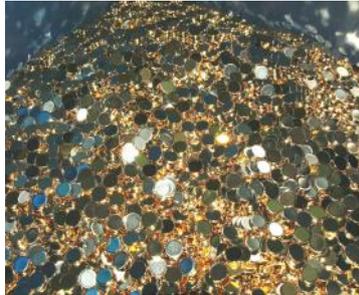


Materials Handling and Warehousing Solution



The Project

In 2007 the Royal Australian Mint, Canberra (RAM) began a modernisation program for their circulating coin production facility. RAM sought to upgrade its circulating coin blank handling and finished coin warehousing with a state of the art system incorporating leading edge technology. RAM required an organisation that could provide innovative engineering design and also undertake the manufacture and installation of the circulating coin materials handling and warehousing system (MHWS). Required project outcomes included, increased product security; improved OHS; improved materials flow; providing high levels of process automation and process management; and increasing the Mint's appeal as a Canberra tourist destination. As the successful tender, Australis Engineering's design solution provided the following benefits:

- world's first coin Vision Counting System (VCS),
- a Manufacture Execution System (MES) to manage the entire coin production process;
- use of robotics to minimise manual handling and increase production output, including the Kuka Titan robot, which at the time of installation was the largest industrial robot in the southern hemisphere,

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Vision Counting System

Materials Handling

Robotics & Automation



- fully integrated materials handling and warehousing solution, inclusive of special purpose roller conveyors and pallet conveyors to handle 750kg coin drums,
- Special purpose incline conveyors with cleated belts to elevate completed coins into storage bins,
- the first ever multi-axis bucket conveyor system in Australia that is capable of conveying coin blanks vertically and horizontally and even allows the conveying system to turn corners to avoid the heritage listed structures of the Mint,
- unique Visicoins coin inspection and Visilab coin testing machinery to test completed coins,
- automated guided vehicles (AGV) to reduce manual handling which has resulted in a significant reduction in Lost Time to Injury (LTIs) to the Mint since its inception.
- a fully integrated warehouse racking system that is linked via the AGV's to the MES and allows the AGV's to collect coin blanks as required and to deposit finished coins in a systematic order to maintain the audit and compliance trail
- pallet stretch wrappers to accommodate the various packaging requirements for bulk coin distribution.

Client:

Royal Australian Mint

Location:

Canberra, ACT, Australia

Kuka Titan Robot

Elecon—multi-axis bucket conveyor

Vision Counting System

Automatic Guided Vehicles

FactoryTalk MES

VisiCoin—coin inspection

VisiLab—coin testing

Coin Counters

Pallet Conveyors

Vibratory Conveyors

Chain Conveyors

Inclined Cleated Belt conveyors

Z- bucket conveyor

Warehousing & racking

Stretch Wrapper

Safety System

Interactive Tourist Cameras

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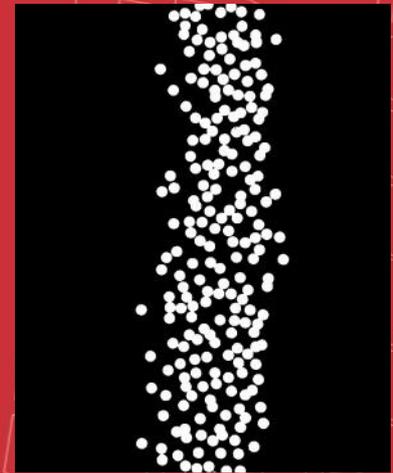
Coin Manufacturing System



The Result

Beneficial outcomes of the Australis Engineering circulating coin manufacturing and warehousing system include:

- Whole-of-system integration using automation and best practice materials handling applications;
- Total system output of over 2.2 million coins/ day with peak rates in excess of 8,600 coins/ minute;
- VCS capable of counting coins at rates exceeding 22,000 coins/ minute and accuracies over 99.9%
- AGVs to reduce manual lifting, improve throughput and OHS;
- Industrial robotics to lift and decant large drums of coins and improve OHS;
- Design, manufacture and installation of belt conveyors, vibratory conveyors, full safety system, labellers, warehousing and bucket elevators.



Innovation

A key element has been the design, testing, manufacture and installation of a world's first, Vision Counting System (VCS) for coins. The VCS is a high-speed coin counter in a mass flow situation, allowing for elevated speeds and high throughput counting of up to 22,000 coins per minute. The system is designed to be virtually touch free so there is little chance of jams or blockages, resulting in a highly reliable system achieving over 99.9% accuracy in production (depending on denomination). The VCS has potential in other coin handling environments and for the pharmaceutical industry for tablet production facilities.

At the time of installation, it also believed that the use of a shared passenger/ AGV elevator was a world's first. With the AGV's being able to safely share a passenger elevator between floors of the Mint's building and still achieve the necessary production rates.

Watch the video

Watch a video of the entire Circulating Coin, Materials Handling and Warehousing System in operation on our very own YouTube channel. Go to www.youtube.com/user/AustralisEngineering to see the MHWS and many of our other solutions.

