

# 8733-07/8733-17

## MERCURY

### Filling Instructions

#### **8733-07 CLOSED END MANOMETER, 0-160mm Absolute, Single Side Arm**

##### **TO FILL:**

Introduce sufficient mercury into the body to bring the level up to the 5 mark. Insert the stopper so opening is lined up with the side arm. Lay the gage on its side. Connect the side arm to a source of vacuum and evacuate to less than 1 mm Hg (1 Torr).

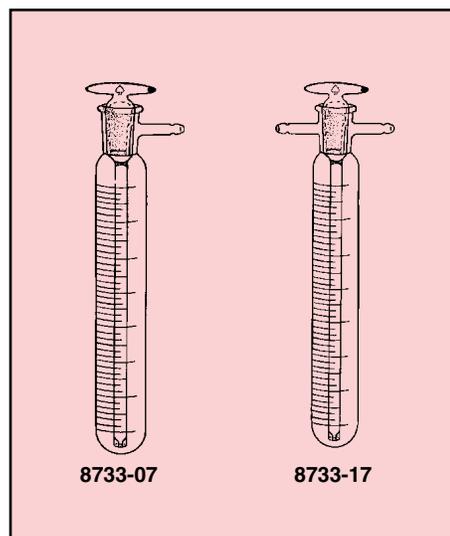
Restore the gage to a vertical position and admit air to the gage, forcing the mercury up the center leg to the closed end. The large meniscus should now be very close to the zero mark. This can be further adjusted by removing the center leg, with care, and adding or subtracting mercury.

Other low pressure liquids such as di-butyl-phthalate can be substituted for mercury to increase sensitivity. The pressure will then be indicated in terms of mm of the liquid used and can be converted to mm Hg by dividing the density of Hg at the temperature of measurement.

To prevent the stopper from disengaging, the gage may be partially evacuated and the stopper turned to a closed position. This will also reduce the rate of oxidation on the surface of the mercury or prevent absorption of air in alternate liquids which will require outgassing.

##### **TO OPERATE:**

Connect the side arm to the system with the gage in a vertical position. When the system's pressure equals 160mm of gage liquid, with the large meniscus at zero, the manometer will begin to indicate. As the pressure is reduced, the height of liquid in the center leg will lower and that in the surrounding body will rise in volumetric proportion; the difference in height is the pressure measurement.



It will be observed at "full" vacuum that the level of mercury in the center leg is below the surface of the surrounding mercury. This is due to the difference in surface tension effect between the two diameters. Since this is tension against air, the height of the meniscus changes with pressure. For a 5mm I.D. tube, this will be approximately as follows:

Height of Meniscus (mm)	0.4	0.6	0.8	1.0	1.4
Correction (mm)	0.47	0.65	0.86	1.2	1.5

The larger diameter meniscus can be considered essentially flat.

#### **8733-17 CLOSED END MANOMETER, 0-160mm Absolute, Two Side Arms.**

This is a modification of the above, with two side arms used for balancing reduced pressures in two sides of system. The stopper is rotated alternately.



P.O. Box 688 • Vineland, NJ 08362-0688 • 856-692-3333 • Fax: 856-692-8919

TOLL-FREE: 1-800-223-4524 • FAX: 1-800-543-6752

[www.aceglass.com](http://www.aceglass.com) email: [sales@aceglass.com](mailto:sales@aceglass.com)