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SICHUAN XIMAST CO., ltd Rm. 710, CHUANGYELU 1# GaoxinQu 610021 CHENGDU CHINA 25/10/2012



GAS PERMEAMETER LGPM70



Gas Permeameter LGPM70



Manual pump for confining pressure



Sanchez Technologies - ZA de l'Orme - BP 37 - 95270 VIARMES - FRANCE Tél.:+33(0)1 30 35 40 42 - Fax:+33(0)1 30 35 33 92 - contact@stfrance.fr SAS au capital de 52 000 Euros - 404 287 195 R.C.S. PONTOISE SIRET : 404 287 195 00022 - APE : 285D





Permeameter principle

The LGPM70 integrates two different methods of permeability measurements in order to offer the largest possible range of permeability :

- 1- To measure permeability from 1D to 10⁻² mD, the LRMP uses 2 different electronic gas flowmeters and 2 accurate pressure sensors
- 2- To measure permeability from 10^{-2} mD to 10^{-5} mD, the LRMP uses 2 cylinders with adjustable volumes and an accurate delta P sensor.

Thanks to this particular configuration, the LRMP70 can also measure porosity.

General features:

Confining pressure	o to 10 000 psi
Temperature range	Ambient
Flow pressure	o to 300 psi
Permeability range	From 1D to 10 ⁻⁵ mD
Fluids	Helium, Nitrogen, Air (other fluids in option)
Accuracy	
Pressure	0.05% FS
Flow accuracy	0.5% FS
Drift pressure transducer accuracy	0.25% FS
Core size	Ø1 ½" – length up to 3"
	Ø1" – length up to 3"

Core Holders



The Core holder is delivered with its own holder. It has been specially designed to be a multipurpose system. It's absolutely not necessary to remove it from the Holder to change the size of the core and adapt the new cap.

Features for Core Holder :	1	
Maximum core dimensional	Ø1 ½" per ¾" to 3" length	
Pore pressure range	o to 1000 psi	
2 taps on the core for Fill-in and Purge and pressure system		
1 tap on outlet cap		
2 taps on inlet cap		

NON CONTRACTUAL PICTURES

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Ø1 " per ¾" to 3" length		
o to 1000 psi		
2 taps on the core for Fill-in and Purge and pressure system		

Confining pressure

- Handle pump for confining pressure •
- 2 pressure sensors with adapted fitting
- 6 double manual valves
- Horizontal console
- Adapted Stainless Steel pipe 1/8"

Klinkenberg effect:

The pressure injected is adjusted to perform different flow steps to record slip factor.

Gas circulation

It is composed of :

- 2 sensor P 4500 psi •
- Double pressure reducer 3000 psi/3000 psi with integrated manometers
- Back pressure controller



The pressure controller performs with high accuracy and repeatability, high pressure capability up to 400 bar, stable control even at varying process volumes.

Double manual valves and T connections

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Permeability measurement:

The system is composed of 2 gas flow meters, 2 adjustable cylinders and one delta P sensore

1- Flow measuring system



Made of two Dedicated Gas flow meters with permeability measurement range of 1D to 1mD for the 1st one, and 1mD to 10⁻²mD for the second one. Accuracy: 0.5% of full scale Flow pressure: o to 300 psi

2- Cylinder with measured and adjustable volume



The 100cc volume of each cylinder is adjustable on a total range of 100cc using no-end screw and volume measurement system. The principle resides in adjusting the cylinder volume in function of the pore rock sample volume in order to perfectly fit with needed injected volume.

Features	
Volume	100 CC
Pressure	10 000 psi
Temperature	ambient

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3- ΔP Measurement – P sensor

ΔP Measurement

The differential pressure provided by the transmitter is the difference of the signals delivered by two absolute pressure sensors. This type of transmitter has an outfit to higher unilateral overpressures.



Features	
Line pressure	4300 psi
Unilateral overpressure	6500 psi
Working temperature	-40 to 100°C
Compensated temperature	-10 to 80°C
Error band	≤ 0.05%EM typ. ≤ 0.1%EM maxi
Frequency conversion	200 Hz
Long term typical stable effect	0.1%
Resolution	≤ 0.002%
Breathing	< 0.1 mm ³

P Sensors

Reference pressure sensors are based on the extensimetric measurement principle with strain gauge on stainless steel. The measurement diaphragm with monolithic structure makes the transmitter highly efficient, reliable and safe - extremely important factors in pressure applications.

The entire mechanical structure, with vent holes, is designed to guarantee safety and makes the transducer suitable for measuring both static and dynamic pressure, even under harsh conditions.



Reference pressure sensor	
Range	0-1000 to 0-5000 bar
Accuracy	± 0.1% FSO typical
Protection	IP65/IP67
Internal calibration signal	
Wetted parts	15-5PH stainless steel
Operating temperature	-30+120°C
Measurement diaphragm with monolithic	
stainless steel structure	
Suitable for measuring static and	
dynamic pressure	



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Measurements acquisition and Electronic cabinet



- Electric cabinet with 3 electronic MCAT[®] regulator ٠
- Power supply card 2 AL24
- Security card CSM®
- Supervision software Falcon[®] with dedicated application and macros
- Computer with adapted wire connection •

Spare parts for 2 years

Spare parts
1 x 3 way valves
5 meters nylon tube
1 teflon tape
1 leak snoop
15 fittings
1 set of fuses
5 nitrile membrane Ø 1" per 150 mm length
5 nitrile membrane Ø 1 ½" per 150 mm length
2 set of 10 viton o'ring for Ø 1"
2 set of 10 viton o'ring for Ø 1 1/2"

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