

Case study: South Australia Defence



Overview

South Australia Defence approached Cleanrooms Australia to design and build a cleanroom facility they could use to service and test valves that play a vital role in the hydraulic trolley system used to service ships for the Australian Defence Force.

Cleanrooms Australia designed, built and delivered an ISO 14644 Class 8 compliant cleanroom contained within a 20-foot shipping that is currently in successful operation at the client's South Australian facility.

Background

South Australia Defence is a defence contracting company that has been commissioned to maintain the dry dock equipment for the Australian Defence Force in South Australia.

This consists of a mobile platform system that employs a network of computer-controlled hydraulic trolleys to lift ships out of the wet dock and into the dry dock where they are cleaned and serviced in a dry environment.

There are more than 90 trolleys involved in this network, and each trolley contains two valves that must be periodically disassembled, cleaned and tested in cleanroom conditions.

If these valves are not serviced in a cleanroom environment they can become contaminated, which can compromise their operation. Valve failure can be an extremely expensive problem and may cause ships to become stuck on the dry dock or between the wet and dry docks.

South Australia Defence approached Cleanrooms Australia to design, build and deliver an ISO 14644 Class 8 compliant cleanroom contained within a 20-foot shipping container that could be delivered to their warehouse in South Australia.

The solution

As per client requirements Cleanrooms Australia designed and built a shipping container cleanroom with the provision for South Australia Defence to install a number of pumping and testing rigs on one external end of the cleanroom.

Services inside the cleanroom utilised an external power source and the cleanroom was designed to ensure that South Australia Defence staff could dismantle, clean and test four valves at a time.

Weight certified benches were also installed inside the cleanroom, along with oil sinks with contained drainage so maintenance staff could drain the oil out of the valves inside the cleanroom before cleaning and testing.

The critical factors

It was critical that the cleanroom comply with Class 8 requirements and be completed by the stated timeline. We also needed to ensure that the self-contained unit could be delivered to the dock facility and landed on the warehouse floor in South Australia.

The cleanroom was designed to accommodate one maintenance employee, so it also required the installation of internal rollable trolleys that the technician could use to move the valves between locations inside the cleanroom.

The process

Planning and design was fairly straight forward as the client was clear about the specifications required and that the cleanroom needed to comply with ISO 14644 Class 8 standards.

They also knew how much external area was needed for the testing and pumping equipment at the end of the container, and clearly communicated the mechanical services that were required.

The results

We were able to successfully design and build an ISO 14644 Class 8 cleanroom facility contained within a 20-foot shipping container with provision for the installation of external pumping and testing equipment.

The cleanroom was successfully delivered and installed in the client's South Australian warehouse facility and is currently in effective operation.

Conclusion

Cleanrooms Australia was proud to provide a compliant cleanroom that provides South Australia Defence with the right conditions to effectively maintain the hydraulic trolley system and appropriately service some of the Australian Defence Force's most sophisticated ships.