



# MTE - FOAM RHEOMETER / DYNAMIC FLUID LOSS TESTER

MODEL No. ST-003

The MTE Foam Rheometer/Dynamic Fluid Loss Tester is designed to measure the rheological properties and dynamic fluid loss characteristics of a foamed/liquid at a desired Gas Volume Ratio (GVR), flow rate, temperature, and pressure.

Fluid is transmitted using a precision Moyno pump. The fluid is heated by convection in a hot water/oil bath (+150°C). Gas is discharged out of a pressurized cylinder through a mass flow meter and also heated.

Foam is generated when the fluid and gas are intermixed under high shear in the customized, foam generator. Foam quality is observed at the view cell (also suitable for camera mounting for photographs of foam quality). The downstream pressure is monitored on a Heiss test gauge during this process.

The foam is transmitted through a series of heated 1/4" I.D. capillary tubes to induce shear history. The system consists of stainless steel tubes (2) which are 50 feet long (each). The differential pressure is electronically measured and digitally recorded at end and mid-point intervals. The foam is either transmitted to the second view cell and dynamic fluid loss tester (mounted in sequence) or to a series of pipe viscometers.

A series of 3 pipe viscometers (1/4", 1/2", and 3/4" I.D.) stainless steel, are submerged in a heating chamber. Pressure drop is measured over a six foot interval and at mid-point. The pressure drop and flow rate relationships are used to calculate the flow parameters" N' (Flow Behavior Index), K' (Fluid Consistency Index), and apparent viscosity.

The dynamic fluid loss cell is designed to test a core sample 1" diameter x 2" long. Maximum test temperature is 350°F at 1,500 psi. The DFL cell permits measurements of the fluid loss (effluent) through a core per unit time. Fluid loss is directly proportional to the GVR of the filtrate and liquid and gas can be separated downstream.

A back pressure of up to 1,000 psi can be held on the system by the back pressure regulator, thus, tests can be conducted on reactive foaming fluids.



Pressure and flow rate data are recorded on a multi-channel data logger.

The unit is shipped in component parts. Some assembly is required at location. The apparatus occupies approximately 175 square feet of lab floor space. Compressed air or nitrogen, water, and electricity (230V, 50 Hz) (for export) are the utilities required for operation. The unit is export crated. The shipping weight is approximately 3,000 lbs. Each unit is individually manufactured to exact specifications. Allow 8-10 months delivery to FOB port.

Unit comes complete with installation, operational, and maintenance instructions. and a supply of spare parts for normal operation. Additional spare parts are available through Messina Incorporated.

