AutoSorter™ III

Specimen throughput capacity: 300-800 specimens per hour*

HIGHLIGHTS

- Stand-alone pre- and post-analytic specimen-processing platform that addresses the needs of mid-size and large hospital laboratories.
- Dual Cartesian specimen handlers operate cooperatively, moving specimens between input drawers, centrifuge, decapper and output drawers.
- Input and output drawers are configurable to permit use of most popular instrument racks, including Siemens, Olympus, Hitachi/Roche, Sysmex and Yaskawa Motoman.
- Centrifugation is performed (as required) by a fully integrated Hettich Rotanta centrifuge with capacity for 72 tubes per cycle.
- Decapper is provided for cap removal prior to sorting specimens to the target output racks (as required by processing instructions).
- Most specimen handling-related mechanical components are located above the workspace, leaving the “deck” open. This allows processing equipment and queue areas to be optimized.
- Each handler is equipped with a servo-driven specimen gripper with attached barcode reader, and is capable of traversing the entire processing area.
- The all servo-drive design, including Yaskawa linear servo motors, is ideal for high duty-cycle applications. It offers exceptional life and extended service intervals.
- LIS connectivity through Data Innovations’ Instrument Manager™ and other connectivity methods enables specimen processing instructions and sort results reporting in real time. This approach permits the AutoSorter III to act as an integral tool in the pre- and post-analytic specimen processing workflow with enhanced tracking and visibility of samples through archiving.

* Varies per use of centrifuge and spin time.
Specimen Loading Process
- Incoming specimens are prepared for processing simply by loading them into an input rack (in random order).
  - Drawers provide access to load racks of specimens for processing, and to remove empty racks.
  - Input racks may be generic or instrument-specific.
  - A separate drawer is also provided specifically for input of STAT specimens.
- The handler picks up a specimen from the input rack and rotates it to permit reading of the barcode.
- The specimen ID (SID) is compared to its sort target if decapping is not required.
- Drawers provide access to load racks of specimens for processing, and to remove empty racks.

Centrifugation Process
- Specimens requiring centrifugation are first loaded to one of the available centrifuge racks.
  - Tubes are weighed, and racks are loaded to maintain balance within the allowable range of the centrifuge.
- Specimens are loaded to this set of racks until the centrifuge cycle completes, at which time the centrifuge is unloaded, and reloaded with racks of specimens awaiting centrifugation.
- Once the centrifuge has been serviced and re-started, the racks of centrifuged tubes are unloaded; each specimen is transferred to decapping, or directly to its sort target if decapping is not required.

Decapping Process
- The decapping process is performed in an isolated area serviced by a rotary positioner.
  - Tubes are loaded to the positioner outside of the decapping zone; the positioner rotates, aligning the tube with the decap tool.
  - Air flow around the tube is managed to isolate any aerosolized specimen, and the closure is removed with a “twist and pull” method.
  - The cap is pulled by vacuum into a chute leading to a removable waste container.
  - Positioner rotates again to move decapped tube to the unload position.
  - This cycle operates continuously (as long as tubes require decapping), with load, decap and unload able to occur simultaneously on each cycle.

Sorting Process
- Every specimen is sorted to one of the target output racks.
  - Output racks are arranged in drawers, permitting the use of generic and/or instrument-specific racks as targets.
  - The racks contained within the drawer may be determined and changed as necessary to facilitate specimen mix at different times of day, conversion to use of a new instrument, etc.
  - The output drawer may be accessed at any time to allow a rack of specimens to be removed.
- Specimens are tracked as they progress through the Specimen Processing System. Additionally the system records the target rack barcode (if provided) and row/column location.
  - Note: This tracking is very useful in providing archive consolidation of post-analytic specimens, as well as maintaining traceability of specimens through the pre-analytic sequence.

OPTIONS
- Track connectivity: enables transfer of specimens to a transportation conveyor as a sort target, and retrieval of specimens from a transportation conveyor as an input source.
  - Requires compressed air source.
- Centrifuge delete option: allows future addition of centrifuge.

AUTOSORTER III SPECIFICATIONS

<table>
<thead>
<tr>
<th>Dimensions*</th>
<th>Height</th>
<th>2,051 mm (80.8 in)</th>
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</thead>
<tbody>
<tr>
<td>Width</td>
<td>2,230 mm (87.8 in)</td>
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<tr>
<td>Depth</td>
<td>1,069 mm (42.1 in)</td>
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<tr>
<td>Shipping Weight</td>
<td>1,800 lbs.</td>
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<table>
<thead>
<tr>
<th>Specimen Formats</th>
<th>Tube diameter</th>
<th>12-16 mm</th>
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<tbody>
<tr>
<td>Tube height</td>
<td>75-100 mm</td>
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<tr>
<th>Throughput**</th>
<th>With centrifugation (4 min cycle)</th>
<th>300 tubes per hour</th>
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<tbody>
<tr>
<td>Without centrifugation</td>
<td>800 tubes per hour</td>
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| Utility Requirements | Pneumatic | Electrical | Not required 30 amps at 208 VAC, 3-phase |

* Without centrifuge attached, the AutoSorter III is capable of movement through a 0.9-m doorway opening and fits into a 2.5-m elevator.
** Estimates based on initial time studies