

## Robots at the Mint

Amazingly, the Royal Australian Mint can produce up to two million coins per day. To do this it employs approximately 170 staff and some very cool robots.

Titan and Robbie work in the Mint's circulating coin hall alongside three Automatic Guided Vehicles (AGVs) named Penny, Pence and Florin. With their strength and their skills, they allow the human staff to concentrate on maintenance and quality checks.

Let's meet the team.

### Titan Robot

Titan is a six-axis, three-metre tall robot who weighs a massive 4690 kg (4.6 tonnes). He is extremely strong, with the ability to lift up to 1000 kg.

Titan's first job is to use his single, claw-shaped gripper to lift drums of blank coins (weighing about 750 kg) and pour them into a hopper. This is the beginning of the production line. From the hopper, the coins are sent off to the coin presses.

When the blanks have been pressed into finished coins, they are put back into drums and delivered back to Titan. He lifts the drums of finished coins and tips them into another hopper. From here they are counted, bagged and sent off to banks throughout Australia.

Visitors to the Mint are able to watch Titan at work. When he is not busy, he happily shows off for the crowd, dancing, stretching and flaunting his flexibility.



### Robbie Robot

Robbie is also a six-axis robot, and can lift up to 50 kg.

His job is to pack 7 kg plastic bags of finished coins into a large cardboard shipping box. These bags travel to Robbie along a conveyer belt, but before they reach him they are counted automatically and weighed to ensure that they contain the right number of coins.

Robbie places 200 bags into each box in a programmed pattern.



## Automated Guided Vehicles (AGVs)

The Mint's three Automated Guided Vehicles (AGVs), Penny, Pence and Florin, have replaced a number of the forklifts that were previously used. Mint staff use a computer program to pass instructions to the AGVs.

Each night, when production is complete and the staff have gone home, the computer sends the AGVs to collect the day's finished packaged coins and transfer them to the Mint's secure warehouse. The AGVs then collect drums of blank coins and place them in the production hall, ready for the next day of production.

AGVs are powered by a rechargeable 48v battery. When they are not required to work, they plug themselves into a recharging unit. How clever is that?

AGVs navigate using laser beams. Their laser navigation is extremely accurate, so much so, that they are wearing tracks in the factory's wooden floor after taking exactly the same path every single time they travel!

