

Air Conditioning Compressor Air Check Rig

Mecelec Design has designed and built a machine for air testing air conditioning pumps.

The rig was capable at testing the following functions.

Internal and external compressor leakage.

Internal flow across internal electronic valves and check valves.

Leak decay test.

The rig was manually operated by operating valves on an engraved back panel. Test data was recorded into a database which could be accessed remotely.



Technical Data

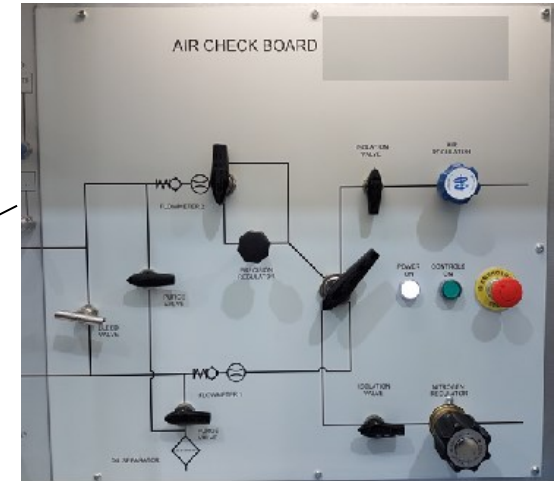
UUT	Automotive Air Conditioning Compressor
Air Supply Pressure	6 Bar
Nitrogen Supply Pressure	300 Bar
Air Flow Rate	30 lpm
Nitrogen Flow Rate	150 lpm
Electrical Power Supply	Single Phase 240VAC @ 13A
Control System	Siemens PLC
Operator Interface	Siemens HMI



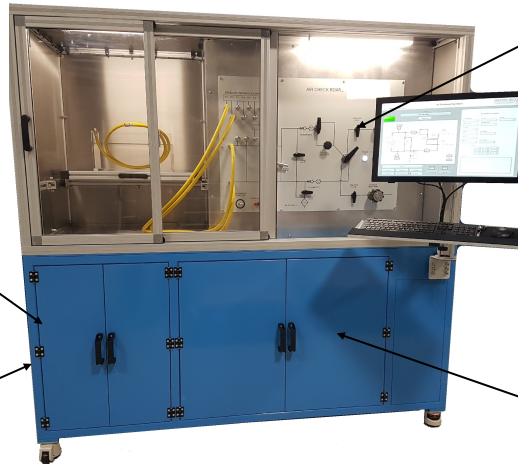
The rig has 7 pressure transducers and 1 vacuum transducer. They all connect to a National Instruments analogue input card.

The transducers are mounted next to each other in the rig with small bore hoses connecting them to different parts of the UUT.

The rig is manually controlled by operating valves on the back panel. The back panel is engraved with the process diagram so the operator can easily see what they are adjusting.



The rig is fitted with two Bronkhorst thermal mass flow meters. One measures the high flow nitrogen and the other measures the lower flow air.



The air circuit was designed and made in-house at Mecelec. It is made from Swagelok pipe and fittings and the pipe was bent where possible to keep the pressure drops as low as possible.

