RapidPick™ Complete Colony Picker

Hudson's RapidPick™ Colony Picking Systems are the only fully automated high-throughput colony picking workcells. They deliver unparalleled performance and precision for enhancing bacterial cultivation in the Life Science industry. In addition to allowing researchers to automate the selection and growth of cells grown on a colony plate, the RapidPick software retains a record and image of each specific colony and which culture plate/well it inoculated. It provides the users an indispensable, unbroken data path from original colony to final result (tracking a clone to a specific expressed protein).

The RapidPick™ Complete Colony Picker contains:

- Multi-pin picking unit (RapidPick MP)
- PlateCrane robotic arm
- 10 microplate stacks
- Micro10x media dispenser
- Adhesive plate sealer
- Stand-alone enclosure

Upgrades include optional UV and HEPA filtration, GFP fluorescence colony picking, Halo detection and a LiCONiC automated shaking incubator.

The RapidPick™ system is designed to pick from SLAS-compatible omni-trays, segmented colony plates, 24-well, 96-well and 384-well plates and petri dishes. It will inoculate SLAS-compatible omni-trays, 24-well, 96-well and 384-well deepwell and standard height plates.

All RapidPick operations are controlled by Hudson's powerful SoftLinx™ easy-to-use scheduling software.



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Applications

This workcell is unique in its completely integrated operation which allows researchers working in Colony Picking, Re-Arraying, and Replication the ability to feed source and destination plates in a compact workcell environment.

Synthetic Biology

Hudson Robotics' unique capabilities and product mix have enabled us to lead the world in the automation of the complete Synthetic Biology Pipeline: from automated oligo synthesis and gene assembly through transformation, colony picking and plasmid preparation.

Combined with our previous work with protein expression and purification systems, Hudson now offers a solution to automating any process encountered in a typical molecular biology laboratory.

Fungal, Yeast, Bacterial Colony Picking

Hudson has been a key player in the colony picking arena for many years. We offer several versions of our RapidPick platform, including the recently introduced single-pin picker. Easy-to-use, but sophisticated software interacts with the picker and the incorporated camera to identify and select appropriate colonies.

Protein Expression & Purification

Hudson offers a wide range of instrumentation to support the entire range of protocols commonly encountered when preparing peptides and proteins. From liquid handlers to support PCR through vast, multi-component systems to support an entire research effort.



Features

- **Speed:** >2400 colonies/hr
- **Calibration**: Each tip is calibrated in a process that takes 5 minutes. This is a key advantage over systems that rely on calibration from 1 pin; any deviation in the calibration pin will cause other systems to miss colonies.
- **Image Processing**: Only 1 image is used to identify all of the colonies on a plate. As you know, other pickers use multiple images that get reconstructed, and reconstructed images require an overlap parameter that throws away about 10% of your colonies.
- **Selection Efficiency**: It is an industry standard that only ~72% of all human pickable colonies can be selected and picked by our competitors. The RapidPick™ collects ~90%.
- **Tip Cleaning:** Tips are cleaned with water from a large carboy followed by sterilization in a 300°C oven. This means no EtOH bath to evaporate causing contamination
- **Automated Media Filling:** Eliminates the need to dispense media at a separate workstation. The Micro10x's features make it a perfect match for this application.

Including:

- **AutoPrime:** Primes the system if there was not a dispense during the user determined time interval. This prevents media from drying on the tip ends.
- **NO Check Valves:** There is only 1 moving part in the Micro10x fluid path, a ceramic piston. Check valves do fail and cause mis-dispensing.
- **Intelligent Fill:** The RapidPick knows the best time to fill the next destination plate, which allows parallel processing and eliminates waiting for fresh media plates.
- **Sealing:** Inoculated culture plates are sealed and put to an output stack or directly into an optional incubator.
- **Sample Tracking:** All sample movements are tracked by the system using the following techniques.
- **Source Destination:** A data file is generated showing all of the colony parameters associated with a sample that is transferred from a colony tray to a destination plate. A photo of the exact colony collected can also be archived and associated with the destination well.

Optional Incubator:

- Several automated incubators are compatible with the RapidPick. With an integrated incubator, colony trays can be monitored for optimum colony size prior to the start of the picking process. Additionally, when optimum conditions are met, the incubator can be cooled and humidity controlled to prevent overgrowth and condensation.

RapidPick™ Colony Picker

Specifications

- The RapidPick Complete Multi-Pin Colony Picker consists of the CP-7200 colony-picking instrument, the PlateCrane EX with up to 10 stacks, and software development by Hudson Robotics to control the system. The systems have the following specifications:
- Software for colony picking, cherry picking, re-arraying and plate replication is standard.
- Supports NUNC Omnitrays and Petri dishes as source plates for colony-picking.
- Supports most SLAS format shallow and deep well plates for the destination or in use with plate replication; 24 wells, 96, 384 and 1536 formats.
- Comes standard with 2 barcode readers, 1 for the source plates and 1 for the destination plates.
- Holds 1 source plate and 1 destination plate at a time, with option for 2 destination plates.
- Has input capacity of 72 deep-well culture growth plates.
- Includes barcode tracking of both colony and culture plate/well.
- Includes media dispenser for fresh growth media in every plate.
- Integrated gas-permeable seal applicator to ensure freedom from contamination.
- Uses 20 tungsten pins on spring loaded linear slides attached to a rotating turret for picking.
- Uses LED light box with the intensity of the lights controlled in software.
- LED lights can be changed to different colors if desired.
- Camera takes an image of the entire plate in a single image. No image cropping or building is required.
- User creates parameter files for identifying good colonies. There is no limit to the number of parameter files that can be created. Good colonies are determined by size, shape, contrast to background and closeness to other colonies.
- User can manually edit the plate to be picked if desired. Colonies can be selected or deselected with the click of the mouse.
- 4 pins are actuated at the same time, picking pin, inoculation pin, wash station, sterilization. This action takes under 1 second. After the pins are released, the rotor moves by 1 position.
- Typical picking speed is 1 pick every 1-1.5 seconds; ~40 a minute, ~2400+ per hour.
- Picking pin can pick through agar and hits bottom of plate with no damage to pin, linear slide or plate.
- Inoculation pin can be set to “wiggle or dither” in destination well from 1-10 shakes. This improves the inoculation efficiency to 98%+.
- Wash station is a vacuum wash to remove loose debris on the pin. After leaving wash station, pin travels through a brush to remove anything remaining.
- Pins are sterilized with direct heat. The pins enter a heater coil or furnace at 600F for under 1 second. The tungsten pins heats through and all samples on the pins are destroyed. Tungsten allows pin to cool before being used for picking.

Optional Accessory:

- Available fully-integrated operation with products like Liconic’s STX 40 robotic incubator which provides complete automation of the entire culture outgrowth process.
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Optional Incubator:

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10 Stern Avenue
Springfield, NJ 07081-2905
1.973.376.7400

info@hudsonrobotics.com
www.hudsonrobotics.com

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