



MTE - SHEAR HISTORY "CAPILLARY" TEST APPARATUS

MODEL No. ST-005

DESCRIPTION

This unit is designed to be used in conjunction with the Fann 50C rotational viscometer.

The Shear History Capillary Test Apparatus is used to simulate the shear induced on a fracturing fluid as it is pumped through the surface tubulars, wellhead, production tubing or casing, and/or perforations prior to entering a rock formation. Once the fracturing fluid is transmitted through the simulator, a small sample (50 cc) is auto-loaded into a high temperature, high pressure, rotational viscometer for accurate measurement of the rheological behavior of the fluid.

Some of the features of the Shear History "Capillary" Test Apparatus are as follows:

- precision metering and liquid additive pumps
- stainless steel tubing and ball valves (3600 psi)
- 3 X 1/8" capillary tubes, each 100 feet in length
- differential pressure transducers with digital display (3) mounted to measure pressure drop across each capillary coil
- panel controlled, completely portable construction
- multi-pen recorder for data plotting and assimilation
- picture attached

Unit comes complete with standard spare parts and comprehensive operating and maintenance instructions.

Dimensions of the apparatus are 72" L X 48" H X 24" D. Shipping weight is approximately 500 lb.



CERTIFICATION

Messina warrants the liquid additive pump, precision metering pump LC 5000, and pump controls for 2 years service under normal operating conditions. Due to the complexity and high cost of these units, it is not advised that the buyer should attempt to make repairs, as this may cause permanent damage or create repairs which are very costly. The pumping units should be returned to Messina, Dallas, Texas. If a malfunction occurs, parts and service will be provided at no cost to the buyer for a period of 2 years. This extended offer does not apply to any malfunction resulting from abuse or improper operation of the equipment. If a malfunction occurs due to the improper operation of this equipment or operator error, Messina will repair the unit. However, a service charge will be added for the buyer's account depending on the degree of damage resulting from misuse.

Shear history is "state-of-the-art" technology practiced by only a few major research and development centers in the world. The concept of shear history and the application of shear history to rheology of fracturing fluids is presently under review by the American Petroleum Institute for consideration as a standard. Shear history is licensed technology.

