

## Helium Leak Testing Bench

TQC designed and manufactured a helium leak test bench for the automatic testing of a high value welded copper assembly. The bench included a Mass Spectrometer for leak detection and a sniffer probe for leak location.



TQC have a standard range of helium leak testing solutions that use common elements and bespoke tooling to offer application specific testing.

Typically, components are loaded into a fixture for testing with the system automatically evacuating the part and then filling with a measured dose/pressure of helium test gas. The part evacuation cycle acts as an initial leak test to ensure helium gas is not wasted by testing a gross leaking part. Once helium is present in the part, the mass spectrometer carries out the test. Typical test accuracy for a bench like this is  $1 \times 10^{-8}$  mbar.l / sec. And above. Following any testing a sniffer probe connected to the mass spectrometer can be used to locate the leaks that are larger than  $10^{-5}$  mbar.l/sec

The main features of the system are -

- Mobile bench on lockable castors
- Test chamber with manually clampable lid
- Storage position for Helium gas bottle
- Test system cabinet
- Electrical cabinet with industrial PC.
- Operator interface – screen, keyboard and pushbutton box.
- Box with master test piece and leak location probe
- Main vacuum pump
- Helium leak detector

Special elements of this application were that the test piece had to be subjected to ultra high vacuum of  $1 \times 10^{-4}$  mbar for 25 minutes prior to any testing.

