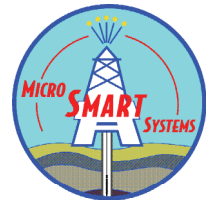


PWP-300 SYSTEM



Pressure/Gamma While Perforating System

The Pressure/Gamma While Perforating System (PWP) is utilized when your perforating application requires real-time data acquisition of downhole pressure, temperature, CCL and gamma information. There are built in safety features to ensure safe operation of the PWP gauge. The system is composed of:

- (a) Surface Logging System (Warrior)
- (b) wireline receiver
- (c) PWP-300 gamma/pressure gauge

The PWP system is built tough yet it is flexible enough to operate on a wide variety of mono-conductor electric lines; including cobalt. The unique running gear design protects the electronics from severe shock during perforating.

The PWP system is safe, tough, dependable, simple, and innovative.

The simple, menu driven, PWP data acquisition software allows real-time read-out of the pressure and temperature with an additional PC while gamma and CCL are fed directly to the existing e-line configuration, before and after perforating. This allows you to monitor the changes in pressure and temperature if the parameters are acceptable to perform the perforating job.

The pressure data, using our hybrid quartz sensor, can be used for the evaluation of the reservoir and perforating job. The data is stored on the computer hard disk in ASCII format.

A printout or plot can be generated from the pressure data.

Micro-Smart Systems is the *SMART* choice for cutting-edge technology and superior customer support. We can save you time, money, and help you keep your customers satisfied.

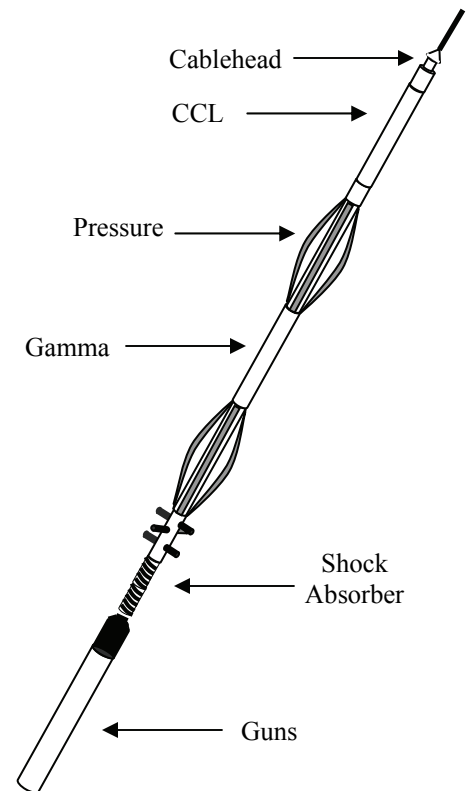
Advantages:

- Monitors Gamma Real-Time for shooting-on-depth accuracy
- Monitors bottom hole pressure while perforating.

SMART Features:

Technological features of the PWP System are:

- Gamma Detection: scintillation
- Gamma and pressure acquired simultaneously
- Built in SAFETY mechanisms
- Downhole gauge operates on positive polarity voltage, passes negative polarity voltage thru to the perforating guns
- Operator controls perforating with shooting panel in wireline truck
- Use with single-conductor armored cable
- Lower shoot-thru connection: 1-3/16" O.D. G-O pin (1-3/16 - 12 thread)



"GET YOUR PRESSURE WHILE YOU PERFORATE"

SPECIFICATIONS:

Gamma Detection: scintillation crystal	Diameter: 1.5" (38.1mm) maximum
Gamma Sampling: per logging system	Weight: 34 lbs. (15.4 Kg)
Pressure Sampling: .9375 seconds	Length: 91.4" (2.32m) plus running gear
	Accuracy: Pressure \pm .05% Full Scale Temp. \pm 3°F
Operating Temp.: 32°F to 302°F (0°C to 150°C)	Pressure Ranges: 10,000 psi (68,000 kPa) 15,000 psi (102,000 kPa)
Resolution: Pressure .0002% Full Scale (.02 psi for 10K psi) Temperature: .04°F	
Wireline Receiver: 120/220/240 VAC, 50/60 Hz	
Cable: maximum of 275 ohms loop resistance and 1.5 mfd. capacitance	