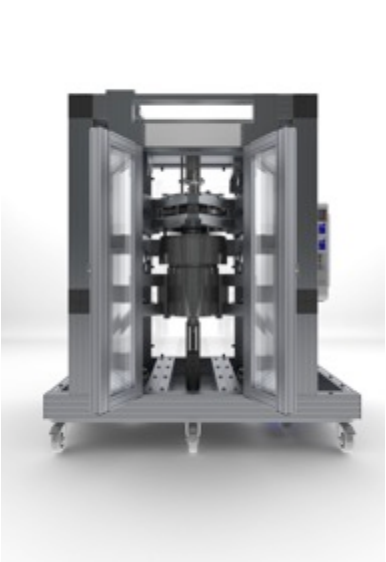
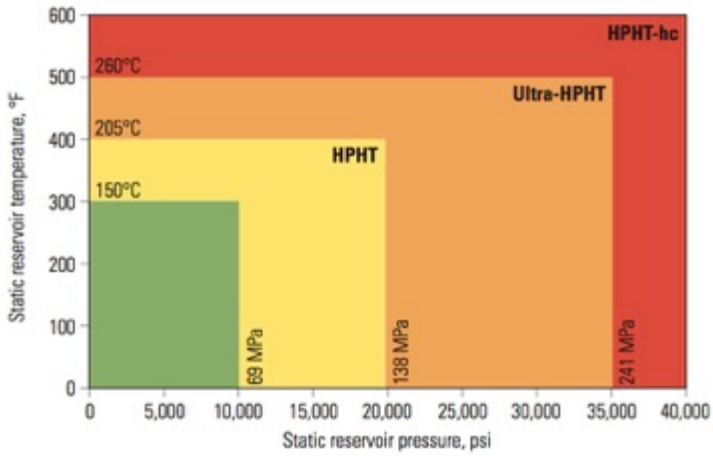
# ***NEW*** HP/HT Triaxial Rock Deformation Apparatus

Funded by the Oil & Gas Innovation Centre (OGIC) this exciting new addition to our existing rock mechanics and petrophysical equipment will be housed in a newly refurbished laboratory in the Meston Building on the Old Aberdeen campus (King's College) of the University. Delivery is scheduled for Autumn 2015, with acceptance testing to the end of the year. We plan to be open for business by **January 2016**.






^ HPHT classification system. The classification boundaries represent stability limits of common well-service-tool components—elastomeric seals and electronic devices.

**Figure 1.** The new apparatus will replicate HP/HT conditions for cylindrical core plug samples of rock (or cement), and enable the measurement of rock properties under axial stress.

This device will enable us to measure **permeability**, **acoustic velocities** (P- and S-waves), **strength** (shear and tensile), **acoustic emissions** (AE or microseismicity) and **elastic moduli** in axially stressed and radially confined samples of **rock or cement**. All measurements can be made under **fluid saturated conditions**, and they can also be made at much lower pressures, stresses and temperatures too. Technical specification:

- **Confining pressures up to 40kpsi** (250 MPa)
- **Temperatures up to 400° F** (200° C)
- Core plug sample size **25 mm (diameter) x 65 mm (length)**
- **Axial stress to 1500 MPa**
- **Pore fluid pressures up to 200 MPa**
- **Constant strain rate or constant load rate**

Potential applications to the challenges faced in the UKCS (and beyond) include:

- Rock and cement petrophysical characterisation at HP/HT conditions
- Wellbore stability at elevated P and T using rock and/or cement samples
- Reservoir quality changes over time in stressed rocks at HP/HT conditions
- Geomechanical stability of reservoir and cap rocks at HP/HT conditions

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