

Project Proposal

Spaleck 6th Dosing Pump Installation

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L5 – Work Based Project (ACDA5016)

What is being proposed?

As part of the finishing process of commemorative coins at The Royal Mint, the Spaleck finishing machine is the machine that polishes and cleans the surface of all bullion coins being produced. These involve a rotary bowl that is filled with a polishing media that abrades against the face of the coin blanks and polishes the surface ready for striking later on in the Royal Mint's production process. To polish the blanks, the media is mixed with fluids such as demineralised water and various soaps that get pumped into the bowl whilst the machine operates. These fluids are pumped into the bowl with the use of 5 pumps located to the side of the machine. The purpose of this project is to add an additional (6th) dosing pump to the machine to remove a single point of failure in the plant. This will require further works such as replacing the PLC that controls the pumps, replacing aging equipment related to this device, as well as replace the HMI unit with a new one. The PLC will require programming also. Aging plant is highlighted as high risk to production, as a risk assessment conducted on the plant indicated risk mitigation measured to prevent unnecessary downtime. Replacing the obsolete HMI and much of the wiring of the pumps with new and readily available equipment has been highlighted as an additional priority for this project.

What is the Current State?

Currently with dosing pumps on the machine, the machine must have solution changed when running certain products, which increases downtime on production, as well as increasing risk to operators due to handling hazardous solutions due to switching the containers around the shop floor more often.

What will the Current State Look Like Post Project Completion?

The addition of the 6th dosing pump increases the efficiency of the plant, as no downtime will be required when solution changeover is needed when different denoms are being run on the machine. The different solutions can be stored at the other pump so the pumps can just be switched between for different denoms. This additional pump also prevents downtime due to pump failure, as a spare pump is always present which can be quickly started up whilst the failed unit is being replaced. There will be uninterrupted production plans due to the operation of the 6th dosing pump as standard on the machine when installed.

What are the Risks if the Project Does Not Proceed?

The risks include extended downtime in the event of old and obsolete control equipment failure if they are not replaced. Risks include the potential of being late to deliver to the customer due to the capacity constraints. Missed GP in the event of failure or capacity increase as is expected in the next year.

What are the Expected Costs to the Business?

The components required includes a dosing pump 70L with mounting parts, new PLC and HMI, new software for the HMI and PLC, man hours to install and program the system, and wiring equipment to install everything. This has been estimated to cost £52800.