TOP INDUSTRIE
High Pressure Technology

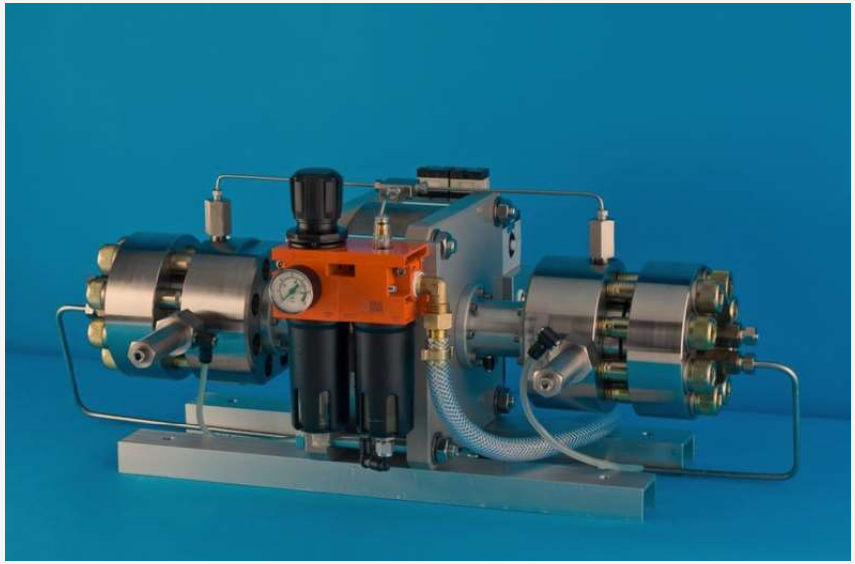
Triaxial Cell Rock Mechanics

Triaxial 2653 manufactured in 2014

High Pressure Equipment

10 bar (150psi) to 10000 bar (150000 psi)
-80 °C to 800°C.

- Autoclaves
- Catalysis reactors & pilot plants
- Hydrates studies reactors
- Phase equilibria apparatus
- Pumps (syringe pump, pneumatic pump, gas compressor etc)
- Supercritical fluids
- Corrosion
- Hyperbaric technology
- Geomechanics Triaxial cells (permeability etc)



High Pressure Equipment

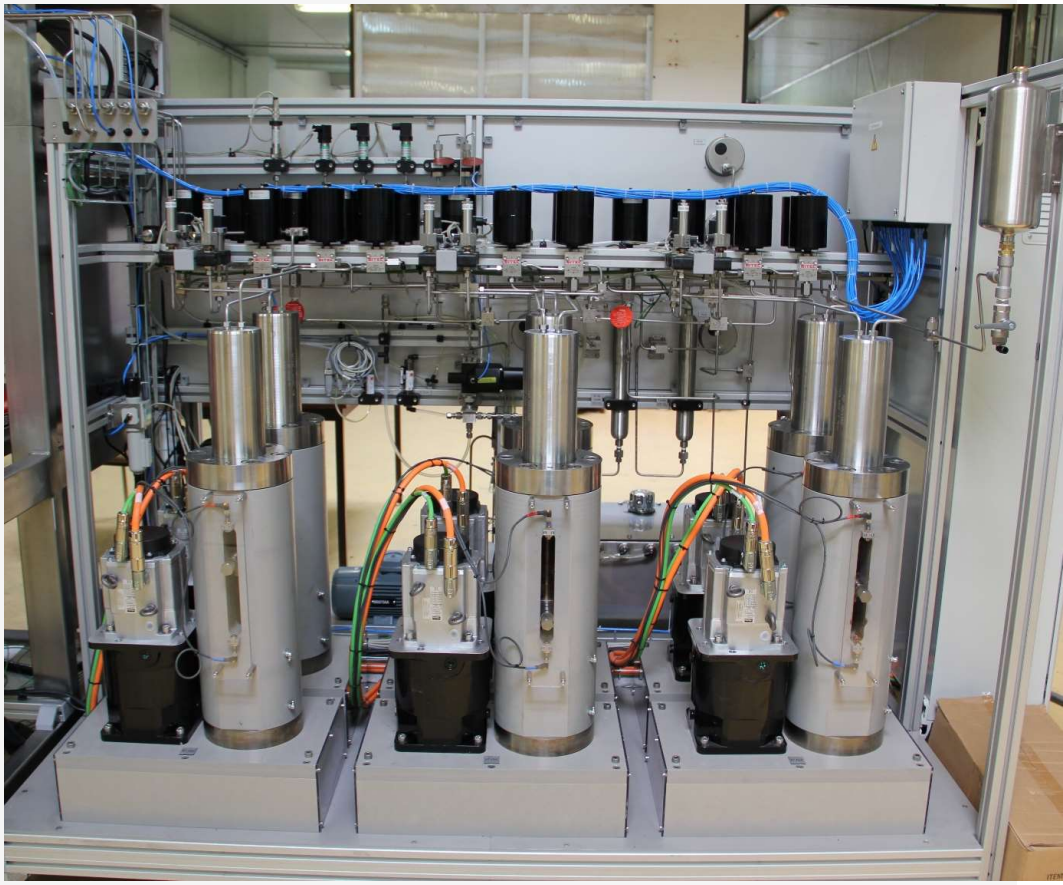
10 bar (150psi) to 10000 bar (150000 psi)
-80 °C to 800°C.

Parallel reactors

Phase equilibrium apparatus

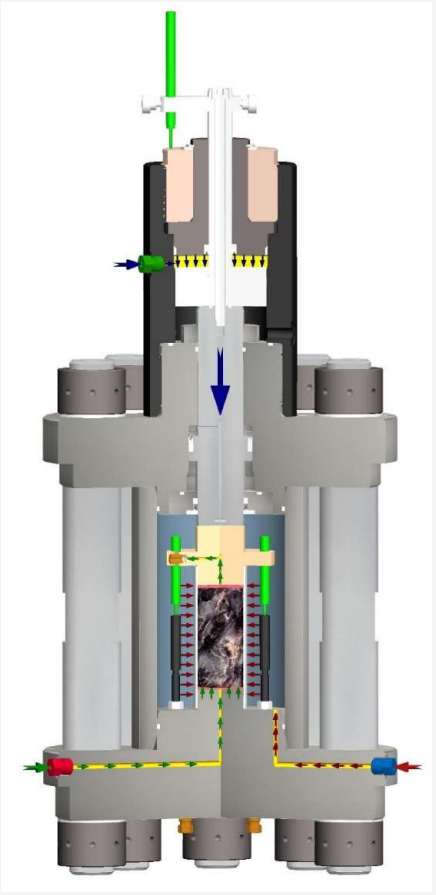
Isostatic press

Overview



Main Characteristics

- Sample diameter : 1 inch to 100 mm
- Confining pressure : up to 2000 bar
- Deviatoric force : up to 2 000 kN
- Pore pressure : up to 2 000 bar
- Liquid or gas draining (CO2, brine etc…)
- Temperature : -20°C up to 200°C
- Autocompensated



Top Industrie Triaxial Cell for Rock Mechanics

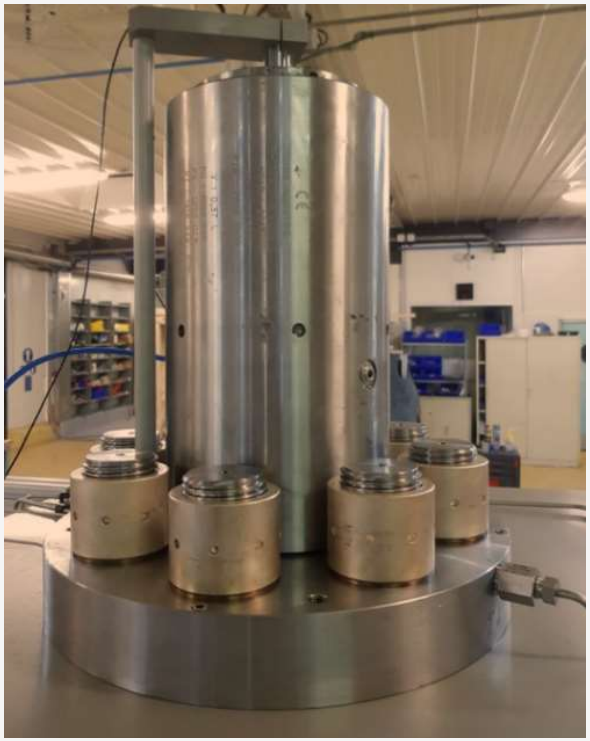
33 projects delivered since 2006
18 projects deliverd since 2015

Main customers: EPFL, Sonatrach, BRGM, ENS Paris
China University of Petroleum

Samples from 25,4 up to 100 mm

Triaxial Cell – Rock Mechanics

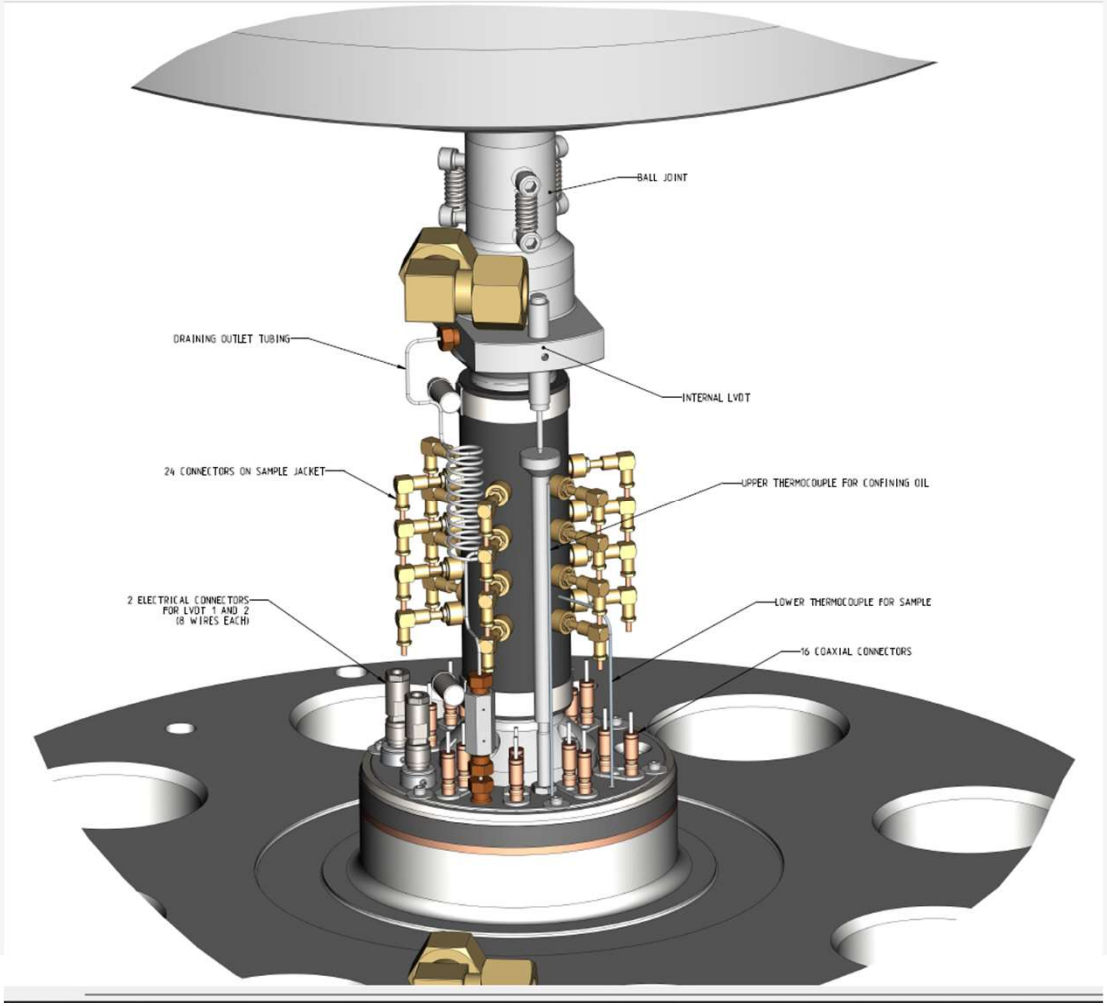
1000 bar@200 deg C
or
other pressure/temperature

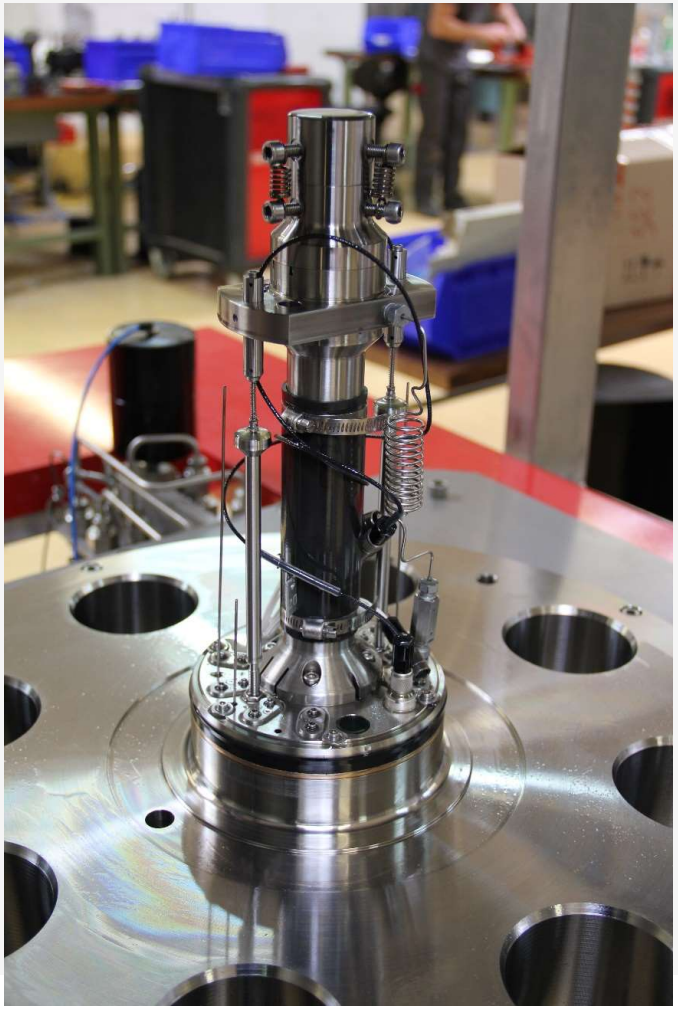


Key Features

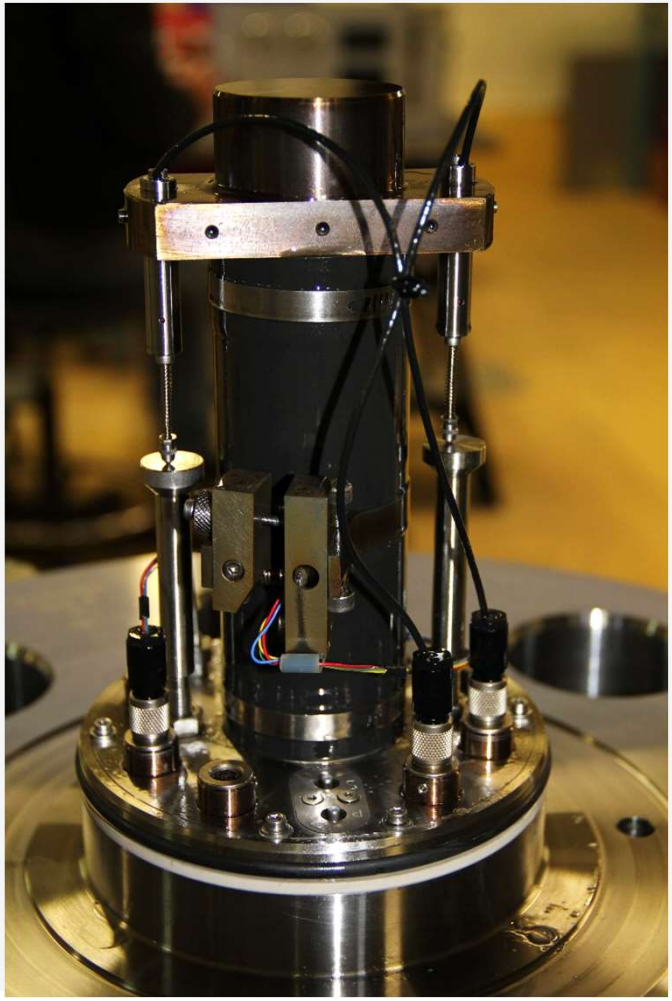
- Latest design - Complete small footprint and compact machine (there is no need to have a vertical press)
- Four syringe pumps for three axis ‘pressure’ : axial pressure - confining pressure - draining pressure – back pressure
- Flexible machine: the four syringe pumps are independent but can be connected to the deformation sensors (either the 2 LVDT to measure the vertical deformation or the collar to measure the lateral deformation). thus it is possible to make tests where, for instance, you create variations in confining pressure , and adjust the axial pressure to maintain the diameter constant.
- we can have different sample sizes for the same machine. Each size would have it is own tools
- it is possible to include P and S ultrasonic measurement. This can be done either from the beginning or we can create the provision to include that later on.
- Easy operation. When the lower lid is brought down , then the user has an easy access to the sample. You don’t have these columns which you find on a press.
- the software includes all features and control such as the four syringe pumps. The software is also able to analyze the post peak situation
- we have around 33 references
- we are flexible regarding the parameters (confining pressure / axial force / sample size / temperature range) and the equipment is customized for the customer

Sample assembly

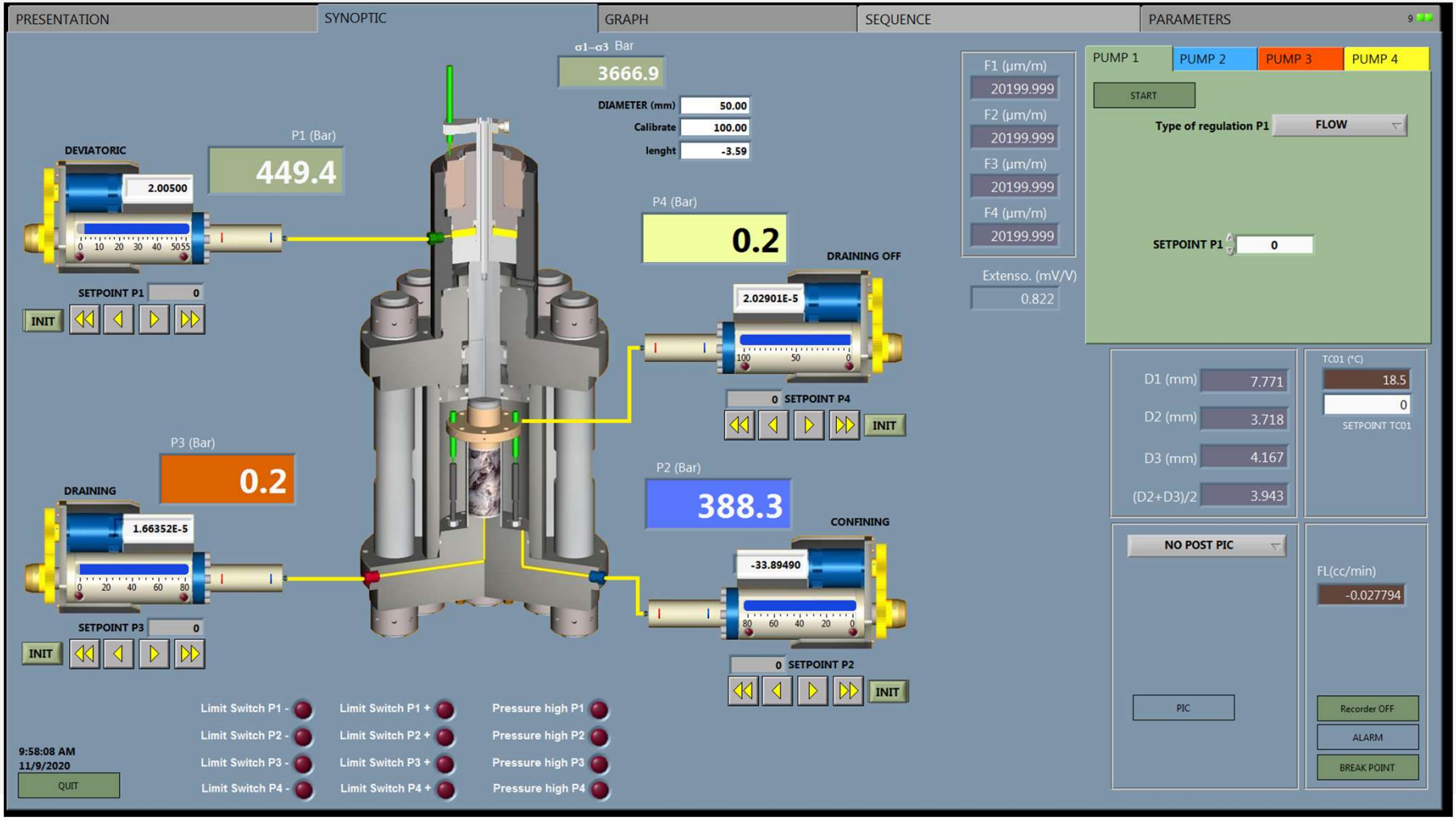




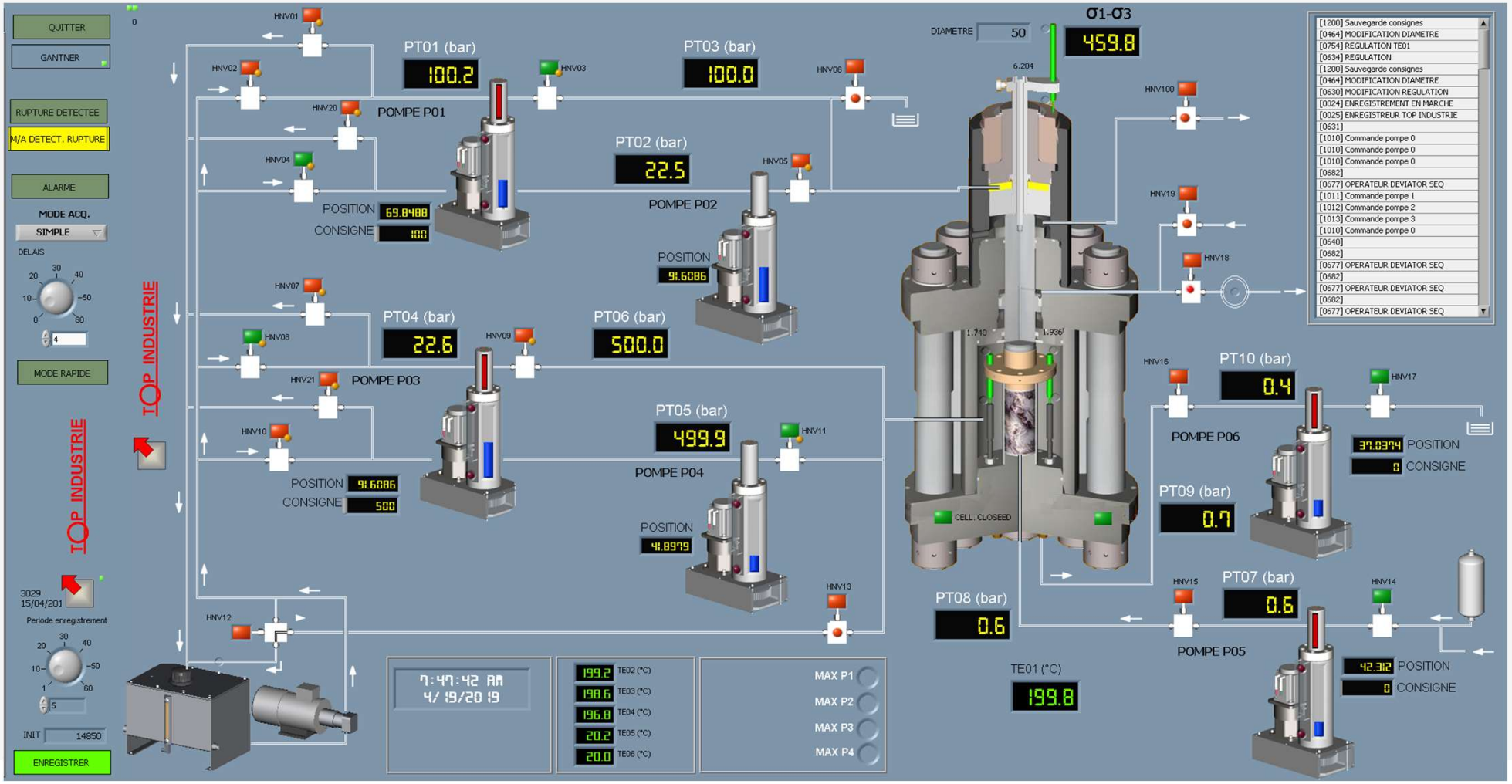
Sample assembly with 5% and 30% extension meter



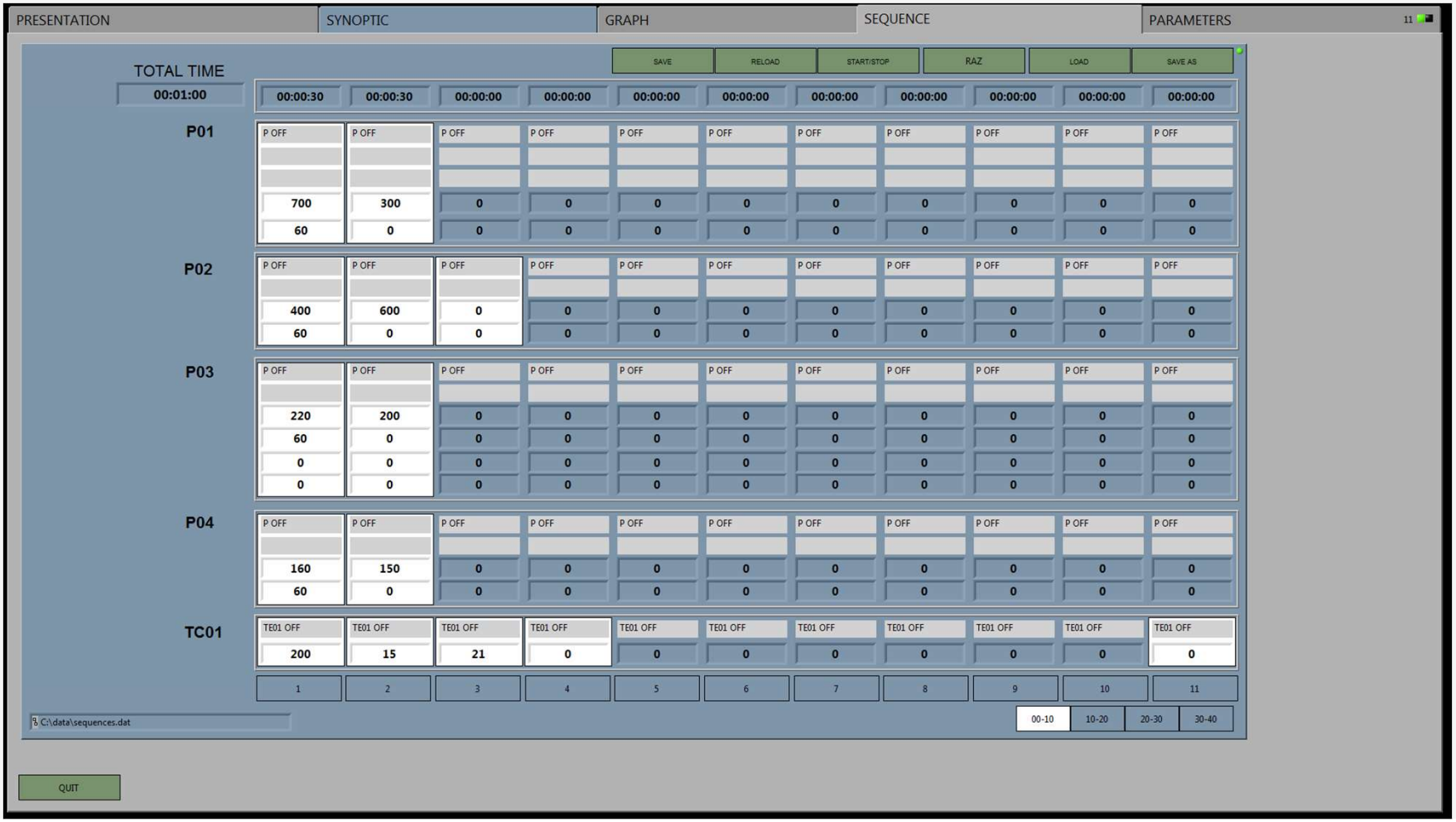
Software (SCADA)



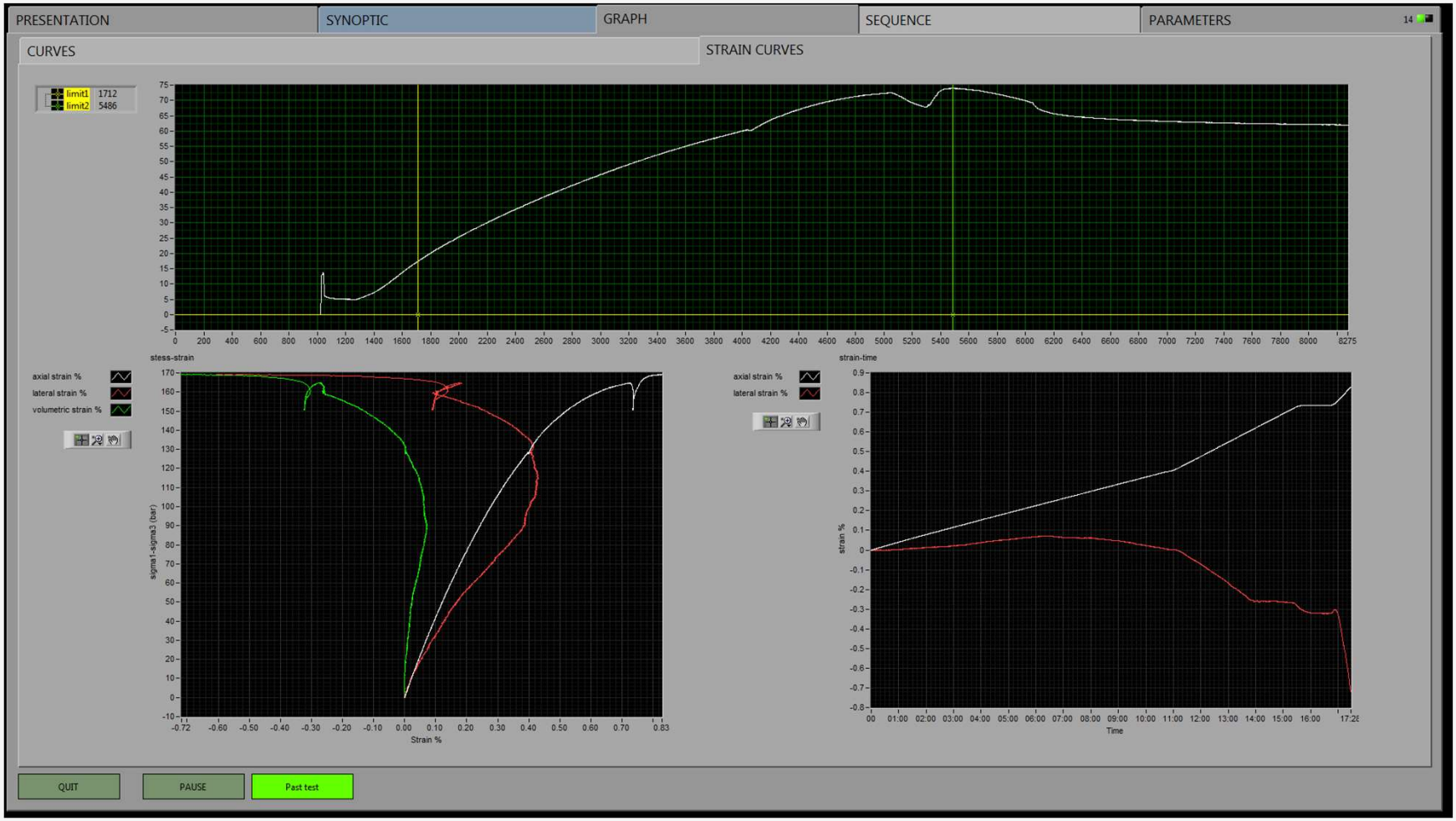
Full automatic triaxial



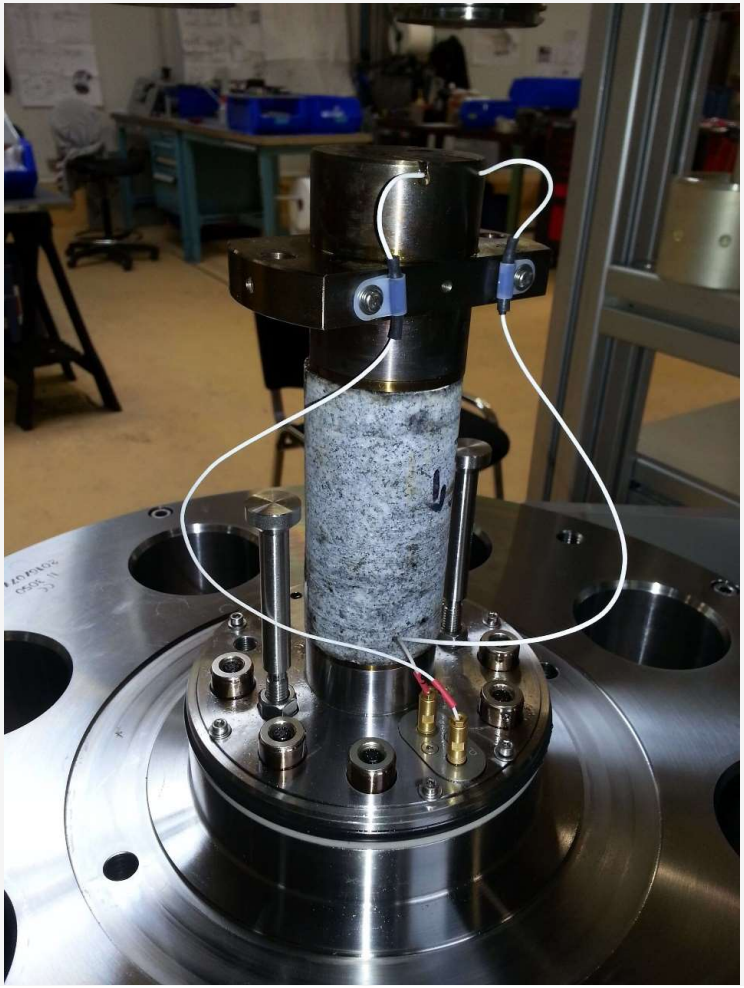
Programmable test

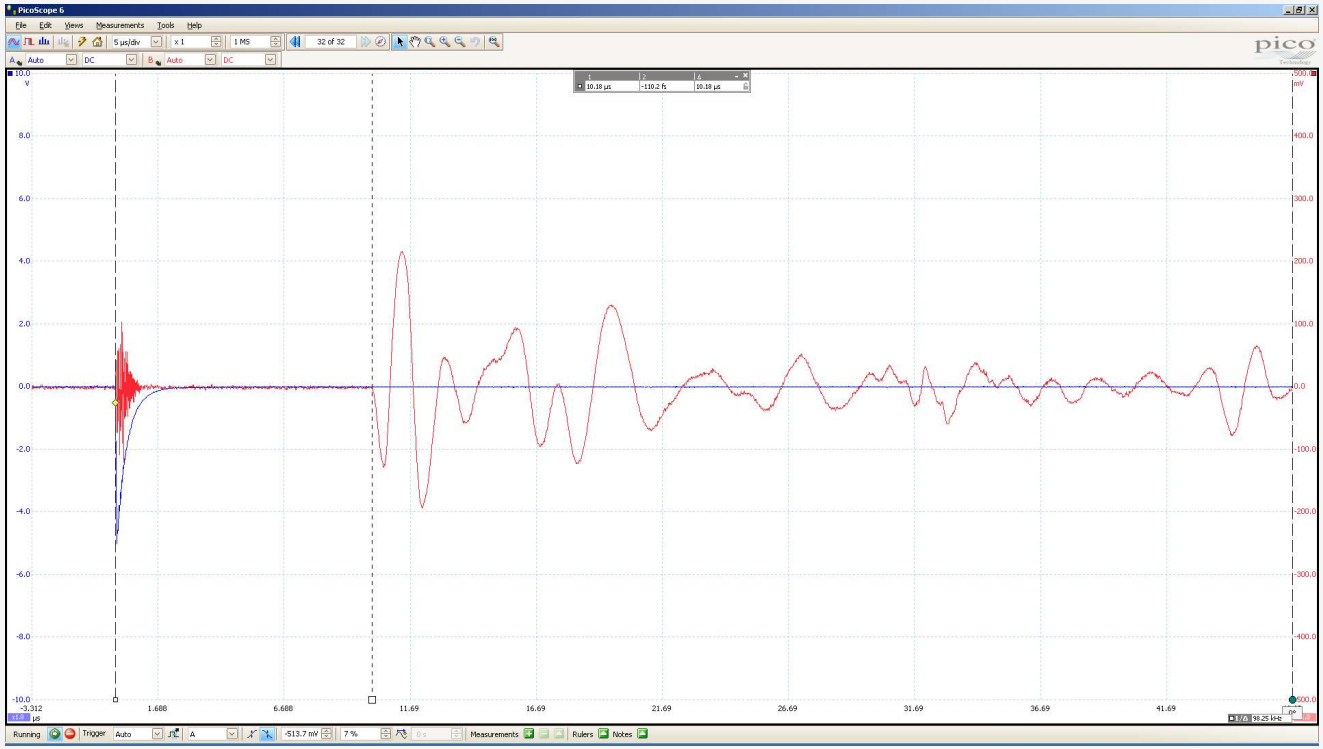


Real time strain graph



Integrated Ultra Sound Velocity measurement (optional)





Main possible studies

- Compression
- Hydrostatique (drained or not)
- Triaxiale
- Permeability
  - Steady stade
  - Pulse decay
  - Relative
- Others :
  - Compressibility measurment
  - Hollow cylinder
  - All poro-elastic parameters