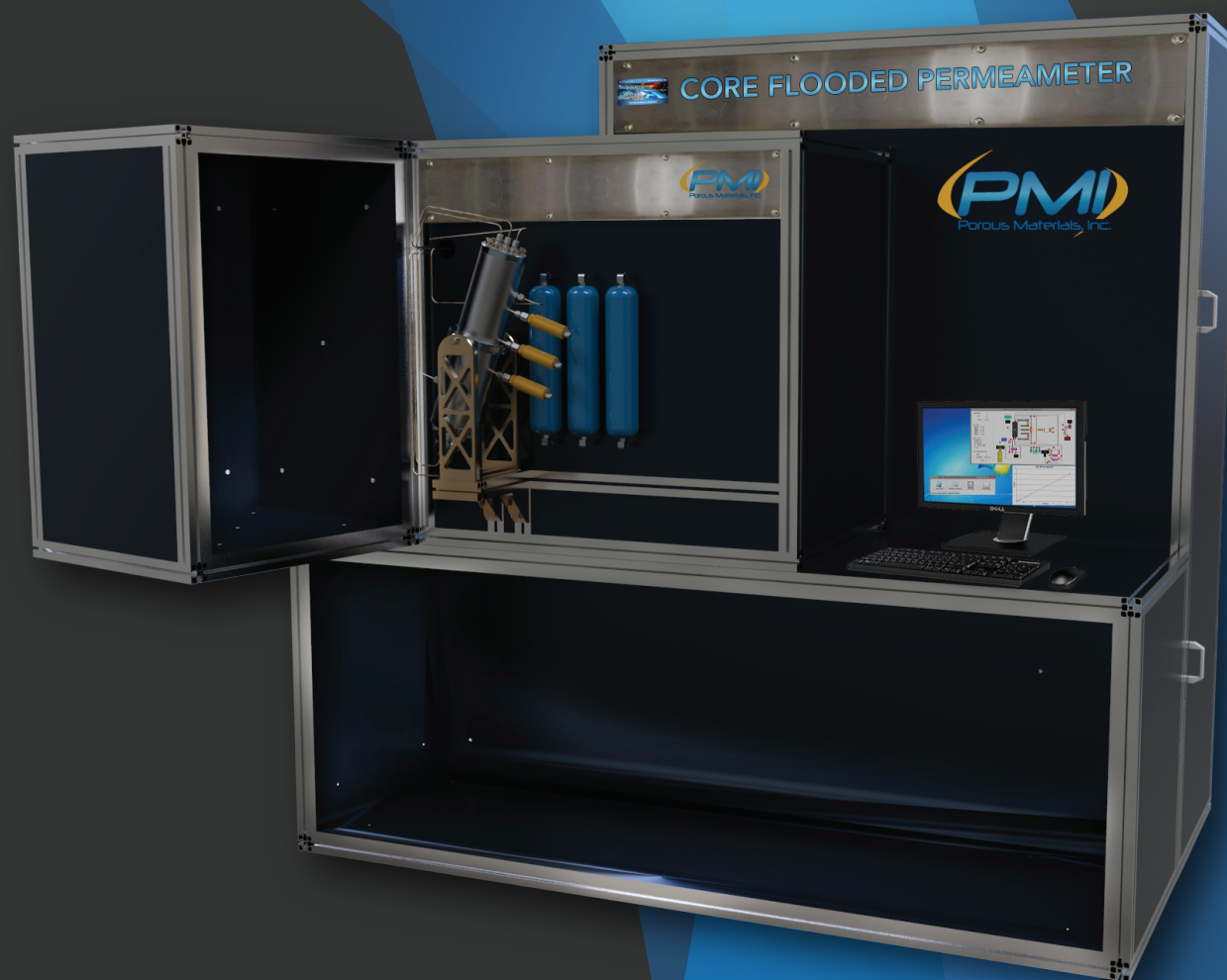


PMI ADVANCED  
**CORE FLOODING PERMEAMETER**

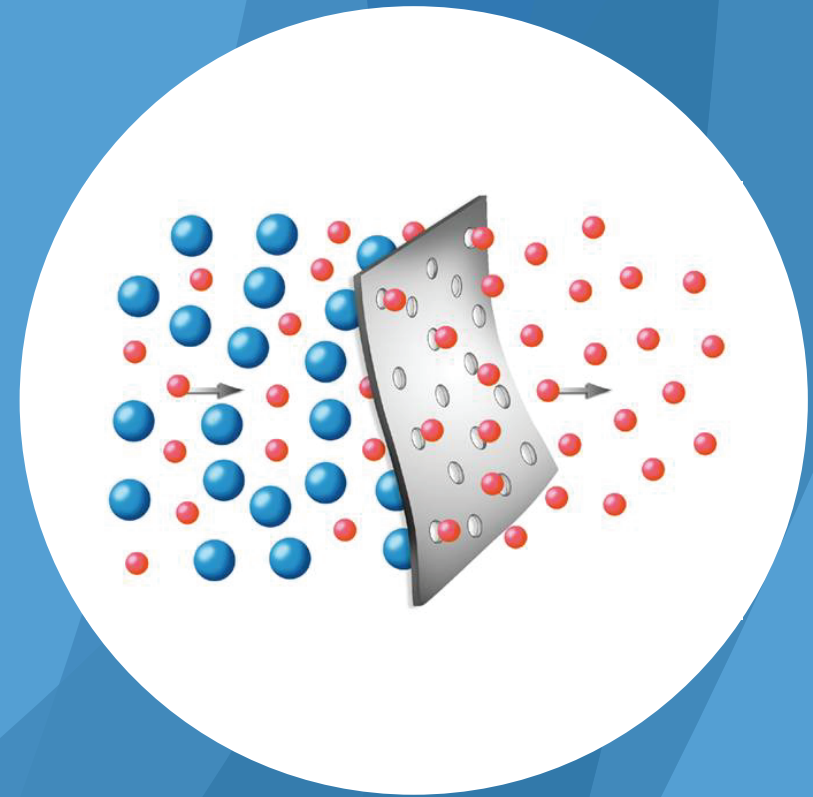
**CFPMS-100A**



Not just products... Solutions !

# CORE FLOODING PERMEAMETER PRINCIPLE

*The principle of a CFS test is based on permeation. For a barrier in a closed system, high pressure is applied to one side. The pressure is recorded over time on the other side as the permeate travels through the barrier.*



# CORE FLOODING PERMEAMETER APPLICATION

*The CFS machine is useful for the oil and mining industry. Rock core samples are able to be placed under pressure and temperature conditions, akin to those found deep underground, during the mining process, and is suitable for testing USS water and gas floods.*



## CORE FLOODING PERMEAMETER

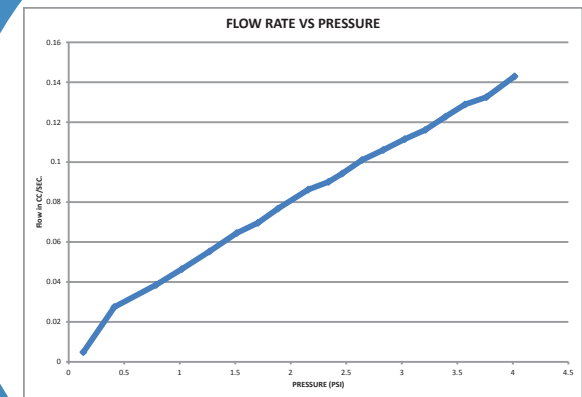
# GENERAL SPECIFICATIONS & KEY FEATURES

- *Advanced fully computer controlled system that allows the operation for both automatic and manual modes where can provide precise monitoring and data acquisition*
- *Automated temperature control and Automated pressure control*
- *Machine made out of corrosion resistant materials*
- *Bypass valves for user protection- All controlled systems and components are fail safe*
- *Automated humidity control for gases*
- *Heating method is provided by oven with digital temperature control. All other valves and other parts such as accumulators are inside. Other parts that do not have to take the heat such as pumps etc. are placed in a cabinet behind the furnace and accessible from behind for service. Simple sample setup and All parts for machine contained within single cabinet*
- *The CFPMS-100A can be used to study formation damage by mud and frac fluids, EOR Processes, General Core absolute and relative permeability testing, wettability etc. The standard configuration allow for liquid/liquid at constant flow rate and liquid /gas at constant pressure rate.*
- *The CFPMS-100A designed is very user friendly both mechanically and in its software interface. This system can be used to study steady or unsteady state relative permeability for liquid/Gas at reservoir conditions.*
- *Forward and Backward injection capability*
- *The standard system is designed to handle fluids and gases at temperature up to 150°C and confining pressure up to 15,000 psi and Pore pressure up to 10,000 psi*
- *Capable of flooding core samples with reservoir fluids at reservoir conditions, which includes brine, oil, polymers etc.*

## CORE FLOODING PERMEAMETER

# UNIQUE FEATURES

- *Machine made out of corrosion resistant materials*
- *Bypass valves for user protection*
- *Automated temperature control*
- *Automated pressure control*
- *Automated humidity control for gases*
- *Fully automated test and data acquisition*
- *Simple sample setup*
- *All parts for machine contained within single cabinet*
- *Downstream wet gas meter for accuracy of gas flow*
- *Fraction collector*
- *Simple reporting software automatically performs calculations from data*
- **Types of Samples:** *Rock Cores (1inch to 1.5inch diameter, 1" to 6" length)*
- **Types of Tests:** *High Pressure Permeability (fluids), High Pressure Permeability (gases)*
- **Reported Values:** *Permeability, Differential pressure over time, Humidity over time, Inlet and Outlet pressure over time, Humidity over time, Temperature over time*



## CORE FLOODING PERMEAMETER

# SPECIFICATIONS

**Working Pressure Range:** up to 10,000PSI

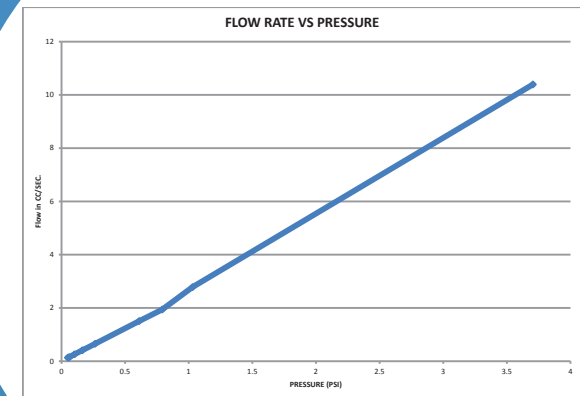
**Humidity:** up to 90% +/-1% of full range

**Volume Capacity:** 100cc

**Machine Voltage:** 220V

**Machine communication:** USB

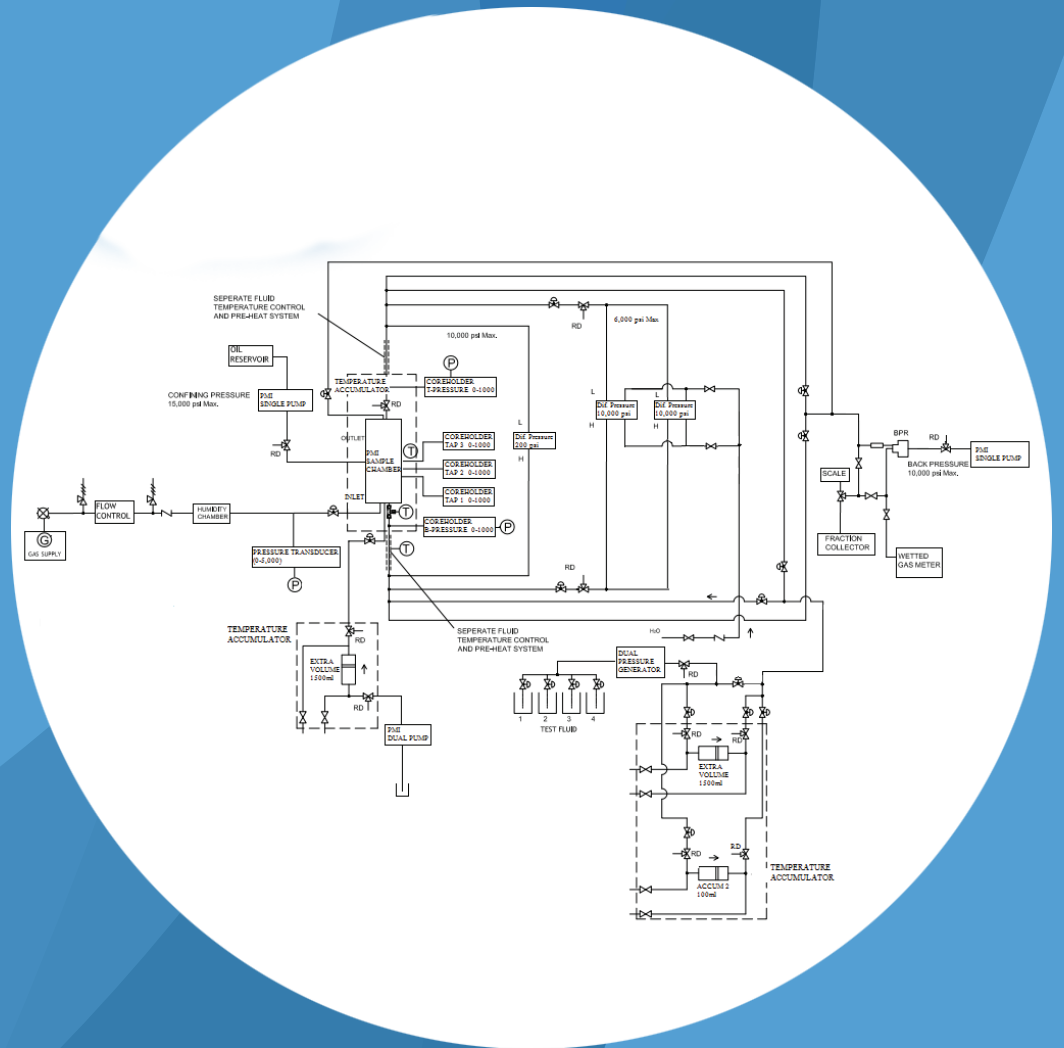
- **Ports:** 4 Inlet/Outlet  
3 Differential Pressure
- **Mass Flow Controller Range:** 1000sccm
- **Back Pressure Regulator Range:** max 10000PSI
- **Working Temperature:** up to 150°C +/-0.1°C
- **Core Holder Orientation:** Default-Horizontal  
90° rotation
- **Pressure Transducer Range:** 10000PSI +/-0.1% of full range (Inlet and Outlet)  
5000PSI +/- 1% of full range (Upstream)
- **Flow Rate for injection pumps:** 0.001 to 100sccm +/-1% of full range
- **Rock Core Dimensions:** Rock Cores (1" to 1.5" diameter, 1" to 6" length)
- **Differential Pressure Gauge Range:** 10, 100, 2000 PSI +/-0.5% of full range



# CORE FLOODING PERMEAMETER PROCEDURE

A rock core is placed in a sample cell. On one side of the rock core, a permeate is pressurized. On the other side of the rock core, the pressure is measured over time. The software will control the initial pressure of the permeate and will control the temperature of the sample cell.

The permeates can be classified as two types: fluid and gas. A system with compressors is in place to pressurize the fluids. A system with humidifiers is in place to monitor and regulate the humidity of the gases.

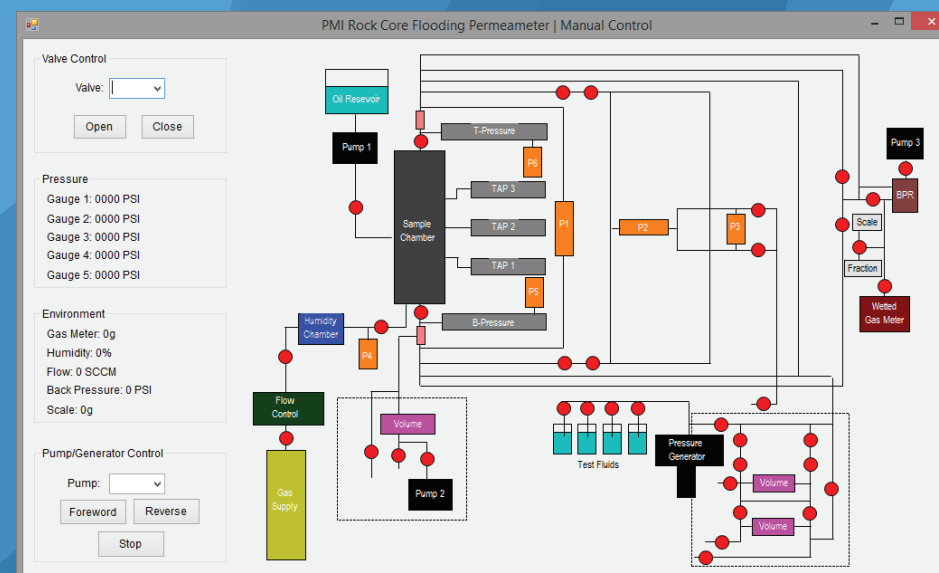
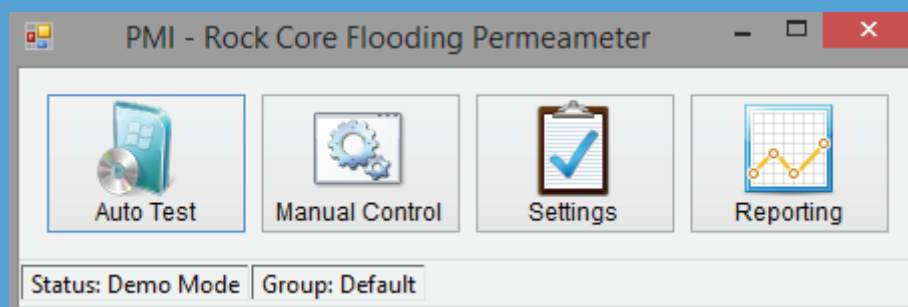


# CORE FLOODING PERMEAMETER

# THE INSTRUMENT

The CFS machine is equipped with a humidifying system that is able to regulate and control the humidity of various gases. The dry gas is split into two streams. One stream will remain dry while the other stream will pass through a humidifier vessel to become humid. The two streams will then pass through flow controllers and join back up in one stream. This stream will have the humidity measured so that the software can control the dry-wet ratio to achieve the desired humidity.

The sample cell is designed to hold rock cores with 1" and 1.5" diameters and 1" to 6" lengths. The whole instrument is designed to be corrosion resistant, withstand pressures up to 10000PSI, and temperatures up to 150° C.





PMI

# SALES & SERVICE



*Our sales team is dedicated to helping our customers find the machine that is right for their situation. We also offer custom machines for customers with unique needs. We are committed to customer support, including continued technical support for our products, short response times and customer specific solutions. To find out what we can do for you, contact us today.*

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