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## DIGITAL ABSOLUTE MANOMETER



# CONTENTS

## Chapter 1

- 1.1 Set up
- 1.2 Procedures/Operating The Gauge
- 1.3 Automatic Power Shut Off
- 1.4 Power Requirements



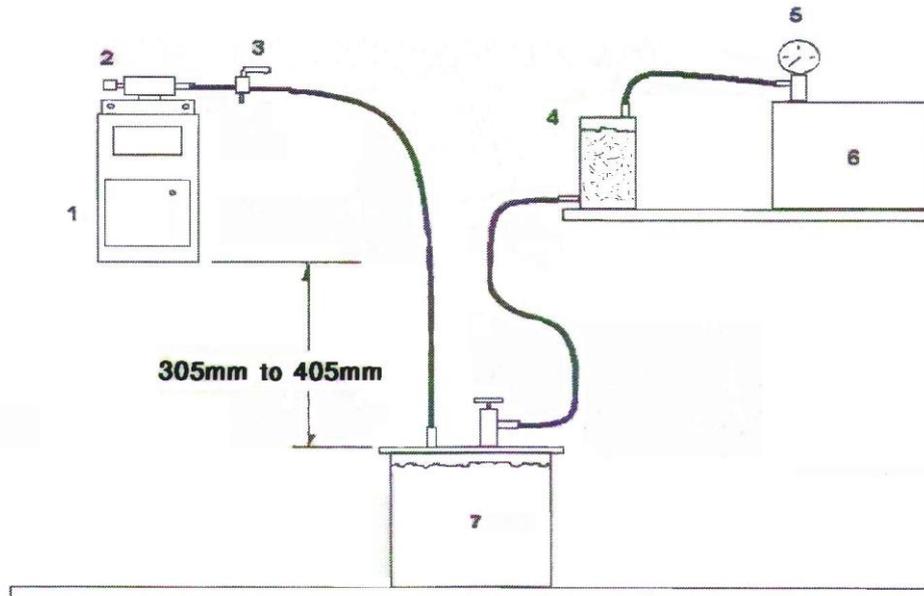
## CHAPTER 1

### 1.1 SET UP

Your new digital absolute pressure gauge is a very sensitive and accurate instrument. Mishandling or abuse can compromise performance and lead to costly repairs. The gauge is designed for use with DRY, NON-CORROSIVE gasses only. Do not subject the gauge to contact with liquids in any form, especially water. If the gauge is to be used where liquids are present, such as specific gravity tests of bituminous paving mixtures (ASTM D2041 or AASHTO T-209-94) the following points must be observed. Refer also to the drawing below.

1. Mount the gauge on a VERTICAL surface such as the wall near the pycnometer using the mounting holes provided at the top corners of the gauge.
2. The gauge should be at least 305mm to 406mm above the top of the pycnometer container, regardless of whether the container is placed on a counter or mounted in a mechanical agitation device.
3. Install a pressure release valve near the inlet to the gauge as shown below.
4. If possible, use CLEAR vacuum hose between the gauge and the pycnometer. This will allow the observation of any water migrating toward the gauge. The hose should be 6mm inside diameter with at least 4.75mm wall thickness to prevent collapsing under vacuum.
5. At the completion of the test **RELEASE THE VACUUM SLOWLY**. Use the release valve near the gauge. Rapid release of vacuum could force water up the hose and into the gauge.

#### SETUP FOR ASTM D 2041 / AASHTO T-209-94 OR SIMILAR TESTS



1. DIGITAL ABSOLUTE PRESSURE GAUGE (MANOMETER)
2. VACUUM LEVEL ADJUSTMENT VALVE
3. PRESSURE RELEASE VALVE
4. DEWATERING FILTER (DESSICANT CONTAINER)
5. VACUUM GAUGE, 0-30" Hg
6. VACUUM PUMP
7. VACUUM PYCNOMETER

## **1.2 PROCEDURES/OPERATING THE GAUGE**

The digital absolute pressure gauge displays pressure in units of mmHg (millimetre of Mercury) where atmospheric pressure is approximately 760 mmHg and highest vacuum obtainable would be 0 mmHg. The gauge is fitted with a needle valve for fine adjustment of the pressure level and a power switch. The display resolution is 0.1 mmHg to show slight changes in pressure and allow adjustment.

After turning on the gauge the display will show erratic numbers for a few seconds and then settle to the applied pressure. Allow approximately 15 readings for the gauge to stabilize after power-on or a large step change in pressure.

## **1.3 AUTOMATIC POWER SHUT OFF**

The digital absolute vacuum gauge can be operated on battery power or with the AC adaptor provided. The gauge is set at the factory to shut off after approximately 18 minutes to conserve battery life. If desired the automatic shut off can be disabled. To do this, remove the four screws on the back of the gauge. In the upper right corner there is a small pin header with a shorting block on two of the three pins and the marking MAN and AUTO on the circuit board. Position the jumper on the two pins nearest the MAN designation (left side, board revision E). Do not tamper with any of the components on the circuit board as the calibration will be void. Reinstall the cover and screws.

## **1.4 POWER REQUIREMENTS**

Battery: 9 Volt Alkaline, provides approximately 80 hours continuous operation.

AC Adaptor: 5.5 Vdc minimum to 9.5 Vdc Maximum  
2.1mm coaxial plug, center pin positive  
OR  
3.5mm phone plug. Tip is positive