The High Pressure Flow Option comprises:

- SPL pressure regulator assembly, rated to 6,000psi
- High pressure cylinder bank (35 litres) with support bracket
- High pressure gas regeneration compressor, maximum discharge pressure 6,000psi, inlet pressure range 800psi to 6,000psi
- ¼” Swagelok Stainless Steel connecting ball valve, with 2-way shut-off, straight flow pattern
- High Pressure relief valve (rated to 5,000psi)
- Particulate filter unit with 0.5 micron filter
- Custom made modified gas delivery tube holder
- 1 x 150ml knockout cylinder with cooling coil
- Mass flow meter rated to 5,800psi
- Remote electronics unit for mass flow controller including control software, power supply unit, cabling and casing
- 500 watt Thermoelectric recirculating chiller & associated tubing/connectors
- Associated tubing and connectors

The HPFO option (with additional instrumentation – eg gas analysis) allows users to experiment at all conditions that can exist underground where ‘in situ combustion’ operations of enhanced oil recovery is carried out. The thermal data allows information on potential for in situ combustion recovery and give data to implement in kinetic and mathematical modelling.

Figure 1 is an overview of the internal system.

The HPFO allows users to use a static gas atmosphere or a flow gas (air) atmosphere over a sample at pressures up to 6,000psi.

Together with the ARC the HFFO may be used with a GC to analyse flue gases.

The HPFO has an integrated ‘regenerative’ 4 stage compressor designed for pressurising the 35 litre storage cylinder.

An electronic Mass Flow Controller is used to control and measure flow rate, with protection provided buy 0.5µm filters.

A cold trap is used to collect condensibles. It is maintained at sub ambient by a refrigerating circulating bath.

Calorimeter pressure line set-up (Fig. 2). Due to the higher pressure involved a standard feed through tube is not used. A system with a 1/4” union is employed.

The mass flow controller is controlled as an integrated part of the esARC control software. Flow rate can be monitored during the test (Fig. 3).

NOTE: The OSU must be purchased with this option