OPERATING MANUAL

Digital Absolute Pressure Manometers
MA-170, MA-170F, MA-170C & MA-170CF

INTRODUCTION:

The MA-170 Digital Absolute Pressure Manometer meets the requirements of ASTM D2041/AASHTO T 209 to measure specific gravity and density of asphalt mixtures, often called the Rice Test. The gauge is also useful for other applications to measure and display air pressure (vaccum) in a range from 0 to 1,000mm of Mercury (Hg), with resolution to 0.1mmHg.

MA-170 Manometers are factory-calibrated prior to shipping. MA-170C versions undergo a multi-point calibration at 25, 30 and 35mm Hg on NIST traceable equipment and are supplied with a certificate of NIST Calibration. NIST Recalibration for existing units is available as MAA-25 and requires sending the units in. Contact Gilson customer service for shipping instructions.

OPERATING INSTRUCTIONS:

NOTE: The Manometer is a very sensitive and accurate instrument designed for use with only dry, non-corrosive gasses. Mishandling or abuse can compromise operation and performance. Do not allow the gauge to come in contact with any liquid.

The MA-170 can be operated with a 9-volt alkaline battery (included) for approximately 80 hours of continuous use or powered by a 115V/60Hz electrical supply using the AC adapter provided. MA-170F models use a 230V/50Hz AC Adapter.

The gauge display is factory-set to shut off after approximately 18 minutes to conserve battery life. To disable the auto shut-off feature, take out the four screws on the back of the gauge and remove the cover. In the upper right section of the circuit board, there is a small three-pin header with a jumper on two of the three pins, and the markings MAN and AUTO on the circuit board. Reposition the jumper on the two pins nearest the MAN designation. Do not tamper with any other components

MA-170

on the circuit board, as this will void the calibration. Reinstall the cover and screws.

When powered on, the gauge will display erratic readings for a brief time then settle in to display the ambient atmospheric pressure. Allow about 15 minutes for the gauge to stabilize after powering on or after a large step change in pressure. Atmospheric pressure at sea level is approximately 760mmHg and decreases as elevation increases. An absolute vacuum is 0mmHg and theoretically impossible to attain.

CONTINUED ON REVERSE Rev: 03/23/2018

PHONE: 800-444-1508
740-548-7298
P.O. Box 200, Lewis Center, Ohio 43035-0200
E-mail: customerservice@gilsonco.com **Website:** www.globalgilson.com
FAX: 800-255-5314
740-548-5314

When using the Absolute Pressure Manometer for the Rice Test application, follow the procedure in the test method and observe the following points:

- Mount the manometer gauge on a vertical surface, such as a wall, adjacent to but not in contact with the pycnometer container. Mounting screws can be inserted through the two mounting holes at the top of the gauge.
- The gauge must be positioned from 12 to 16in (305 to 406mm) above where the top surface of the pycnometer will be when in use.
- Use clear vacuum tubing of 1/4in (6.4mm) ID with at least 3/16in (4.8mm) wall thickness to connect between the gauge and pycnometer. This allows visual detection of water moving toward the gauge and prevents collapse of the tubing under vacuum.
- Install a pressure release valve in the vacuum tubing, near the inlet to the gauge.
- The brass gauge inlet assembly is fitted with a threaded needle valve to allow fine adjustments of vacuum/pressure levels in use.

NOTE: At completion of the test, release the vacuum slowly using the pressure release valve. Rapid release of vacuum could force water up the tubing and into the gauge.

Available Models:

- MA-170 with 115V/60Hz AC Adapter
- MA-170F with 230V/50Hz AC Adapter
- MA-170C with 115V/60Hz AC Adapter and Multi-Point NIST Calibration
- MA-170CF with 230V/50Hz AC Adapter and Calibration
- MAA-25 Multi-Point NIST Recalibration of Digital Absolute Pressure Manometer