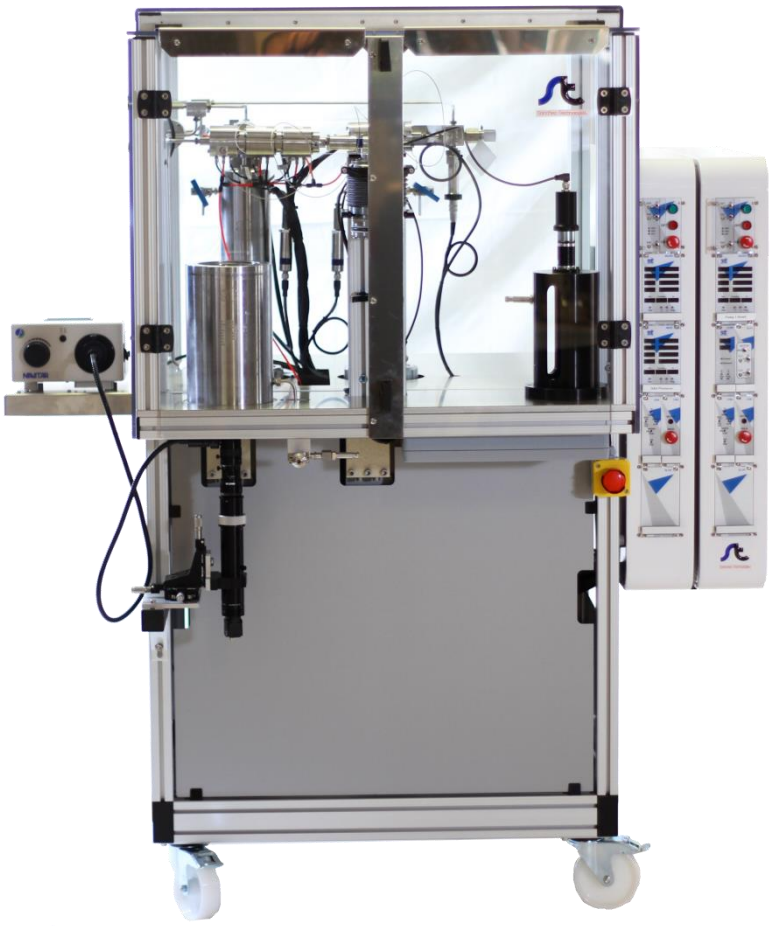
Gas Loading System – GLS1500 by Sanchez Technologies

Thermodynamics & Core Analysis Laboratory Instruments



General Features

The Gas Loading System GLS1500 has been designed to load mechanical and membrane diamond anvil cell (DAC) sample environment with gas. This equipment, engineered in collaboration with many DAC users in Europe, is the first full automated equipment.

Specifications GLS1500	
Working pressure	1500 bar
Working temperature	Ambient
Working fluids	gas Argon/Xenon/Helium/ Nitrogen/Krypton/Neon/Hydrogen/Oxygen

Specifications HP pumps VPDSV400/1500D	
Working pressure	1500 bar
Working temperature	Ambient
Volume	400 ml*2
Pressure accuracy	10^{-1} bar
Volume accuracy	10^{-4} ml

ISO 9001 BUREAU VERITAS Certification

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Measurements

The loading bomb can receive various kinds of DAC. If the first design was made for membrane Diamond-Anvil Cell, it could be now delivered with optional for mechanical DAC loading.
The automation is based on two volumetric 1500 bar pumps with a set of special automatic valves called VAVC. The first pump controls the membrane pressure while the second one is in charge of the sample environment pressure.
The three steps (fill-in/delta P generator/purge) of the gas loading can be done without any restriction.

- Fill-in: ambient to 1500 bar
- Delta P: 1 to 100 bar with 0.01 bar accuracy
- Purge: full automated from the fill-in in pressure to atmospheric pressure keeping the delta P constant

Characteristics

The system is composed of:

- A loading bomb
- A volumetric high pressure double pump
- Pressure sensor up to 2000 bar (accuracy 0.2% of full scale
- Data acquisition and processing software
- Bi-gas loading : one gas to compress the membrane, the other one for the loading cell (option)
- Automatic valves VAVC2000
- HP tubing and relative fittings
- Burst discs and holder
- Loading gas bottle
- CCD camera for gasket closing (option)
- Motorized closing system (option)
- Microvalves (option)
- Safety device for hydrogen loading (option)

Example of synoptic