

# INSTRUCTIONS Series 2500

## DIFFERENTIAL PRESSURE IN-LINE FLOW INSTRUMENTS

Your new Orange Research Differential Pressure in-line flow Instrument is a rugged instrument featuring a simple design to provide dependable and efficient service. Because it is an instrument it should be handled with care. Read all instructions carefully before attempting to install the instrument.

**CAUTION:** Do not exceed nameplate maximum operating pressure. Use only fluids compatible with wetted parts.

### HOW IT WORKS

Orange DP flow meters contain a flow nozzle as a primary flow element that creates a slight pressure drop as fluid flows through the unit. High pressure, picked up before the flow nozzle, acts against one side of a spring loaded diaphragm. Low pressure, after the nozzle, pushes against the opposite side of the diaphragm. A magnet attached to this diaphragm induces a rotation in a pointer magnet, which allows for flow rate to be read on a 3.5 inch diameter dial.

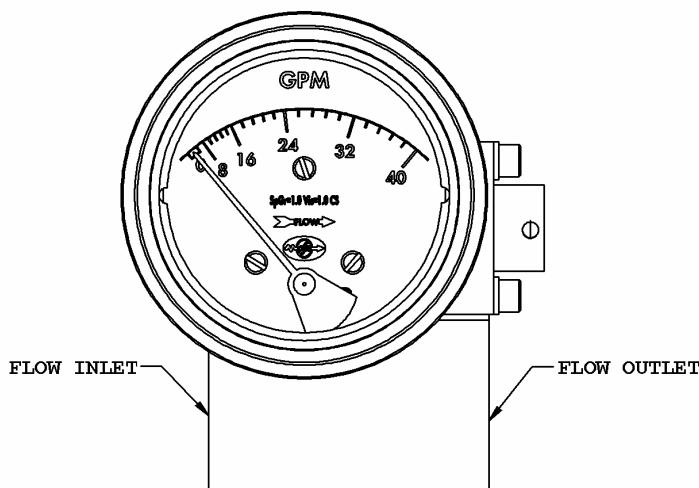
The fluid flow rate is proportional to the square root of the differential pressure created by the flow nozzle. The dial reading reflects this square root flow relationship.

The magnetic coupling between the diaphragm and pointer is a long life design, with no mechanical linkages to fail.

**Note:** This instrument will provide  $\pm 2\%$  accuracy full scale.

### INSTALLATION

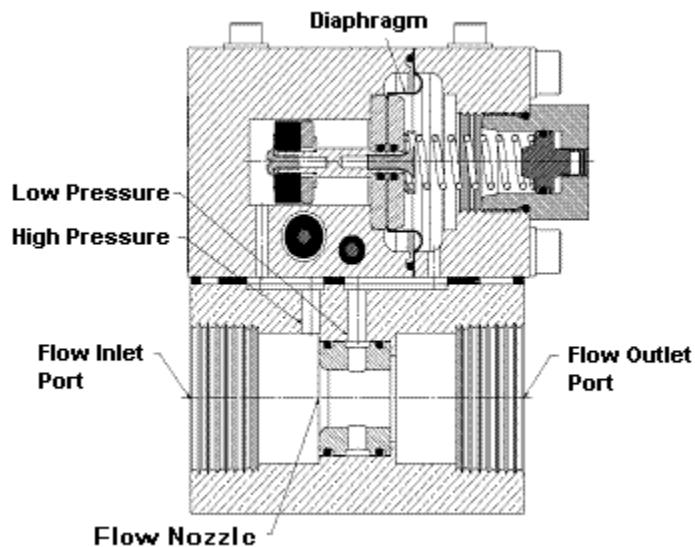
Position instrument so dial is facing installer. Flow will go from left (Inlet) to right (Outlet) as shown by the flow arrow on the dial. It is recommended that a straight run of at least 10 pipe diameters upstream and 5 pipe diameters downstream be present to ensure steady flow. Install using standard pipe fitting procedures. The flats on the flow body may be used to aid in tightening fittings but be sure to use non-marring tools so as not to damage the flow body.



# Orange Research Inc.

140 Cascade Boulevard, Milford, Connecticut 06460  
203 877-5657 800 989-5657 Fax: 203 783-9546  
[www.orangeresearch.com](http://www.orangeresearch.com)

Due to the nozzle design a filter is not required but adding a general purpose filter upstream of the gauge will aid in reducing cleaning maintenance and erosion of the nozzle.



**IMPORTANT:** Because of the magnetic movement, this instrument should never be mounted in direct contact with a steel surface. Otherwise a calibration shift will occur. Mount the instrument so that the pressure body is at least 1" away from ferrous materials.

### MAINTENANCE

Even with the rugged design of this gauge occasional maintenance may be required. If gauge starts to show signs of erratic pointer movement or is not responding it may need to be cleaned. To clean, flush system with clean water, check gauge. If system flushing is not possible or did not solve problem remove gauge from piping system. Check High and Low pressure transmission holes for clogging. If clogged, clean by flushing with clean water or low pressure compressed air. Re-install and check gauge.

**If gauge is still not operational please consult factory.**

DO NOT DISASSEMBLE ANY PART OF GAUGE AS THIS WILL COMPROMISE THE GAUGE AND WARRANTY.