

Welcome to the Gas Turbine Research Centre

This newly located Cardiff University facility at ECM2, Port Talbot, consists of two major combustion rigs each designed for detailed investigation of combustion and emissions in gas turbines. The rigs are designed for the study of different facets of the combustion process and are operated at different pressures. The rigs are:

The Sector Combustor Rig (SCR):

Used primarily for internal gas sampling within combustor sectors at variable operating conditions. Gas samples are analysed for combustion and emissions species.

Nominal operating conditions:

Air flow rate: < 5 kg/s
Pressure: < 10 bar
Temperature: < 900 K

The High Pressure Combustor Rig (HPCR):

This facility is used with a variety of measurement rigs and capabilities predominately non-intrusive.

Air flow rate: < 5 kg/s
Pressure: < 16 bar
Temperature: < 900 K

The rigs can be fired with variable quality gaseous and liquid fuels and are supplied by a range of heavy-duty industrial components and control systems, including a compressor, large-scale heat exchanger, high-specification pipe-work with a dedicated control room.



April 2007: Preparations for commissioning programme – compressors



April 2007: Completed Facility Reconstruction at ECM2 – Port Talbot

GTRC - History

2003 QinetiQ approached Cardiff University (CU) for Expression of Interest concerning donation of their national gas turbine combustion research facility.

Early 2004 CU became preferred choice for 'expertise in combustion and optical measurement techniques'.

June 2004 CU submitted Objective 1 ERDF bid to facilitate relocation to WAG owned ECM2 site in Port Talbot.

Nov 2004 £350,000 KEF funding secured.

Dec 2004 Combustion facility at Farnborough de-commissioned and equipment moved to Port Talbot by The **AIM** Group of Companies.

Feb 2006 £3,850,000 Objective 1 ERDF grant secured.

July 2006 Cardiff accept QinetiQ final re-design and 'fixed price' sub-contract. Build and installation started.

August 2006 QinetiQ appoint The **AIM** Group to undertake the design and build project

April 2007 Installation at Port Talbot Completed.

May 2007 Facility commissioned.

July 2007 CU take over ownership – Research Programme Commenced.

Oct 2007 Official opening of GTRC by First Minister.



Sector Combustor Rig – SCR



High Pressure Combustor Rig – HPCR



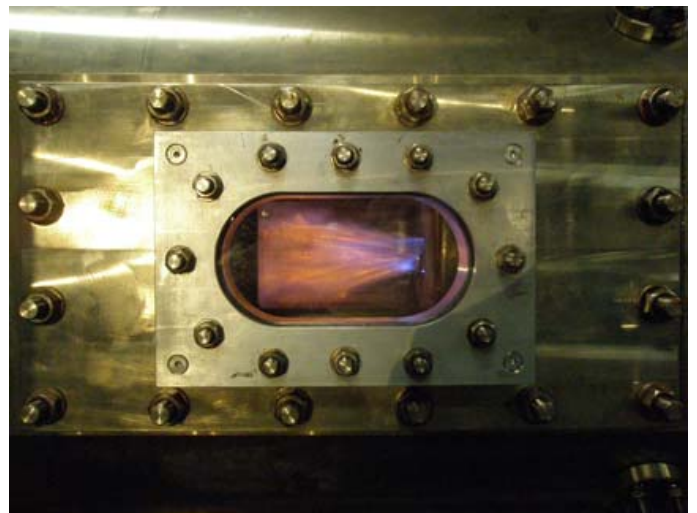
Control Room (Desk designed and built by AIM)



Control Panels with CCTV view of Combustor Room



Commissioning the new optical combustion measurement section



Experimental flame

Acknowledgement

Cardiff University and the Gas Turbine Research Centre would like to take this opportunity to thank their colleagues at WEFO, QinetiQ, ECM² and The **AIM** Group for their co-operation in making this project a success.

