It's What's Inside Your Coin Machine That Counts

How different technologies impact accuracy and the customer experience

When it comes to self-service coin machines, it's what's inside that counts – literally. While machines fundamentally serve the same purpose of authenticating, denominating and sorting, the way that coins are processed can vary greatly.

Accuracy and reliability are very important considerations when purchasing self-service coin machines. To understand what drives these critical characteristics, it's important to understand how the technology itself can make your organization more or less susceptible to issues such as inaccuracy, machine downtime and staff productivity.

There are three most common coin processing technologies available today. Understanding technology choices is essential to providing a positive customer experience and productivity enhancements for your branch.
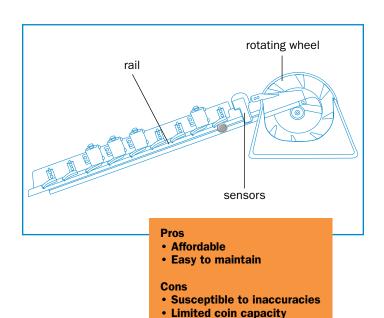
Rail Sorting Technology

Overview:

In any piece of coin sorting equipment, coins enter the machine and must first be aligned into a single row, single layer for processing. In the case of a rail sorter—the most prevalent technology used in self-service coin machines today—the coins are aligned with the aid of a rotating wheel and sent along a narrow track – or rail – on their circumference via gravity. Each coin then passes a detector where it is counted and sorted according to denomination. Rail sorters typically process coins at speeds between 600-900 coins per minute.

Pros:

The simple design makes these machines affordable to own and easy to maintain. Employees can easily clean the machine or clear jams. Some machines feature dedicated cleaning mechanisms to remove sand, dust and particles which can impact jamming and accuracy. Sensors are used to help identify and reject foreign coins. Authentic coins feed directly into bags or bins, and non-coin debris is deposited into a small trash receptacle inside the machine for easy disposal.

Pros
• **Affordable**
• **Easy to maintain**

Cons
• **Susceptible to inaccuracies**
• **Limited coin capacity**
• **Must be cleaned often**
• **Slow**

Cons:

Coins in rail sorting equipment are especially susceptible to bouncing, potentially leading to mis-sorts, miscounts, or falling from the rail and causing a jam. Bouncing most commonly occurs with coins that have nicks or imperfections on their outer edges. The rail itself must be extremely clean and coins must be stable when passing by the authentication sensors in order to properly authenticate and sort. Debris getting lodged in the track can lead to a jam and if too much dirt or dust collects on the rail, coins can mis-sort and possibly miscount. Rail sorters need to be cleaned frequently or risk poor performance.

Because rail sorters depend on gravity to feed coins down the rail, speed is limited and relatively slow. Coins need to be fed into the machine in small batches, increasing the amount of time needed to process a transaction.
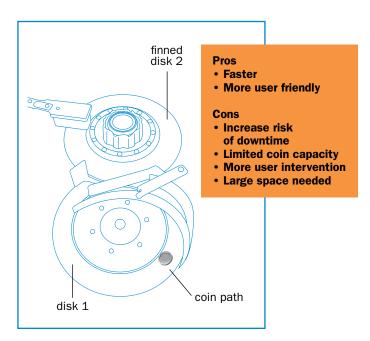
Figure-8 Technology

Overview:

Machines featuring figure-8 technology use two overlapping disks, rotating in opposite directions, taking the coins on a figure-8-like path. Coins are deposited onto the first disk, and are then slid onto the second disk and lined up in a single-row, single-layer pattern. Lastly they pass under the second disk, which grips the top side of the coins and moves them toward coin openings, and eventually into bags or bins.

Pros:

Coin processing speed is much greater than rail sorters, with figure-8 machines capable of processing up to 2,500 coins per minute. Coins are automatically fed into the machine, for a more user-friendly experience. Unwanted items are automatically removed from the machine after the coin batch has finished.

finned disk 2

Pros
• **Faster**
• **More user friendly**

Cons
• **Increase risk of downtime**
• **Limited coin capacity**
• **More user intervention**
• **Large space needed**

disk 1

coin path

Cons:

With two moving parts inside, there is the increased potential for machine downtime as a result of one of the parts failing. The space available for coin bags is somewhat limited, requiring more frequent bag changes by personnel. The amount of floor space required for bag units is considerable, requiring up to an additional three feet per side for bag changing clearance. The finned drive disk needs to be changed periodically as part of routine maintenance.

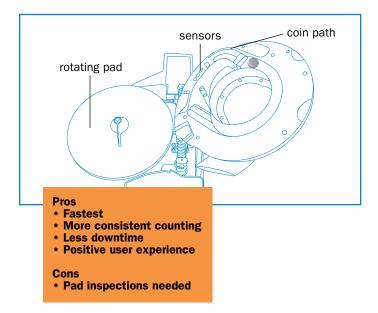# Single Rotating Disk Technology

Overview:

Machines utilizing this technology consist of a single moving part, rotating at a high speed. Positioned opposite the rotating pad is a stationary metal disk that is machined with precise passageways. Coins are moved onto the rotating pad then separated due to centrifugal force, into a single layer, single file for processing. The coins are guided past multiple sensors to determine their authenticity. Authentic coins are deposited into collection bins or bags and foreign coins are rejected and returned to the customer.

Magnets are used at the start of the process to remove unwanted material. Non-coin items larger than the coins cannot enter the passageways, thereby minimizing machine downtime. These items are automatically removed from the machine once the coins have been counted.

Pros:

Capable of processing up to 4,100 coins per minute, this single disk technology offers the fastest coin sorting speed. With coins laying on their side and sliding along a specific path, they are less susceptible to impediment by foreign objects and debris. Built-in technology monitors the health of the sensors, providing peace of mind that if an issue occurs, the machine can shut down or notify personnel before problems arise. Parity checks at multiple points inside the machine enable consistent count totals. This technology provides a machine that is less sensitive to debris and doesn't jam or miscount as often. The user experience is extremely positive due to the speed of transactions, high availability, and quiet performance.

sensors

coin path

rotating pad

Pros
• **Fastest**
• **More consistent counting**
• **Less downtime**
• **Positive user experience**

Cons
• **Pad inspections needed**

Cons:

The pad surface should be periodically inspected by personnel for tears or damage and may eventually need replacement as part of a routine maintenance plan.

Summary

If you are considering adding self-service coin counting services to your business, take the time to look inside the machine and understand the technology because it may impact your business beyond the initial cost of the machine.

The single-disk approach, offered exclusively by Cummins Allison in its Money Machine® 2 product, is the most reliable and accurate technology today. With the fastest coin sorting and processing speed available, and an industry-leading sorting accuracy rating of 99.995%, financial institutions stand to benefit from the installation of a Money Machine 2 in the forms of machine accuracy, increased customer satisfaction, and improved operational efficiency.

For more information about Money Machine 2 and how it can help grow business in your branch, visit cumminsallison.com/traffic

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Generations of Vision and Excellence

Cummins Allison sets the standard for accuracy and dependability.

Cummins Allison is a global leader in developing solutions that quickly and efficiently count, sort and authenticate currency, checks and coin. We also offer a complete line of full-function automated teller machines (ATMs). Our leadership in technology and product innovation spans more than 125 years. Cummins Allison serves the majority of financial institutions worldwide, as well as leading organizations in retail, gaming, law enforcement and government. Ninety-seven percent of our customers would recommend our products and services.

The company holds more than 350 patents and invests double the industry average in R&D. Our world-class sales and service network includes hundreds of local representatives in more than 50 offices in North America, wholly-owned subsidiaries in Canada, the United Kingdom, Germany, France, Ireland and Australia and is represented in more than 70 countries around the world.

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