H-Sorb 2602 CO2/H2/CH4 Adsorption Analyzer

* Testing pressure up to 200Bar (400 Bar option);

* Testing temperature up to 500 C (-196C option);

* 2 seperated testing ports;

* Be applicable for CO2/H2/CH4 etc. adsorption/ desorption isotherms determination.

* Uptake amount determination by using CO2, CH4, H2, N2 etc. gases;

* Applicable for carbon dioxide sequestration, hydrogen storage, cold-bed methane and shale gas.

H-Sorb 2602 CO2/H2/CH4 adsorption analyzer introduction

Gas adsorption analysis is important in many fields of materials, such as energy storage materials, improved catalysts for petrochemical proces sing, advanced pharmaceuticals and food industries. At present, there is tremendous interest in the development of innovative materials for the transition to renewable energy. The science of gas adsorption has become particularly critical in the advancement of materials for storing fuel g ases such as hydrogen or natural gas, as well as for sequestration of greenhouse gases.

The H-Sorb 2602 high pressure gas sorption analyzer adopts the volumetric technique principle which consists of dosing a known amount of ga s adsorptive into measurement tubes where lying samples (such as zeolites, carbon nanotubes, rocks, catalysts, activated carbons, molecular s ieve, hydrides etc.) to be analyzed. When samples reach equilibrium with the adsorbate gas (such as hydrogen, methane, carbon dioxide, nitro gen, argon, krypton etc.), detailed and comprehensive final equilibrium pressures will be recorded automated by software. These data are used to calculate the quantity of gas adsorbed by samples.

This measurement procedure automatically repeated by software under given temperature and pressure intervals until finalized the maximum p reselected pressure. Finally, each of the equilibrium point volume adsorbed, equilibrium pressure, absolute pressure etc. data are plotted to pro duce the isotherm. By using the isotherm data, operators can calculate further more information such as Langmuir fitting isotherm, the adsorptio n rate curve, PCT (pressure-composition-temperature) or PCI (pressure-composition-isotherm) curve etc.

Pressure-Composition Isotherms (PCI) and Pressure-Composition Temperature (PCT) is one of the most informative sorption measurements. T he result is a plot of the equilibrium absorbed gas concentration in the material as a function of pressure and temperature.

Gold APP Instruments high pressure and temperature gas adsorption analyzer H-Sorb 2602 adopts static volumetric principle to determine ads orption and desorption isotherms under high pressure (atmospheric to 200Bar) and high temperature (atmospheric to 500 Celsius) with a stainl ess steel VCR manifolds system, fully automated operation can control system and multi calculation methods, all these guarantee H-Sorb 2602 to produce a highly repeatability and highly precision analysis data.

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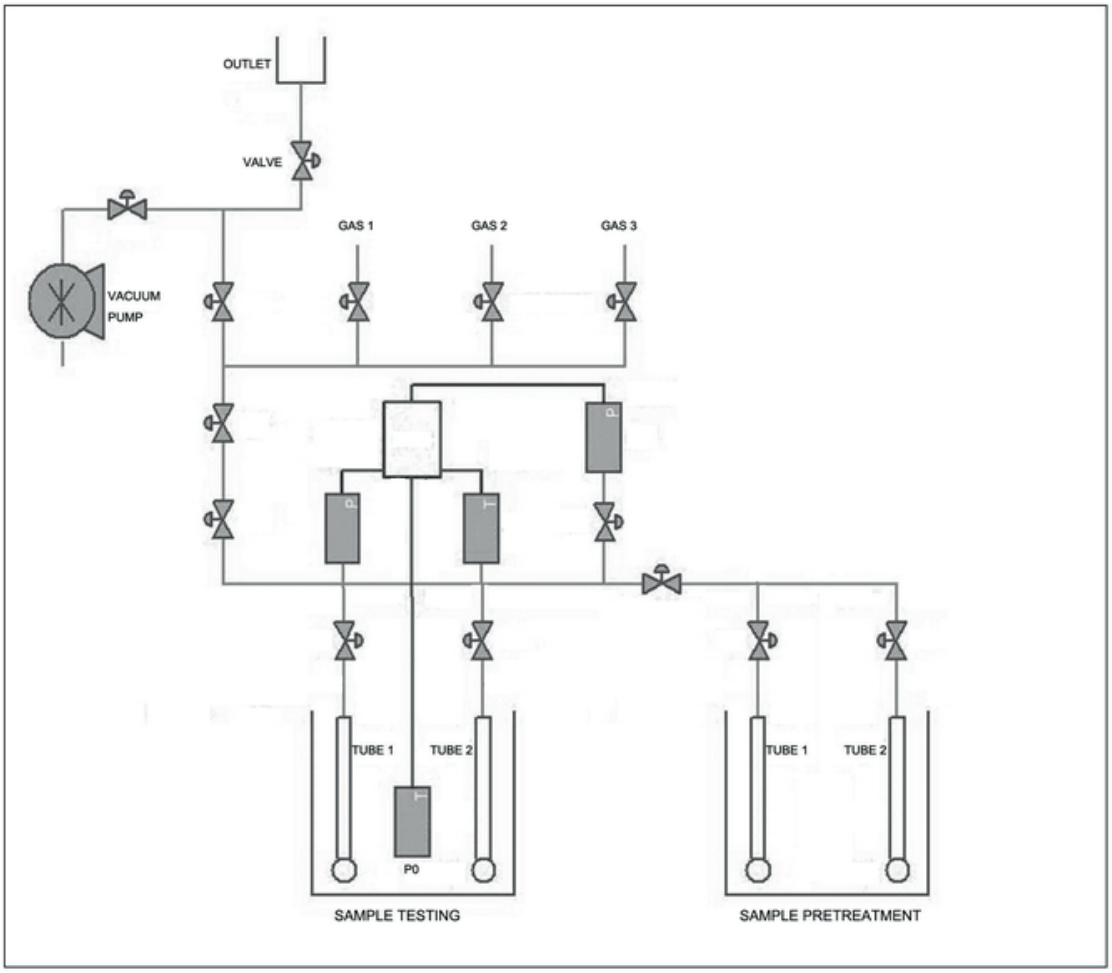

H-Sorb 2602 CO2/H2/CH4 adsorption analyzer specifications

1. Analysis Method: static volumetric high pressure adsorption principle
2. Versatility: adsorption/desorption isotherms measurement (atmospheric to 500 Celsius), Gibbs supercritical adsorption measurement
3. Data Reduction: Langmuir model regression isotherm, PCT(Pressure-Composition-Temperature) or PCI (Pressure-Composition-Isotherm) di agram/curve/isotherm measurement, TPD(temperature program desorption), Langmuir maximum adsorption constant L and adsorption pressur e constant B measurement; Langmuir correction model loading-ratio correlation regression (LCR) isotherm; Ono-Kondo (OK) lattice model isoth erm regression; adsorptive gas density and vapor-liquid equilibrium accuracy calculation under different pressures and temperatures
4. Measuring Ranges: continuous adsorption and desorption measurement from atmospheric to 200Bar pressure (400Bar option)
5. Accuracy: repeatability errors <3%
6. Temperature Range: room temp. to 500 Celsius (-196C is option), accuracy±0.1 Celsius
7. Sample Ports: 2 seperated sample analyzing ports, stainless-steel micro welding sample tubes
8. Transducer Accuracy: imported high precision transducers, accuracy can reach 0.05% of F.S. (full-scale), long-duration usage stability is 0.02 5% of F.S.
9. Ultimate Vacuum: mechanical pump $4x10^{-2}$ Pa ($3x10^{-4}$ Torr), molecular turbo pump system ($1x10^{-6}$ Pa) is optional
10. Adsorbate Gas: high purity CO_2, H_2, CH_4, N_2 or others
11. Data Acquisition: high-precision and high integration data acquisition modules, minimal error, strong anti-interference ability
12. Specifications: Height 22.05 inches (56cm) X Width 20.87 inches (53cm) X Depth 23.62 inches (60cm); 132 pound (60kg); 220V/5A

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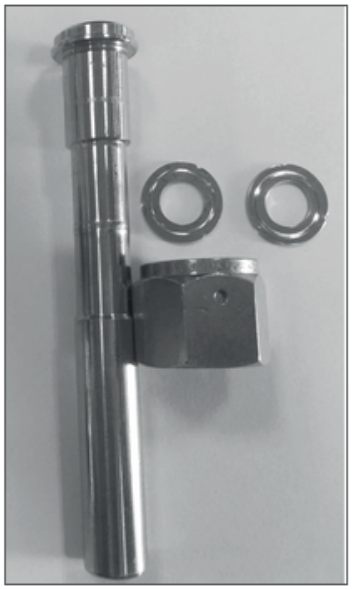
sample tube with valve (for H2)



stainless steel tube

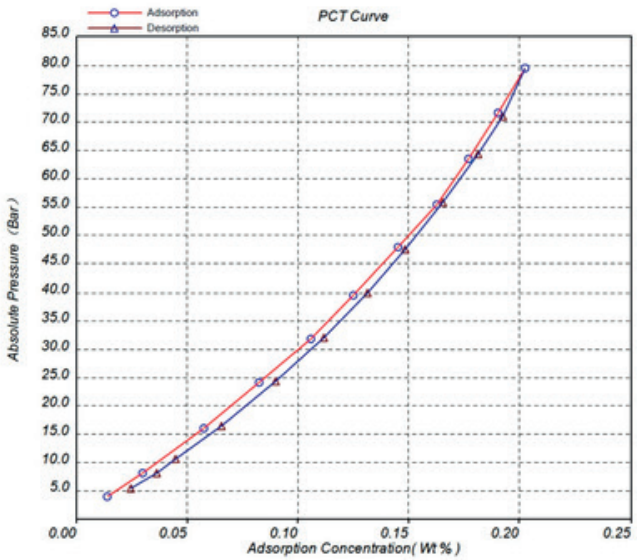
H-Sorb 2602 CO2/H2/CH4 adsorption analyzer technical features:

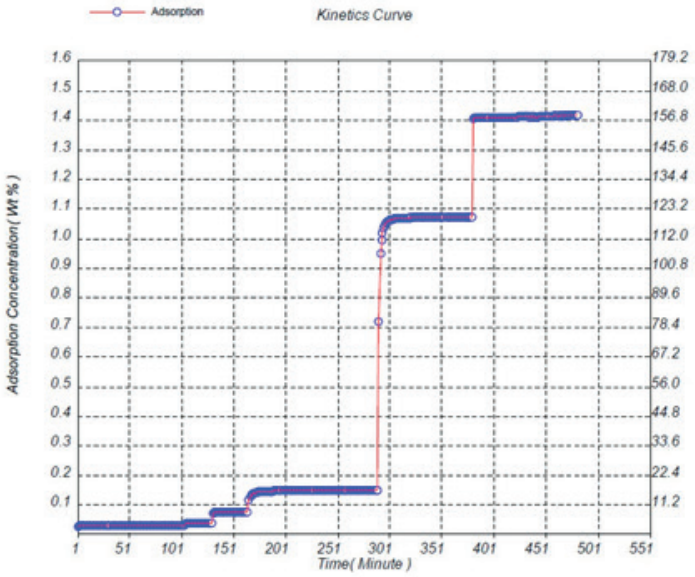
1. Control System: imported VCR interface high pressure pneumatic valve can realize auto on-off within 200Bar, sealing performance is top to 1 x10^{-10} Pa.m^3/s, can be used more than 500 million times; programmable logic controller (PLC) system, high integration and sound anti-interference, improve stability and prolong life
2. Analysis Management: parameters be set by Gold APP Instruments software, fully automated, achieved unattended operation at night; H-Sorb mode is available for accurate control gas charging pressure points, gain ideal data points
3. Manifold System: imported 316L stainless steel thick-walled manifolds, micro welding sealing can reduce dead space largely; metal VCR connection is convenient for installation and uninstallation
4. Safety Measures: H-Sorb asymptotic technology realizes auto gas-charging and degassing, prevents high pressure dangers caused by artificial mis-operation, and also minimizes large differential pressure impact to pressure transducer

H-Sorb 2602 CO2/H2/CH4 adsorption analyzer application fields

Study and research in high temperature and pressure gas adsorption, supercritical gas performance, microporous materials, hydrogen storage materials, carbon dioxide sequestration, coalbed methane, oil exploration, shale gas etc.

Materilas like catalysts, molecular sieves, active carbon, carbon nano-tube, porous carbons, metal organic frameworks (MOFs), fuel cell, hydrocarbon and other materials.





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