

# 地质动力学-先进设备

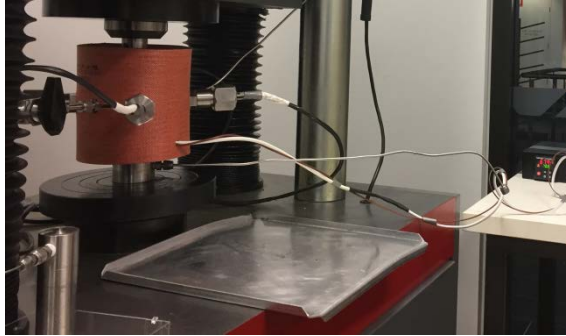
## WHAT WE DO 我们做什么

Advanced rock mechanical tests are conducted using custom-built equipment. It especially includes the design and setup of robust geomechanical apparatuses for HP-HT experiments on rocks.  
在定制设备上实现一系列高等岩石力学试验, 其设计特别包含满足高温高压实验条件的设置。

## Modified triaxial cell 改进型三轴力学仪

Simple yet fully instrumented triaxial cell with minimum sample preparation and set-up time is a capability example.

该款改进型三轴室操作简单, 监测功能完备, 具备最低的样品制备要求和最少的安装时间需求, 性能表现卓越。

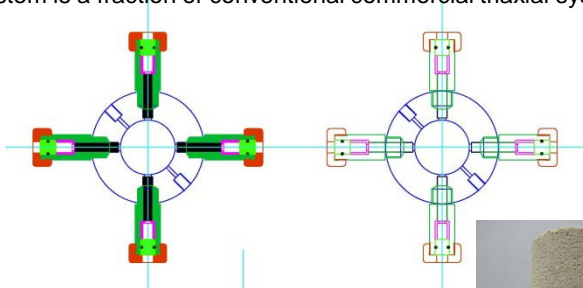


## Key Features 关键特性

The cell was designed for triaxial testing (drained-undrained) under controlled temperature. The prototype was setup and the confining pressure of 100 MPa and temperature of 150 °C has been tested e.g. higher pressure and temperature can be readily achieved. The NI data acquisition system was employed and an initial logging code was developed in LabView. Several tests were also conducted to evaluate the robustness of the system.

此款设备专为温控下的三轴应力试验(排水-不排水)而设计。设备原型上已在围压100兆帕和温度150摄氏度的实验环境下通过测试, 可轻松满足高温高压的试验条件。采用NI(美国国家仪器公司)数据采集系统和基于LabView开发的初始日志代码, 并已通过一系列稳健性评估测试。

- The sleeve is left in place to test multiple samples with minimal sample preparation. 在对不同的样品进行测试时, 套筒始终置于舱室内, 由此实现最低的样品制备要求。
- The system temperature is controlled through newly designed flexible silicone heater. 通过最新设计的柔性硅加热层控制系统温度。
- Sample permeability under triaxial load at controlled temperature can be measured. 可测定温控三轴负载下的样品渗透率。
- Corrosive fluid can be injected into the sample if required. 如有需要, 可将腐蚀性流体注入样品中。
- The cell was designed with active and passive acoustic sensors for acoustic velocity measurements. 集成了主动式和被动式声波传感器, 可用于声速测量。
- The cost of the system is a fraction of conventional commercial triaxial systems. 设备造价远低于传统商用三轴系统。



## Expertise

A highly skilled geomechanics team is involved in the current work. The work focuses on HP-HT geomechanical analysis both experimentally and numerically. Fully coupled multiphysics framework has been coded to analysed the experimental data.

