



# Pneumatic Component Pressure Test Rig

## Description

Design and manufacture of a high pressure burst rig for testing of pneumatic components. The test rig is based around a 200 bar hydraulic pack, which uses a SS hydraulic amplifier to produce a maximum outlet pressure of 500 bar on the water pressure feed side.

The high pressure water is then fed into the SS containment area, where the pressure tests, to burst, are carried out. The area is illuminated and incorporates a viewing window. The rig is controlled using a high speed PID controller and LabVIEW via an industrial PC, which also undertakes data acquisition via NI DAQ cards.

Manual or automatic modes of operation are available, either increasing the pressure in preset stages or setting a rate of pressure increase on the PC until burst. Pressure profiles are recorded to within 0.5 bar and plotted as required.

## Disciplines Used

- Conceptual, mechanical, electrical, pneumatic & hydraulic design
- PC LabVIEW DAQ & control
- Project management
- Manufacture, assembly & test



*Pressure Test Rig*



*Hydraulic System*



*LabVIEW Control Screen*

## Specification Summary

- PC control via high speed PID controller
- PC data acquisition via NI LabVIEW
- Auto shut down on burst detection
- Pressure ramp to failure tests, programmable multi ramp tests
- Burst pressure accuracy to 0.5 bar
- Test data & test profile archive and retrieval
- Aluminium extrusion framework
- 500 bar max water pressure feed via hydraulic amplifier