with CDR)/0–8</li> <li>• 0–24/0–1,900; 1,900–3,800, Hb &gt;2 g/dL with CDR</li> <li>• 0–67 (Hct)</li> <li>• 0–42%</li> </ul>	
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<ul style="list-style-type: none"> <li>• &lt;2.7%/&lt;1.7%</li> <li>• &lt;2.0%/&lt;6%</li> <li>• &lt;1.7%</li> </ul>	<ul style="list-style-type: none"> <li>• &lt;2%/&lt;2%</li> <li>• &lt;1%/&lt;5%</li> <li>• &lt;2% (Hct)</li> </ul>	
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—	
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;5 NRBCs/100 WBCs, PLT clumps/large PLTs</li> <li>• WBC count &gt;50.0 × 10<sup>3</sup>/μL</li> <li>• WBC count &gt;50.0 × 10<sup>3</sup>/μL</li> <li>• PLT clumps/large PLTs</li> <li>• WBC count &gt;50.0 × 10<sup>3</sup>/μL, lipids &gt;270 mg/dL</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;5 NRBCs/100 WBCs, PLT clumps/large PLTs</li> <li>• WBC count &gt;75.0 × 10<sup>3</sup>/μL</li> <li>• WBC count &gt;75.0 × 10<sup>3</sup>/μL</li> <li>• PLT clumps/large PLTs</li> <li>• WBC count &gt;75.0 × 10<sup>3</sup>/μL, lipids &gt;280 mg/dL</li> </ul>	<ul style="list-style-type: none"> <li>• NRBCs, PLT clumps, lyse-resistant RBCs</li> <li>• cold agglutinins</li> <li>• Hct: extreme leukocytosis</li> <li>• microcytes, PLT clumps</li> <li>• extreme lipemia, leukocytosis</li> </ul>
Interfering substances: differential	>5 NRBCs/100 WBCs, PLT clumps/large PLTs	>5 NRBCs/100 WBCs, PLT clumps/large PLTs	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia	
Maximum CBCs per hour/Maximum CBCs and differentials per hour	60/60	60/60	80/80	
Minimum specimen volume open/Closed/Sample dead volume closed	100 μL/100 μL/—	110 μL/110 μL/—	30 μL for CBC and 53 μL for CBC and differential/100 μL/—	
Microsample capability	no	no	yes	
Prepares microscope slides automatically or flags problems for slide prep	no	no	no	
Number of automatic slidemakers available/List price	—	—	—	
Archives patient data/Previous patient results incl. with recent results	yes/no	yes/no	yes/no	
Maximum archived data accessible when system online	10,000 results	100,000 results	100,000	
No. specimens for which numeric results saved in memory at once	10,000 results	100,000 results	unlimited with backup	
No. specimens for which histo/cytogram results saved in memory at once	10,000 results	100,000 results	unlimited with backup	
Performs delta checks	no	no	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	yes	yes	yes	
Scattergram display: cell-specific color	no	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 Communication	HL7, Diatron Serial Protocol	proprietary, ASTM 1394	
Information transferred on LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	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	
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	none	none	no	
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, Interleaved 2 of 5	Codabar, codes 39 and 128, Interleaved 2 of 5	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	
Accommodates barcode placement per CLSI standard AUTO02-A2	—	—	yes	
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/3	1/3	2/6	
Time required for daily, weekly, monthly maintenance	daily: 10 minutes; weekly: 15 minutes; monthly: 10 minutes	daily: 10 minutes; weekly: 15 minutes; monthly: 10 minutes	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes	
Onboard diagnostics for troubleshooting/Limited to software problems	no/no	no/no	yes/yes	
Manufacturer can perform diagnostics via modem	no	no	no	
Distinguishing features (supplied by company)	reliable 3-part diff analyzers with two sampling modes: cap-piercing mode for closed-tube sampling and another for open tubes; operator safety: self-cleaning procedures minimize daily maintenance; user-friendly and easy-to-operate high-resolution touchscreen; USB and barcode option to load QC target values; capable to read QR codes for reference input data; confidence: system uses easy-to-understand warning messages and sample flags, employs a comprehensive QC SW package	compact, benchtop 5-part laser WBC differential analyzer provides accurate and precise results; two 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 × 10 <sup>3</sup> /mm <sup>3</sup> and platelet up to 5,600 × 10 <sup>3</sup> /mm <sup>3</sup> ; auto-rerun of patient results based on customized criteria; autovalidation of patient results on customized criteria	

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

Part 6 of 13	<b>HORIBA Medical</b> <b>Jim Knowles</b> jim.knowles@horiba.com <b>Irvine, CA</b> 888-903-5001 ext. 4553 www.horiba.com/us/en/medical	<b>HORIBA Medical</b> <b>Jim Knowles</b> jim.knowles@horiba.com <b>Irvine, CA</b> 888-903-5001 ext. 4553 www.horiba.com/us/en/medical	<b>Mindray</b> <b>Peggy Chan</b> p.chan@mindray.com <b>Redmond, WA</b> 425-881-0361 ext. 3305 www.mindraynorthamerica.com
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	Pentra 60C+ Hematology Analyzer	Pentra XL 80	BC-5390
First year installed in U.S./Outside U.S./No. of units sold in 2017	2000/2000/85	2004/2003/31	2016/2012/—
No. units installed in U.S./Outside U.S./List price	>350/>600/\$47,313	>250/>900/\$76,808	24/1,612/—
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	standard menu (left) plus: RDW, MPV  atypical lymphocytes, atypical lymphocytes %, LIC, LIC% operator selectable flagging	standard menu (left) plus: RDW-CV, RDW-SD, MPV, mono %&#, lymph %&#, eos %&#, baso %&#  — WBC scattergram abn., WBC histogram abn., blast, immature gran, left shift, abn./atypical lym, RBC lyse resist, NRBC, dimorphic population, turb/HGB interference, RBC agglutination, PLT histogram abn., PLT clump
FDA-cleared tests not clinically released	—	—	—
Tests not available but 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 protocol	—
Differential method(s) used	DHSS technology combining cytochemistry, focused flow impedance, and light absorbance principles of measurement	DHSS technology combining cytochemistry, focused flow impedance, and light absorbance	flow cytometry, light scatter
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	0–120/0–8 0–24/0–1,900 0–67 (Hct) —	0.3–200/0.2–8.0 0.5–25/5–2,000 2–75 (Hct%) —
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<2%/<2% <1%/<5% <2% (Hct)	<0.15 (SD) or 3.0% (CV)/<1.5% <1.5%/<7.5 (SD) or 5% (CV) <1.5% (MCV)
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	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:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	NRBCs, PLT clumps, lyse-resistant RBCs  cold agglutinins  Hct: extreme leukocytosis  microcytes, PLT clumps  extreme lipemia, leukocytosis	NRBCs, PLT clumps, lyse-resistant RBCs  cold agglutinins  Hct: extreme leukocytosis  microcytes, PLT clumps  extreme lipemia, leukocytosis
Interfering substances: differential	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia	NRBCs, lyse-resistant RBCs, extreme hyperbilirubinemia	lysis-resistant RBC, NRBC, PLT aggregates, giant PLT
Maximum CBCs per hour/Maximum CBCs and differentials per hour	60/60	80/80	60/60
Minimum specimen volume open/Closed/Sample dead volume closed	30 µL for CBC and 53 µL for CBC and differential/30 µL for CBC and 53 µL for CBC and differential/—	30 µL for CBC/53 µL for CBC and differential/0.5 mL	—/33 µL, predilute 20 µL/1 mL
Microsample capability	yes	yes	yes
Prepares microscope slides automatically or flags problems for slide prep	yes	yes	no
Number of automatic slidemakers available/List price	—	—	—
Archives patient data/Previous patient results incl. with recent results	yes/yes, with MultiLink Data Manager	yes/yes, with MultiLink Data Manager	yes/yes
Maximum archived data accessible when system online	100,000	100,000	100,000
No. specimens for which numeric results saved in memory at once	unlimited with backup	unlimited with backup	100,000
No. specimens for which histo/cytogram results saved in memory at once	unlimited with backup	unlimited with backup	100,000
Performs delta checks	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	user	yes
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
LIS interface formats supported	ASTM 1394 and 1238, HL7, IEEE MIB	proprietary, ASTM 1394 and 1238, HL7, IEEE MIB	HL7
Information transferred on LIS interface	numeric and flag results, histograms and scatterplots, instrument to LIS; patient demographics, 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	yes/yes/yes	yes/yes/yes
Interface available or planned to automated specimen-handling system	no	yes	none
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	Codabar, codes 39, 93, and 128, Interleaved 2 of 5, UPC/EAN
Accommodates barcode placement per CLSI standard AUTO02-A2	yes	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	2/5	2/5	1/4
Time required for daily, weekly, monthly maintenance	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes	daily: 10 minutes; weekly: 15 minutes; monthly: 15 minutes	daily: <10 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	yes/yes	no/yes	yes/no
Manufacturer can perform diagnostics via modem	yes, with Data Manager	no	yes
Distinguishing features (supplied by company)	reliable 5-part WBC differential technology; mean time between failures more than 200 days; small footprint; small sample size of 53 µL	compact 5-part differential instrument with auto-loader and autodilution capability, auto rerun feature, autovalidation	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, other maintenance is touch-button operation, cyanide-free, nontoxic reagent; patented WBC differential and digital sheath flow technology, top instrument reliability, mean time between failures >2 years of instrument in the same 5-part series

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

Part 7 of 13	<b>Mindray</b> <b>Peggy Chan</b> p.chan@mindray.com <b>Redmond, WA</b> <b>425-881-0361 ext. 3305</b> www.mindraynorthamerica.com	<b>Roche Diagnostics</b> <b>Krista Curcio</b> krista.curcio@roche.com <b>Indianapolis, IN</b> <b>317-217-0801</b> www.roche.com	<b>Siemens Healthineers</b> <b>David Metrena</b> david.metrena@siemens.com <b>Hoffman Estates, IL</b> <b>800-948-3234</b> www.usa.siemens.com/diagnostics
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	BC-3600	cobas m 511 integrated hematology analyzer	Advia 120 Hematology System
First year installed in U.S./Outside U.S./No. of units sold in 2017	2015/2011/—	—/2017/—	1998/1998/—
No. units installed in U.S./Outside U.S./List price	78/4,120/—	—/5/\$400,000	>750/2,700/\$169,000–\$189,000
Test menu:	<ul style="list-style-type: none"> <li>Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> </ul>	standard menu (left) plus: NRBC %&#, MPV, RET %&#, HGB-RET, and digital images	standard menu (left) plus: CHCM, MPV, RDW, HDW, LUC %&#, retic %&#, Chr, CHCMr, MCVr; CSF: WBC, RBC, PMN, MN, neut, lymph, mono; cellular Hgb
<ul style="list-style-type: none"> <li>Laboratory</li> </ul>	—	—	% hypo, hyper, macro, micro; calc. Hb, MPXI; % blast, PMN, MN; large PLT count; RBC fragment count; RBC ghost count; CSF: WBC, RBC, 3-part differential; body fluids: TNC, RBC
<ul style="list-style-type: none"> <li>Flags</li> </ul>	—	atypical lymphs, blasts, immature granulocytes, left shift, giant PLT, PLT clumps, <600 cells counted for differential, hemolysis, RBC agglutination	left shift, atyp. lymph, blasts, immature grans, myeloperoxidase deficiency, aniso, micro, macro, Hb variation, hypo, hyper, NRBC, RBC fragments, RBC ghost, large PLTs, PLT clumps
FDA-cleared tests not clinically released	none	—	—
Tests not available but submitted for 510(k) clearance	none	—	—
Tests in development	none	—	IRF, MPC, MPM
Tests for research use only	none	—	CSF eos
Tests unique to analyzer	none	—	CHCM, HDW, Chr, CHCMr, MPC, MPM; CSF: WBC, RBC, MN, PMN, neut, lymph, mono
Differential method(s) used	impedance method for WBC, RBC, MCV, RDW, PLT, MPV and WBC 3-part differential determination, colorimetric method for HGB determination	digital multispectral image analysis	perox: peroxidase cytochemistry staining with light scatter and absorption; baso: cytochemistry stripping with 2-angle laser light scatter
Analytical measurement range:	<ul style="list-style-type: none"> <li>WBC count/RBC count</li> </ul>	0.3–99.9/0.20–7.99	whole blood: WBC 0.02–400/RBC 0–7.0; CSF: WBC 0–5,000/RBC 0–1,500
	<ul style="list-style-type: none"> <li>Hemoglobin/Platelet</li> <li>MCV (fL) or Hct (%)</li> <li>Reticulocytes</li> </ul>	1.0–24.9/10–999	0–22.5/5–3,500
Precision:	<ul style="list-style-type: none"> <li>WBC count/RBC count</li> </ul>	WBC $\geq 4.0$ : $\leq 3.0\%$ CV%; 1.0 $\leq$ WBC $\leq 2.0$ : $\leq 7.0\%$ CV% / $\leq 2.5\%$ CV%	30–180 (MCV)
	<ul style="list-style-type: none"> <li>Hemoglobin/Platelet</li> </ul>	$\leq 2.0\%$ CV%/PLT $\geq 150$ : $\leq 6.0\%$ CV%; 20 $\leq$ PLT $\leq 50$ : $\leq 20.0\%$ CV%	0.2–24.5%
	<ul style="list-style-type: none"> <li>MCV or Hct</li> </ul>	$\leq 2.0\%$ CV% (MCV), $\leq 2.5\%$ CV% (Hct)	2.7%/1.2%
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	1.52%/1.97%	0.93%/2.93%
Interfering substances:	<ul style="list-style-type: none"> <li>WBC</li> </ul>	certain unusual RBC abnormalities that resist lysing, nucleated RBCs, fragmented WBCs, unlysed particles, very large or aggregated platelets as when anticoagulated with oxalate or heparin	leukocyte aggregation, platelet clumps, giant platelets
	<ul style="list-style-type: none"> <li>RBC</li> </ul>	very high WBC count, high concentration of very large platelets, agglutinated RBCs and smaller RBC	erythrocyte aggregation, microerythrocytes, fragmented RBC
	<ul style="list-style-type: none"> <li>MCV or Hct</li> </ul>	very high WBC count, high concentration of very large platelets, agglutinated RBCs, RBC fragments	Hct: erythrocyte aggregation, microerythrocytes, possibility of fragmented red blood cells
	<ul style="list-style-type: none"> <li>Platelet</li> </ul>	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	platelet clumps, pseudo thrombocytopenia, activated platelets, fragmented leukocytes
	<ul style="list-style-type: none"> <li>Hemoglobin</li> </ul>	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	erythrocyte aggregation
Interfering substances: differential	known factors that affect the WBC count as listed above, high triglycerides that can affect lysing	—	high WBC, lipemia, extremely high bilirubin, interfere with cyanmethemoglobin only, none with direct cellular Hb (CHCM)
Maximum CBCs per hour/Maximum CBCs and differentials per hour	60/60	60/60 (including images of all WBCs, RBCs, and platelets)	120/120
Minimum specimen volume open/Closed/Sample dead volume closed	21 $\mu$ L/21 $\mu$ L/1 mL	50 $\mu$ L/480 $\mu$ L/450 $\mu$ L	157 $\mu$ L/157 $\mu$ L/<300 $\mu$ L (tube size dependent)
Microsample capability	yes	yes	yes
Prepares microscope slides automatically or flags problems for slide prep	no	yes	yes
Number of automatic slidemakers available/List price	—	included with system	—
Archives patient data/Previous patient results incl. with recent results	no/no	yes/yes	yes/no
Maximum archived data accessible when system online	—	abnormal images maintained for 2 years, numeric data for ~10 years; normal images stored for up to 30 days	10,000 samples
No. specimens for which numeric results saved in memory at once	40,000	numeric data stored for ~10 years	10,000 samples
No. specimens for which histo/cytogram results saved in memory at once	40,000	normal sample images stored for up to 30 days; abnormal images maintained for 2 years; numeric data stored ~10 years	10,000 samples
Performs delta checks	no	yes	yes
Tags and holds results for follow-up, confirmatory testing, or rerun	no	yes	yes
Parameters for flags for holding samples defined by user or vendor	no	yes	user or vendor
Scattergram display: cell-specific color	no	cell images are displayed instead of scattergrams	yes
Histogram display: color with thresholds	yes	yes (view specific cell's location within the PLT or RBC histogram)	yes
User interface can display choice of specimen or result information	no	yes	yes
LIS interface formats supported	HL7	ASTM	proprietary (Spec 79)
Information transferred on LIS interface	numeric and flag results, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast	results, flags/messages, QC	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	—	no/no/yes
Interface available or planned to automated specimen-handling system	—	—	LabCell (Siemens)
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128	codes 39 and 128, Interleaved 2 of 5	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5
Accommodates barcode placement per CLSI standard AUTO02-A2	no	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/4	2/2	1/7
Time required for daily, weekly, monthly maintenance	daily: <10 minutes	daily: <5 minutes	daily: automated; weekly: 15 minutes; monthly: 15 minutes
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)	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; 12 QC files, uploadable QC files, auto-sleep setting, only 1 maintenance reagent, and sample stability between 8 and 24 hours	all CBC parameters are determined using multispectral digital image analysis directly from a prepared, stained slide; WBC differential performed using digital cell image analysis on every sample; combines 3 separate processes (CBC/differential, slide making/staining, slide review) into 1 truly integrated system	laser technology provides cellular Hb for RBCs and reticulocytes; 2D PLT analysis eliminates interference from RBC fragments and inclusion of large PLTs; dual WBC counts with a linearity of up to 400,000; CSF assay
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>			

Part 8 of 13	Siemens Healthineers David Metrena david.metrena@siemens.com Hoffman Estates, IL 800-948-3234 www.usa.siemens.com/diagnostics	Siemens Healthineers David Metrena david.metrena@siemens.com Hoffman Estates, IL 800-948-3234 www.usa.siemens.com/diagnostics	Siemens Healthineers David Metrena david.metrena@siemens.com Hoffman Estates, IL 800-948-3234 www.usa.siemens.com/diagnostics	
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide				
Name of instrument	Advia 2120 Hematology System	Advia 2120i	Advia 360 Hematology System	
First year installed in U.S./Outside U.S./No. of units sold in 2017	2004/2004/—	2008/2008/130	2015/2015/—	
No. units installed in U.S./Outside U.S./List price	>200/>3,700/\$225,000	>200/>3,700/\$225,000	—/—/\$24,000	
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	standard menu (left) plus: CHCM, MPV, RDW, HDW, LUC %&#, retic %&#, Chr, CHCMr, cellular Hgb, MCVr; CSF: WBC, RBC, PMN, MN, neut, lymph, mono  % hypo, hyper, macro, micro; MPXI; % blast, PMN, MN, large PLT count, RBC fragment count; RBC ghost count; NRBC; CSF: WBC, RBC, 3-part differential; body fluids: TNC, RBC	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, lymph, MID, GRA, MID%, GRA%, MPV, RDW-CV  —  out-of-range flags, measurement condition flags (warnings); flagging on WBC and HGB channels; flagging on RBC/PLT channel; warning flags of differential parameters	
FDA-cleared tests not clinically released	—	—	—	
Tests not available but submitted for 510(k) clearance	—	—	—	
Tests in development	MPC, MPM	MPC, MPM	—	
Tests for research use only	IRF, CSF eos	IRF, CSF eos	—	
Tests unique to analyzer	CHCM, HDW, Chr, CHCMr, cellular Hgb, MPC, MPM; CSF: WBC, RBC, PMN, MN, neut, lymph, mono	CHCM, HDW, Chr, CHCMr, cellular Hgb, MPC, MPM; CSF: WBC, RBC, PMN, MN, neut, lymph, mono	—	
Differential method(s) used	peroxidase WBC: peroxidase cytochem. staining with light scatter and absorption; baso: cytochem. stripping with 2-angle laser light scatter	peroxidase WBC: peroxidase cytochem. staining with light scatter and absorption; baso: cytochem. stripping with 2-angle laser light scatter	volumetric impedance change for WBC, RBC, PLT; lytic reagents with impedance method for 3 subpopulations; spectrophotometry for HGB	
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	whole blood: WBC 0.02–400/RBC 0–7.0; CSF: WBC 0–5,000/RBC 0–1,500  0–22.5/5–3,500  30–180 (MCV)  0.2–24.5%	whole blood: WBC 0.02–400/RBC 0–7.0; CSF: WBC 0–5,000/RBC 0–1,500  0–22.5/5–3,500  30–180 (MCV)  0.2–24.5%	0.0–85.0/0.00–8.00  1.0–25.0/0–1,000  50–120 (MCV)  —
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	2.7%/1.2%  0.93%/2.93%  0.78% (MCV)	2.7%/1.2%  0.93%/2.93%  0.78% (MCV)	<4.0%/<2.5%  <2.4%/<7.0%  <2.0% (MCV)
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=0.92x+0.6	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=0.92x+0.6	—	
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	incomplete RBC lysis (peroxidase only)  cold agglutinins, extreme sickle cell  —  —  extreme lipemia, high WBC, extremely high bilirubin interference with colorimetric Hb only, none with cellular Hb	incomplete RBC lysis (peroxidase only)  cold agglutinins, extreme sickle cell  —  —  extreme lipemia, high WBC, extremely high bilirubin interference with colorimetric Hgb only, none with cellular Hgb	>5 NRBCs/100 WBCs, PLT clumps/large PLTs  WBC count >50.0 × 103/μL  WBC count >50.0 × 103/μL  PLT clumps/large PLTs (abnormal histogram)  WBC count >50.0 × 103/μL, lipids >270 mg/dL
Interfering substances: differential	incomplete RBC lysis, complete myeloperoxidase deficiency	incomplete RBC lysis, complete myeloperoxidase deficiency	> 5 NRBCs/100 WBCs, PLT clumps/large PLTs (abnormal histogram)	
Maximum CBCs per hour/Maximum CBCs and differentials per hour	120/120	120/120	60/60	
Minimum specimen volume open/Closed/Sample dead volume closed	175 μL/175 μL/<300 (tube size dependent)	175 μL/175 μL/<300 (tube size dependent)	100 μL/100 μL/—	
Microsample capability	yes	yes	—	
Prepares microscope slides automatically or flags problems for slide prep	if integrated to Advia Autoslide	yes	no	
Number of automatic slidemakers available/List price	Advia Autoslide/\$98,000	Advia Autoslide/\$98,000	—	
Archives patient data/Previous patient results incl. with recent results	yes/no	yes/no	yes/no	
Maximum archived data accessible when system online	10,000	10,000 samples	10,000	
No. specimens for which numeric results saved in memory at once	10,000	10,000 samples	10,000	
No. specimens for which histo/cytogram results saved in memory at once	10,000	10,000 samples	10,000	
Performs delta checks	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 or vendor	yes	yes	
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	proprietary	proprietary (instrument or vendor specific)	proprietary, HL7	
Information transferred on 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, histograms and scatterplots, instrument to LIS; patient demographics, orders, LIS to instrument—broadcast; host query for patient demographics and orders	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/yes	no/no/yes	yes/yes/yes	
Interface available or planned to automated specimen-handling system	LabCell (Siemens)	LabCell (Siemens)	none	
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, Interleaved 2 of 5	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	
Accommodates barcode placement per CLSI standard AUTO02-A2	—	yes	—	
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/7	1/7	1/4	
Time required for daily, weekly, monthly maintenance	daily: automated; weekly: 15 minutes; monthly: 15 minutes	daily: automated; weekly: 15 minutes; monthly: 15 minutes	daily: 5 minutes; weekly: 20 minutes	
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/—	
Manufacturer can perform diagnostics via modem	yes	yes	no	
Distinguishing features (supplied by company)	laser technology provides direct cellular Hb for RBCs and reticulocytes; 2D PLT analysis eliminates interference from RBC fragments and inclusion of large PLTs; dual WBC counts with a linearity of up to 400,000; CSF assay	laser technology provides direct cellular Hgb for RBCs and reticulocytes; 2D PLT analysis eliminates interference from RBC fragments and inclusion of large PLTs; dual WBC counts with a linearity of up to 400,000; CSF assay	measures 16 parameters including 3-part WBC differential; efficient manual sampling of both open and closed tubes; 60 samples per hour, volume as low as 100 μL	

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



Part 9 of 13	<b>Siemens Healthineers</b> <b>David Metrena</b> david.metrena@siemens.com <b>Hoffman Estates, IL</b> <b>800-948-3234</b> www.usa.siemens.com/diagnostics	<b>Sysmex America</b> <b>Jennifer Starks</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us	<b>Sysmex America</b> <b>Kevin Croghan</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	Advia 560/560AL Hematology	GloCyte Automated Cell Counter for CSF*	poch-100i
First year installed in U.S./Outside U.S./No. of units sold in 2017	2015/2015/—	2016/—/26	2004/2003/>160
No. units installed in U.S./Outside U.S./List price	—/—/\$56,800	24/—/\$9,985	>1,200/>5,000/\$19,094
Test menu:	WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, mono, lymph, eos, baso)	RBC, TNC	WBC, RBCs, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&#, lymph, MXD (mono, eos, baso), RDW-SD, RDW-CV, MPV
• Laboratory	—	—	—
• Flags	—	—	WBC, RBC, PLT (histogram)
FDA-cleared tests not clinically released	—	—	—
Tests not available but submitted for 510(k) clearance	—	—	—
Tests in development	—	—	—
Tests for research use only	—	—	—
Tests unique to analyzer	—	—	absolute neutrophil count
Differential method(s) used	volumetric impedance change for WBC, RBC, PLT; light scattering baso measurement; light scattering 4-diff measurement LYM, MON, NEU, EOS; spectrophotometry for HGB	—	direct current
Analytical measurement range:	• WBC count/RBC count 0.20–100.0/0.36–7.19 • Hemoglobin/Platelet 1.10–22.2/15.0–1,000 • MCV (fL) or Hct (%) 50–120 (MCV) — • Reticulocytes —	TNC: 3–123 cells/μL reportable range 3–6,500 cells/μL/ 2–123 cells/μL reportable range 2–615,644 cells/μL — — —	1.0–99.9/0.3–7.0 0.1–25.0/10–999 10–60 (Hct) —
Precision:	• WBC count/RBC count <3.4%/<2.0% • Hemoglobin/Platelet <2.4%/<7.0% • MCV or Hct <2.0% (MCV)	TNC: 2.5–18.0% repeatability CV/2.7–16.3% repeatability CV — —	≤3.5%/≤2.0% ≤1.5%/≤6.0% ≤2.0% (Hct)
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 >5 NRBCs/100 WBCs, PLT clumps/large PLTs • RBC WBC count >75.0 × 10 <sup>3</sup> /μL • MCV or Hct WBC count >75.0 × 10 <sup>3</sup> /μL • Platelet PLT clumps/large PLTs • Hemoglobin WBC count >75.0 × 10 <sup>3</sup> /μL, lipids >280 mg/dL	TNC: nucleated RBCs — — —	lyse-resistant RBCs, cold agglutinins, cryoglobulins, PLT aggregation, NRBCs cold agglutinins, severe microcytosis, fragmented RBCs cold agglutinins, fragmented RBCs, leukocytosis (>100,000/μL) PLT aggregation, giant PLTs, microcytic RBCs, fragmented RBCs severe lipemia, abnormal protein, leukocytosis (>100,000/μL)
Interfering substances: differential	> 5 NRBCs/100 WBCs, PLT clumps/large PLTs	—	—
Maximum CBCs per hour/Maximum CBCs and differentials per hour	60/60	CSFs: ~12/—	30/30
Minimum specimen volume open/Closed/Sample dead volume closed	100 μL/100 μL/—	60 μL/—/—	15 μL/15 μL/15 μL
Microsample capability	—	no	yes
Prepares microscope slides automatically or flags problems for slide prep	no	no	no
Number of automatic slidemakers available/List price	—	—	—
Archives patient data/Previous patient results incl. with recent results	yes/no	no/no	yes/yes
Maximum archived data accessible when system online	100,000	—	100 samples
No. specimens for which numeric results saved in memory at once	100,000	1,600 per database	100 samples
No. specimens for which histo/cytogram results saved in memory at once	100,000	—	100 samples
Performs delta checks	yes	no	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	yes	no	yes
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, HL7	RS232, bidirectional	RS-232C
Information transferred on 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; patient, orders, LIS to instrument—broadcast	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	yes/yes/yes	yes/—/—	no/no/yes
Interface available or planned to automated specimen-handling system	none	none	—
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ASTM, Interleaved 2 of 5	Codabar, codes 39 and 128, Interleaved 2 of 5, Data Matrix	codes 39 and 128, ASTM, ITF, NW7, JAN-8 and 13
Accommodates barcode placement per CLSI standard AUTO02-A2	—	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/4	0/2 (RBC and TNC reagents)	1/2
Time required for daily, weekly, monthly maintenance	daily: 5 minutes; weekly: 20 minutes	change O-ring on vacuum every six months	daily: <2 minutes; weekly: <2 minutes; monthly: <2 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	—	yes/yes	yes/no
Manufacturer can perform diagnostics via modem	no	no	yes
Distinguishing features (supplied by company)	60 samples per hour, volume as low as 110 μL; measures 20 parameters and employs laser-based optical measurement to provide a 5-part WBC differential; aids in interpreting disease state information with 2 scattergrams and 2 histograms per result	1 cell/μL limit of detection for both RBC and TNC; consistent turnaround time for standardization and for lean practices; disposable test cartridges eliminate carryover for infectious samples	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
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		<i>*Sysmex America is the exclusive distributor of GloCyte in the United States.</i>	

Part 10 of 13	<b>Sysmex America</b> Ann Ludwig communications@sysmex.com Lincolnshire, IL 800-379-7639 www.sysmex.com/us	<b>Sysmex America</b> Ann Ludwig communications@sysmex.com Lincolnshire, IL 800-379-7639 www.sysmex.com/us	<b>Sysmex America</b> Ann Ludwig communications@sysmex.com Lincolnshire, IL 800-379-7639 www.sysmex.com/us
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	XN-1000	XN-2000	XN-3100
First year installed in U.S./Outside U.S./No. of units sold in 2017	2012/2011/>390	2012/2011/>180	2017/2017/—
No. units installed in U.S./Outside U.S./List price	>700/>450/\$202,667	>500/>450/\$402,667	<10/<10/\$562,667
Test menu: <ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	standard menu (left) 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 (left) 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 (left) 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 %&#
FDA-cleared tests not clinically released	—	—	—
Tests not available but 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: 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: <ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	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: <ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances: <ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	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  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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 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  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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 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  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, 199 mg/dL for hemolysis
Interfering substances: differential	—	—	—
Maximum CBCs per hour/Maximum CBCs and differentials per hour	100/100	200/200	varies by configuration/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
Prepares microscope slides automatically or flags problems for slide prep	yes	yes	yes
Number of automatic slidemakers available/List price	—	—	1/included
Archives patient data/Previous patient results incl. with recent results	yes/yes	yes/yes	yes/yes
Maximum archived data accessible when system online	100,000	100,000	100,000
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
Performs delta checks	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	yes	yes	yes
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 ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97
Information transferred on 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	none	none	none
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC
Accommodates barcode placement per CLSI standard AUT002-A2	yes	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	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)	daily: <1 minute (operator 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)	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 MySysmex, an easy-to-use mobile assistant that displays real-time analyzer performance data, enabling informed decision-making; compatible with optional RU-20 reagent unit that allows for use of concentrated Cellpack	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 MySysmex, an easy-to-use mobile assistant that displays real-time analyzer performance data, enabling informed decision-making; 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). It uses this channel to differentiate a single flag—blast/abnormal lymphocytes—into 2 distinct flags: blasts and abnormal lymphocytes
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>			

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See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide			
Name of instrument	XN-9100	XN-1000*	XN-1000 R
First year installed in U.S./Outside U.S./No. of units sold in 2017	2017/2017/—	2017/2017/—	2014/2015/>105
No. units installed in U.S./Outside U.S./List price	<10/<10/varies based on configuration	—/\$227,667	>200/>250/\$147,795
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> </ul>	<ul style="list-style-type: none"> <li>• WBC, RBC, Hb, Hct, MCV, MCH, PLT, %&amp;# neut, mono, lymph, eos, baso, NRBC %&amp;#, MPV, PLT-F, PLT-O, IPF, RDW-CV, RDW-SD, retic %&amp;#, IRF, RET-He; body fluids: RBC-BF, TC-BF, WBC-BF, MN %&amp;#, PMN %&amp;#</li> </ul>	<ul style="list-style-type: none"> <li>• standard menu (left) plus: NRBC %&amp;#, IG %&amp;#, MPV, RDW-CV, RDW-SD, retic %&amp;#, IRF, RET-He</li> </ul>
<ul style="list-style-type: none"> <li>• Laboratory</li> <li>• Flags</li> </ul>	—	—	—
FDA-cleared tests not clinically released	—	—	—
Tests not available but submitted for 510(k) clearance	—	—	—
Tests in development	—	—	—
Tests for research use only	—	not FDA cleared for human use; for research use only	—
Tests unique to analyzer	IG %&#, PLT-F, IPF, RET-He; body fluids: 2-part differential MN %&#, PMN %&#	PLT-F, PLT-O, IPF, RET-He; body fluids: 2-part differential MN %&#, PMN %&#	IG %&#, RET-He
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 light, and side-scattered light
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct) 0.00–30.00	0–440/0–8.6 0–26/0–5,000 0–75 (Hct) 0.00–30.00
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)	≤3%/≤1.5% ≤1.0%/≤4.0% ≤1.5% (Hct)
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—	—	—
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	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  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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 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  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, 199 mg/dL for hemolysis
Interfering substances: differential	—	—	—
Maximum CBCs per hour/Maximum CBCs and differentials per hour	>100, varies by configuration/>100, varies by configuration	100/100	100/100
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
Prepares microscope slides automatically or flags problems for slide prep	yes	yes	yes
Number of automatic slidemakers available/List price	configurable/included	—	>1,000/—
Archives patient data/Previous patient results incl. with recent results	yes/yes	yes/yes	yes/yes
Maximum archived data accessible when system online	100,000	30,000	100,000 samples
No. specimens for which numeric results saved in memory at once	100,000	30,000	100,000 samples
No. specimens for which histo/cytogram results saved in memory at once	100,000	30,000	100,000 samples
Performs delta checks	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	yes	yes	user or 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 ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	proprietary, XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97
Information transferred on 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	yes/yes/no	no/no/yes
Interface available or planned to automated specimen-handling system	Abbott, Ortho Clinical, Roche, Siemens	none	none
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC
Accommodates barcode placement per CLSI standard AUT002-A2	yes	yes	yes
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/5 cubitainer reagents, 4 fluorescent dye cartridges	—	1/5 cubitainer reagents, 4 fluorescent dye cartridges
Time required for daily, weekly, monthly maintenance	<3 minutes (operator time), ~15 minutes (analyzer time)	daily: <1 minute (operator time)	—
Onboard diagnostics for troubleshooting/Limited to software problems	yes/no	yes/no	yes/—
Manufacturer can perform diagnostics via modem	yes	yes	yes
Distinguishing features (supplied by company)	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). It uses this channel to differentiate a single flag—blast/abnormal lymphocytes—into 2 distinct flags: blasts and abnormal lymphocytes	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	optional testing licenses/capabilities: body fluid license that includes reportable WBC, RBC, total nucleated count, and 2-part differential, fluorescent PLT-F with reportable immature platelet fraction (IPF); optional accessory wagon for complete reagent management; onboard, preloaded decision rules to help manage rerun/reflex testing; compatible with MySysmex, an easy-to-use mobile assistant that displays real-time analyzer performance data, enabling informed decision-making; compatible with optional RU-20 reagent unit that allows for use of concentrated Cellpack
<i>Note: a dash in lieu of an answer means company did not answer question or question is not applicable</i>		<i>*XN-1000V is not FDA cleared for human use; for research use only.</i>	

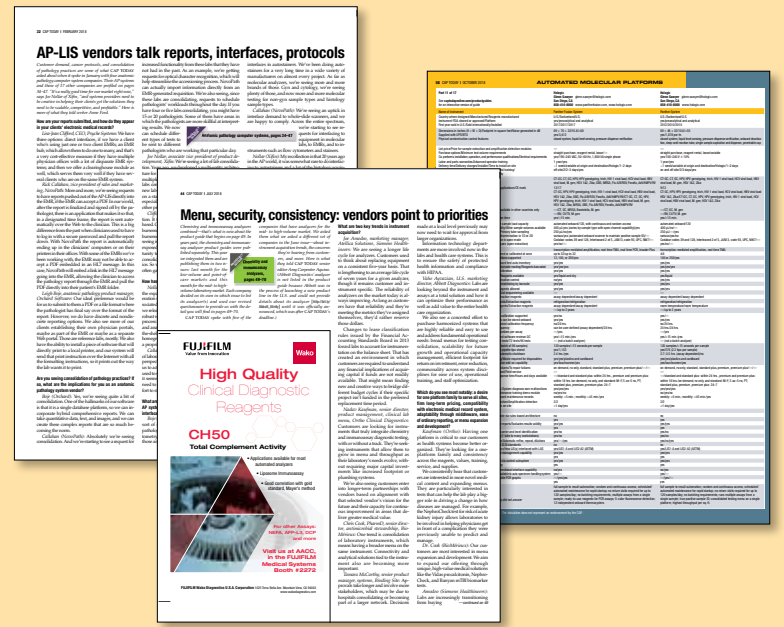
Part 12 of 13	<b>Sysmex America</b> <b>Kevin Croghan</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us	<b>Sysmex America</b> <b>Carl Trippiedi</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us	<b>Sysmex America</b> <b>Carl Trippiedi</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us	
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide				
Name of instrument	XP-300	XN-350, XN-450, XN-550 (XN-L Series)	XN-330, XN-430 (XN-L Series)	
First year installed in U.S./Outside U.S./No. of units sold in 2017	2013/2012/>250	2017/2015/—	2017/—/—	
No. units installed in U.S./Outside U.S./List price	>700/>2,000/\$28,408	—/—/\$75,000–\$110,000	—/—/\$71,000–\$84,000	
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>	standard menu (left) plus: IG %&#, MPV, RDW-CV, RDW-SD	standard menu (left) plus: IG %&#, MPV, RDW-CV, RDW-SD	
FDA-cleared tests not clinically released	—	—	—	
Tests not available but submitted for 510(k) clearance	—	—	—	
Tests in development	—	—	—	
Tests for research use only	—	—	—	
Tests unique to analyzer	absolute neutrophil count	immature granulocyte on every sample, optional reticulocyte and body fluid licenses available	immature granulocyte on every sample; models available through authorized distributors for POL and clinic market	
Differential method(s) used	direct current	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:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>	1.0–99.9/0.3–7.0 0.1–25.0/10–999 10–60 (Hct)	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct)	0.00–440.00/0.00–8.60 0.0–26.0/0–5,000 0.0–75.0% (Hct)
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>	<3.5%/<2.0% <1.5%/<6.0% <2.0% (Hct)	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)	<3.0%/<1.5% <1.0%/<4.0% <1.5% (Hct)
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:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>	cold agglutinins, PLT clumps, cryoprotein, cryoglobulin, fibrin, giant PLTs (>1 M/μL)  cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/μL), giant PLTs (>1 M/μL)  cold agglutinins, severe microcytosis, fragmented RBCs, leukocytosis (>100,000/μL), severe diabetes, uremia, spherocytosis  PLT clumps, pseudothrombocytopenia, giant PLTs, severe microcytosis, fragmented RBCs, fragmented leukocytes, cryoprotein, cryoglobulin  severe lipemia, abnormal protein, leukocytosis (>100,000/μL)	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  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, 199 mg/dL for hemolysis	no significant interference up to: 39.4 mg/dL for bilirubin C, 37.4 mg/dL for bilirubin F, 996 mg/dL for hemolysis, 30.320 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  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, 199 mg/dL for hemolysis
Interfering substances: differential	—	—	—	
Maximum CBCs per hour/Maximum CBCs and differentials per hour	60/60	60/60	60/60	
Minimum specimen volume open/Closed/Sample dead volume closed	50 μL/—/—	25 μL/25 μL/1.0 mL	25 μL/25 μL/1.0 mL	
Microsample capability	yes	yes	yes	
Prepares microscope slides automatically or flags problems for slide prep	no	no	no	
Number of automatic slidemakers available/List price	—	—	—	
Archives patient data/Previous patient results incl. with recent results	yes/no	yes/yes	yes/yes	
Maximum archived data accessible when system online	40,000	100,000	10,000	
No. specimens for which numeric results saved in memory at once	40,000	100,000	10,000	
No. specimens for which histo/cytogram results saved in memory at once	40,000	100,000	10,000	
Performs delta checks	no	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	yes	yes	yes	
Scattergram display: cell-specific color	no	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	RS-232C	XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	XN series ASTM1381-95/ASTM1894-97 or XN series ASTM1381-02/ASTM1894-97	
Information transferred on LIS interface	numeric and flag results; patient orders, LIS to instrument—broadcast; host query for patient 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	yes/yes/no	yes/yes/no	
Interface available or planned to automated specimen-handling system	—	none	none	
Barcode symbologies read on specimen tube	Codabar, codes 39 and 128, ITF, NW-7, UPC-A, UPC-E, JAN-8, JAN-13	Codabar, codes 39 and 128, ITF, NW7, ISBT 128, JAN/EAN/UPC	Codabar, codes 39 and 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/No. of routine liquid reagents	1/2	1/4	1/4	
Time required for daily, weekly, monthly maintenance	daily: <2 minutes; weekly: <2 minutes; monthly: <2 minutes	daily: 2 minutes; weekly: 15 minutes	daily: 2 minutes; weekly: 15 minutes	
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)	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	6-part WBC differential including immature granulocyte in a low volume system; standardization of reagents and controls with existing Sysmex XN-Series analyzers; XN-L Series includes BeyondCare Quality Monitor, an innovative QC and calibration management program, standard on all models	6-part WBC differential including immature granulocyte in a low volume system; standardization of reagents and controls with existing Sysmex XN-Series analyzers; XN-L Series includes BeyondCare Quality Monitor, an innovative QC and calibration management program, standard on all models	

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

Part 13 of 13	<b>Sysmex America</b> <b>Kevin Croghan</b> communications@sysmex.com <b>Lincolnshire, IL</b> <b>800-379-7639</b> www.sysmex.com/us
See <a href="http://captodayonline.com/productguides">captodayonline.com/productguides</a> for an interactive version of guide	
Name of instrument	XW-100
First year installed in U.S./Outside U.S./No. of units sold in 2017	2018/—/100
No. units installed in U.S./Outside U.S./List price	100/—/—
Test menu:	<ul style="list-style-type: none"> <li>• Chartable (standard menu: WBC, RBC, Hb, Hct, MCV, MCH, MCHC, PLT, neut %&amp;#, mono, lymph, eos, baso)</li> <li>• Laboratory</li> <li>• Flags</li> </ul>
FDA-cleared tests not clinically released	—
Tests not available but submitted for 510(k) clearance	—
Tests in development	—
Tests for research use only	—
Tests unique to analyzer	direct current detection method
Differential method(s) used	adaptive cluster analysis
Analytical measurement range:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV (fL) or Hct (%)</li> <li>• Reticulocytes</li> </ul>
Precision:	<ul style="list-style-type: none"> <li>• WBC count/RBC count</li> <li>• Hemoglobin/Platelet</li> <li>• MCV or Hct</li> </ul>
Accuracy of automated differential compared with manual differential (per CLSI H20-A2)	—
Interfering substances:	<ul style="list-style-type: none"> <li>• WBC</li> <li>• RBC</li> <li>• MCV or Hct</li> <li>• Platelet</li> <li>• Hemoglobin</li> </ul>
Interfering substances: differential	—
Maximum CBCs per hour/Maximum CBCs and differentials per hour	—
Minimum specimen volume open/Closed/Sample dead volume closed	—/15 µL/1.0 mL
Microsample capability	no
Prepares microscope slides automatically or flags problems for slide prep	no
Number of automatic slidemakers available/List price	—
Archives patient data/Previous patient results incl. with recent results	no/no
Maximum archived data accessible when system online	—
No. specimens for which numeric results saved in memory at once	100
No. specimens for which histo/cytogram results saved in memory at once	100
Performs delta checks	no
Tags and holds results for follow-up, confirmatory testing, or rerun	no
Parameters for flags for holding samples defined by user or vendor	no
Scattergram display: cell-specific color	no
Histogram display: color with thresholds	yes
User interface can display choice of specimen or result information	no
LIS interface formats supported	none
Information transferred on LIS interface	—
LOINC codes transmitted with all results/Sent in message to LIS/ Listing of machine codes and corresponding LOINC for each test	no/no/no
Interface available or planned to automated specimen-handling system	none
Barcode symbologies read on specimen tube	proprietary system (barcodes only)
Accommodates barcode placement per CLSI standard AUTO02-A2	no
No. of cleaning or maintenance reagents/No. of routine liquid reagents	1/2 (1 diluent, 1 lyse)
Time required for daily, weekly, monthly maintenance	daily: 15 minutes
Onboard diagnostics for troubleshooting/Limited to software problems	no/no
Manufacturer can perform diagnostics via modem	no
Distinguishing features (supplied by company)	CLIA-waived CBC, exclusive distribution through McKesson Medical Surgical Division; contains several safety measures to protect the integrity of patient results; simple operation

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

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