### Urine Chemistry

**Name of urine analysis instrument**

- **Type of instrument**: ARKRAY
- **Instrument list price**: $2,900
- **First year instrument sold in U.S.**: 2017
- **No. of units installed in U.S./No. of units installed outside U.S.**: 1000/100
- **Foreign countries where company markets instrument**: worldwide
- **Country where instrument designed/manufactured**: Japan
- **Intended urine sample volume per day**: 800 mL
- **Dimensions (HxWxD)/Weight fully loaded with reagents**: 22 x 48 x 26 in./200 lbs.
- **Power requirements**: 100–240 VAC (50–60 Hz)
- **Mean time between failure of instrument**: 1,230 days
- **Events that cause instrument to lock or stop analysis**: user ID failure, result error

**Urine chemistry: (information in this box is specific to urine chemistry)**

- **Testing methodology: specific gravity/color/clarity**
- **Urine chemistry tests available on instrument in the U.S.**
  - Bilirubin (0.5–14 mg/dL), hemoglobin (0.03–1.0 mg/dL), leukocyte esterase (0–500 leukocytes/µL), nitrite (0–0.5 mg/dL), pH (5–9), protein (10–600 mg/dL), specific gravity (1.005–1.030), urobilinogen (2–16 mg/dL)
- **Testing methodology: refractometer/wavelength of absorbance within an analyzer well/turbidity within a reagent analyzer well**
  - Bilirubin (0.5–10 mg/dL), hemoglobin (0.03–3.0 mg/dL), glucose (30–1,000 mg/dL), ketone (0–30 mg/dL), leukocyte esterase (5–500 leukocytes/µL), nitrite (0.08–0.5 mg/dL), pH (5–9), protein (10–1,000 mg/dL), specific gravity (1.005–2.000), urobilinogen (2–12 mg/dL)

**Microscopy/sediment: (information in this box is specific to microscopy/sediment)**

- **Microscopy/sediment technology**
- **Microscopy/sediment analysis parameters**
- **Flagging thresholds customizable**
- **Instrument eliminates amorphous crystal interference before sample analysis**
- **How results are displayed for microscopy/sediment**
  - Numeric values
- **Reporting format customizable**
- **No. of results that can be held in internal memory**
  - 2,500 sample results/200 control results
- **Means of sample ID entry**
  - Barcode scan, manual entry
- **Means of sample ID entry**
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- **Information that can be barcode scanned on instrument**
  - Operator identifier, specimen identifier, device unique identifier, specimen ID, result, QC identifier

### ARKRAY

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- **Instrument list price**: $2,900
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- **Testing methodology: specific gravity/color/clarity**
- **Urine chemistry tests available on instrument in the U.S.**
  - Bilirubin (0.5–14 mg/dL), hemoglobin (0.03–1.0 mg/dL), leukocyte esterase (25–500 leukocytes/µL), nitrite (0.08–0.5 mg/dL), pH (5–9), protein (10–1,000 mg/dL), specific gravity (1.005–1.030), urobilinogen (2–16 mg/dL)
- **Testing methodology: refractometer/wavelength of absorbance within an analyzer well/turbidity within an analyzer well**
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### Urinalysis Instrumentation

#### Part 2 of 4

See captodayonline.com/productguides for an interactive version of the guide.

<table>
<thead>
<tr>
<th>Company</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beckman Coulter</td>
<td>John Ebbes <a href="mailto:jhebbes@beckman.com">jhebbes@beckman.com</a></td>
</tr>
<tr>
<td></td>
<td>Miami, FL 352-647-0176 <a href="http://www.beckmancoulter.com">www.beckmancoulter.com</a></td>
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<tr>
<td>Roche Diagnostics</td>
<td>Brittany Greiner <a href="mailto:brittany.greiner@roche.com">brittany.greiner@roche.com</a></td>
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</tr>
</tbody>
</table>

#### Name of urinalysis instrument
- **i200 Series**: SELECT, ELITE, SPRINT
- **microscopy/sediment**: —
- **cubas u 411**: urine chemistry
- **$13,500**: 2006
- **cubas u 601**: urine chemistry
- **2019**: —
- **1,200 globally**: worldwide
- **300**: Hungary
- **50**: Switzerland
- **25.35 ± 42.48 ± 20.94 in/207.5 bs**: 100–125 VAC
- **160 days**: opening front cover

#### Tests can be transmitted to LIS as soon as completed
- Yes

#### No. of results that can be held in internal memory
- 10,000 sample results/200 control results
- 1,000 sample results/300 control results

#### How results are displayed for microscopy/sediment
- Numeric values

#### Microscopy/sediment analysis parameters
- Digital flow morphology (digital imaging)
- All of the following quantitative: pathological casts, crystals, yeast-like cells, mucus, sperm, RBCs, WBCs, epithelial cells, bacteria, hyaline casts, WBC clumps, yeast, squamous and nonsquamous epithelial cells, others

#### Specific gravity correction for protein/glucose
- Yes

#### Microscopy/sediment technology
- Color compensation pad included
- Flagging thresholds customizable
- Test strip configuration
- Calibration required after each test strip lot No. change
- Frequency of customer-performed calibration
- Form of calibration
- How results are displayed for urine chemistry
- Reporting format customizable
- No. of results that can be held in internal memory
- Instrument automatically generates consolidated report*

#### Reagent shelf life/storage temperature for unopened containers
- 2–30°C
- —

#### Reagent barcode-reading capability
- Yes

#### How often quality control samples are run
- Sample dilutions required for urinalysis/body fluid analysis
- Special sample handling required for body fluid analysis
- Minimum width of sample tube/Minimum length of sample tube
- Conditions or substances that prevent a sample from being run
- Means of sample ID entry
- Built-in liquid-level sensing for samples

#### Instrument can be barcode scanned on instrument
- Specimen identifier, reagent lot No., reagent expiration manual transmission
- Reflex testing/yes (cross-check functionality)
- Directly to LIS or EHR

#### Connect to LIS to upload patient and QC results
- Direct serial or hospital network
- Direct serial or hospital network
- Device unique identifier, operator ID, patient ID, specimen ID, result, QC identifier

#### No. of days of training with instrument purchase
- 1 day at customer site, 2.5 days at vendor office

#### Provision of client site to potential customers on request
- Yes (complete list with no restrictions regarding its use)

#### Distinguishing instrument features (supplied by company)
- Digital flow morphology using auto-particle-recognition software
- Increased productivity through improved workflow, reduced urine cultures, lower review rates, more advanced technology allows for testing of body fluids and urine samples in a preservative tube

#### Chemistry and microscopy results in one report
- Answers in listing apply to all three systems unless otherwise indicated.
- Combined total for iQ200 series
- Fast, efficient processing of urine strips; analyzer ready to test every six seconds
- Chemstrip 10UA strip has virtually no interference with ascorbic acid, minimizing false-negative glucose and hemoglobin results
- Flexible sample ID entry options let user choose barcode scan, download from host, or manual entry options
- Cubas u pack strips have virtually no interference with ascorbic acid, minimizing false-negative glucose and hemoglobin results
- Innovative photometer with improved reflectance technology differentiates lysed and intact erythrocytes
- 19-in. HD touchscreen monitor with an intuitive user interface and convenient QC management

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*Note: a dash in lieu of an answer means company did not answer otherwise indicated.
††Combined total for iQ200 series

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

#### Siemens Healthineers

- **Type of instrument**: CLINITEK AWA PRO Automated Urine Workstation<sup>1</sup>
- **First year instrument sold in U.S.**: 2015
- **Testing methodology**: Refractometer/test strip/turbidity within an analyzer well
- **Approximate scheduled maintenance time required**: 5–10 min. per shift, daily, weekly, monthly 20 min. daily; 10 min. weekly
- **Special sample handling required for body fluid analysis**: —
- **How results are displayed**: Microscopy/sediment— numeric values, scattergrams
- **Instrument eliminates amorphous crystal interference before sample analysis**: Yes
- **Microscopy/sediment technology**: Flow cytometry with fluorescent stain
- **Reagent shelf life/storage temperature**: 365 days/15–30°C
- **Intended urine sample volume**: 40–75 microscopic analyses
- **First year instrument sold in U.S.**: 2015

#### Sysmex America

- **Type of instrument**: CLINITEK Novus Automated Urine Chemistry Analyzer
- **First year instrument sold in U.S.**: 2019
- **Testing methodology**: Refractometer/test strip/turbidity within an analyzer well
- **Approximate scheduled maintenance time required**: 5–10 min. per shift, daily, weekly, monthly 20 min. daily; 10 min. weekly
- **Special sample handling required for body fluid analysis**: —
- **How results are displayed**: Microscopy/sediment— numeric values, scattergrams
- **Instrument eliminates amorphous crystal interference before sample analysis**: Yes
- **Microscopy/sediment technology**: Flow cytometry with fluorescent stain
- **Reagent shelf life/storage temperature**: 365 days/15–30°C
- **Intended urine sample volume**: 40–75 microscopic analyses
- **First year instrument sold in U.S.**: 2019

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<sup>1</sup>System does not report numeric values for most tests; it reports negative, trace, small, moderate, large, etc.  
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Name of urinalysis instrument

Type of instrument

Instrument list price

First year instrument sold in U.S.

No. of units installed in U.S./No. of units installed outside U.S.

Foreign countries where company markets instrument

Country where instrument designed/manufactured

Intended urine sample volume per day

Dimensions (HxWxD)/Weight fully loaded with reagents

Power requirements

Mean time between failure of instrument

Events that cause instrument to lock or stop analysis

Urine chemistry: (information in this box is specific to urine chemistry)

- Testing methodology: specific gravity/clarity

- Urine chemistry tests available on instrument in the U.S.

- Color compensation pad included

- Flagging thresholds customizable

- Test strip configuration

- Calibration required after each test strip lot—No. change

- Frequency of customer-performed calibration

- Form of calibration

- How results are displayed for urine chemistry

- Reporting format customizable

- No. of results that can be held in internal memory

- Specific gravity correction for protein/glucose

Microscopy/sediment: (information in this box is specific to microscopy/sediment)

- Microscopy/sediment technology

- Microscopy/sediment analysis parameters

- Flagging thresholds customizable

- Instrument eliminates amorphous crystal interference before sample analysis

- How results are displayed for microscopy/sediment

- Reporting format customizable

- No. of results that can be held in internal memory

Reagent shelf life/Storage temperature for unopened containers

Reagent shelf life/Storage temperature for opened containers

Reagent barcode-reading capability

How often quality control samples are run

Sample throughput per hour/Time to first result for chemistry

Sample throughput per hour/Time to first result for microscopy/sediment

Analyzer has stat mode

Sample dilutions required for urinalysis/body fluid analysis

- Special sample handling required for body fluid analysis

- Minimum width of sample tube/Minimum length of sample tube

- Conditions or substances that prevent a sample from being run

Means of sample ID entry

Built-in liquid-level sensing for samples

Information that can be barcode scanned on instrument

- How LONIC codes for results are made available

- Software includes reflex testing/cross-check functionality

- Instrument automatically generates consolidated report*

- Instrument connections to transfer information

Interface standards supported

Bidirectional interface

- Tests can be transmitted to LIS as soon as completed

- Connection to LIS to upload patient and QC results

- Connection to EHR to upload patient and QC results

- Information included in transmission from instrument to data-management software

No. of days of training with instrument purchase

Approximate scheduled maintenance time required

- Maintenance records kept onboard instrument

Provide list of client sites to potential customers on request

 Clients restricted from sharing their experience with company or software

Distinguishing instrument features (supplied by company)

- Powerful combination of fluorescent flow cytometry and digital image analysis allows for rapid screening of UA samples

- Highly modular and scalable system offering flexibility to add additional modules to meet increasing workload demands

- BeyondCare quality monitor for urinalysis provides a streamlined and automated QC experience

* chemistry and microscopy results in one report

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

No limit on No. of times customer can sign up

CAP TODAY product guides help you weigh your options when it’s time for a new instrument or software system

INSTRUMENTS • AP automation: tissue processors, embedders, microtomes, stainers
• Automated molecular platforms • Bedside glucose testing systems • Chemistry and immunoassay analyzers for mid- and high-volume laboratories • Chemistry and immunoassay analyzers for point-of-care and low-volume laboratories • Coagulation analyzers • Coagulation analyzers—point of care, self-monitoring • Hematology analyzers
• In vitro blood gas analyzers • Laboratory automation systems and workcells
• Next-generation sequencing instruments • Urinalysis instrumentation

SOFTWARE SYSTEMS • Anatomic pathology computer systems
• Billing/accounts receivable/RCM systems • Blood bank information systems • Laboratory information systems • Laboratory-provider links software • Positive patient identification products

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